

(e) Other mitigating factors deemed relevant by the board.

(5) For purposes of this section, each act which violates one or more provisions of chapter 42.52 RCW, or rules adopted under it, may constitute a separate violation.

[Statutory Authority: RCW 42.52.360 (2)(e)-(g). 97-07-058, § 292-120-030, filed 3/18/97, effective 4/18/97.]

WAC 292-120-040 Payment of civil penalty.

Payment of any monetary penalty assessed by the board must be made within 45 days of the date of the board's order, unless an extension is granted by the board.

[Statutory Authority: RCW 42.52.360 (2)(e)-(g). 97-07-058, § 292-120-040, filed 3/18/97, effective 4/18/97.]

Title 296 WAC

LABOR AND INDUSTRIES, DEPARTMENT OF

Chapters

- 296-10 Practice and procedure—Industrial welfare committee.
- 296-11 Practice and procedure—Board of pilotage commissioners.
- 296-17 Manual of rules, classifications, rates, and rating system for Washington workers' compensation insurance.
- 296-20 Medical aid rules.
- 296-23 Radiology, radiation therapy, nuclear medicine, pathology, hospital, chiropractic, physical therapy, drugless therapeutics and nursing—Drugless therapeutics, etc.
- 296-23A Hospitals.
- 296-24 General safety and health standards.
- 296-27 Recordkeeping and reporting.
- 296-46 Safety standards—Installing electric wires and equipment—Administrative rules.
- 296-49 Governor's mobile home and recreational vehicle advisory board.
- 296-49A Director's factory assembled structures advisory board.
- 296-62 Occupational health standards—Safety standards for carcinogens.
- 296-63 Right to know fee assessment.
- 296-65 Asbestos removal and encapsulation.
- 296-86 Regulations and fees for freight and passenger elevators, manlifts, dumbwaiters, escalators, moving walks, automobile parking elevators, personnel elevators, and other lifting devices.
- 296-93 Material lifts.
- 296-93A Material lifts.
- 296-99 Safety standards for grain handling facilities.
- 296-104 Board of boiler rules—Substantive.

- 296-116 Pilotage rules.
- 296-126 Standards of labor for the protection of the safety, health and welfare of employees for all occupations subject to chapter 49.12 RCW.
- 296-128 Minimum wages.
- 296-129 Industrial welfare committee appeal procedures.
- 296-150C Commercial coaches.
- 296-150F Factory-built housing and commercial structures.
- 296-150M Manufactured homes.
- 296-150P Recreational park trailers.
- 296-150R Recreational vehicles.
- 296-155 Safety standards for construction work.
- 296-200 Contractor certificate of registration renewals—Security—Insurance.
- 296-200A Contractor certificate of registration renewals—Security—Insurance.
- 296-304 Safety standards for ship repairing, shipbuilding and shipbreaking.
- 296-306 Safety standards for agriculture.
- 296-306A Safety standards for agriculture.
- 296-307 Safety standards for agriculture.
- 296-400 Certification of competency for journeyman plumbers.
- 296-400A Certification of competency for journeyman plumbers.
- 296-401 Certification of competency for journeyman electricians.

Chapter 296-10 WAC

PRACTICE AND PROCEDURE—INDUSTRIAL WELFARE COMMITTEE

WAC

296-10-010 through 296-10-590 Repealed.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

- 296-10-010 Appearance and practice before agency—Who may appear. [Rule .08.010, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-020 Appearance and practice before agency—Appearance in certain proceedings may be limited to attorneys. [Rule .08.020, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-030 Appearance and practice before agency—Solicitation of business unethical. [Rule .08.030, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-040 Appearance and practice before agency—Standards of ethical conduct. [Rule .08.040, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-050 Appearance and practice before agency—Appearance of former employee of board or former member of attorney general's staff. [Rule .08.050, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-060 Appearance and practice before agency—Former employee as expert witness. [Rule .08.060, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.

- 296-10-070 Computation of time. [Rule .08.070, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-080 Notice and opportunity for hearing in contested cases. [Rule .08.080, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-090 Notice and opportunity for hearing in contested cases—By whom served. [Rule .08.090, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-100 Notice and opportunity for hearing in contested cases—Upon whom served. [Rule .08.100, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-110 Notice and opportunity for hearing in contested cases—Service upon parties. [Rule .08.110, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-120 Notice and opportunity for hearing in contested cases—Method of service. [Rule .08.120, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-130 Notice and opportunity for hearing in contested cases—When service complete. [Rule .08.130, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-140 Notice and opportunity for hearing in contested cases—Filing with agency. [Rule .08.140, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-150 Subpoenas—Where provided by law—Form. [Rule .08.150, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-160 Subpoenas—Issuance to parties. [Rule .08.160, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-170 Subpoenas—Service. [Rule .08.170, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-180 Subpoenas—Fees. [Rule .08.180, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-190 Subpoenas—Proof of service. [Rule .08.190, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-200 Subpoenas—Quashing. [Rule .08.200, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-210 Subpoenas—Enforcement. [Rule .08.210, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-220 Subpoenas—Geographical scope. [Rule .08.220, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-370 Official notice—Matters of law. [Rule .08.370, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-380 Official notice—Material facts. [Rule .08.380, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-390 Presumptions. [Rule .08.390, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-400 Stipulations and admissions of record. [Rule .08.400, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-410 Form and content of decisions in contested cases. [Rule .08.410, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-420 Definition of issues before hearing. [Rule .08.420, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-430 Prehearing conference rule—Authorized. [Rule .08.430, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-440 Prehearing conference rule—Record of conference action. [Rule .08.440, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-450 Submission of documentary evidence in advance. [Rule .08.450, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-460 Excerpts from documentary evidence. [Rule .08.460, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-470 Expert or opinion testimony and testimony based on economic or statistical data—Number and qualifications of witnesses. [Rule .08.470, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-480 Expert or opinion testimony and testimony based on economic or statistical data—Written sworn statements. [Rule .08.480, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-490 Expert or opinion testimony and testimony based on economic or statistical data—Supporting data. [Rule .08.490, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-500 Expert or opinion testimony and testimony based on economic or statistical data—Effect of noncompliance with WAC 296-10-470 or 296-10-480. [Rule .08.500, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-510 Continuances. [Rule .08.510, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-520 Rules of evidence—Admissibility criteria. [Rule .08.520, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-530 Rules of evidence—Tentative admission—Exclusion—Discontinuance—Objections. [Rule .08.530, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-540 Petitions for rule making, amendment or repeal—Who may petition. [Rule .08.540, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-550 Petitions for rule making, amendment or repeal—Requisites. [Rule .08.550, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-560 Petitions for rule making, amendment or repeal—Agency must consider. [Rule .08.560, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-570 Petitions for rule making, amendment or repeal—Notice of disposition. [Rule .08.570, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-580 Declaratory rulings. [Rule .08.580, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.
- 296-10-590 Forms. [Rule .08.590, effective 3/18/60, filed 3/23/60.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.

WAC 296-10-010 through 296-20-590 Repealed.
See Disposition Table at beginning of this chapter.

Chapter 296-11 WAC
PRACTICE AND PROCEDURE—BOARD OF
PILOTAGE COMMISSIONERS

WAC

296-11-001 through 296-11-590 Decodified.

DISPOSITION OF SECTIONS FORMERLY
CODIFIED IN THIS CHAPTER

296-11-001	General rule and information. [Statutory Authority: RCW 88.16.035, 80-03-081 (Order 79-6, Resolution No. 79-6), § 296-11-001, filed 3/4/80. Statutory Authority: RCW 88.16.035 and 88.16.155, 78-09-057 (Order 78-2, Resolution No. 78-2), § 296-11-001, filed 8/23/78; Order 2-68, § 296-11-001, filed 11/1/68.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-001.	296-11-160	Subpoenas—Issuance to parties. [Rule .08.160, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-160.
296-11-003	Index to documents. [Statutory Authority: RCW 88.16.035 and 88.16.155, 78-09-057 (Order 78-2, Resolution No. 78-2), § 296-11-003, filed 8/23/78.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-003.	296-11-170	Subpoenas—Service. [Rule .08.170, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-170.
296-11-010	Appearance and practice before agency—Who may appear. [Rule .08.010, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-010.	296-11-180	Subpoenas—Fees. [Rule .08.180, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-180.
296-11-020	Appearance and practice before agency—Appearance in certain proceedings may be limited to attorneys. [Rule .08.020, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-020.	296-11-190	Subpoenas—Proof of service. [Rule .08.190, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-190.
296-11-030	Appearance and practice before agency—Solicitation of business unethical. [Rule .08.030, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-030.	296-11-200	Subpoenas—Quashing. [Rule .08.200, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-200.
296-11-040	Appearance and practice before agency—Standards of ethical conduct. [Rule .08.040, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-040.	296-11-210	Subpoenas—Enforcement. [Rule .08.210, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-210.
296-11-050	Appearance and practice before agency—Appearance by former employee of board or member of attorney general's staff. [Rule .08.050, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-050.	296-11-220	Subpoenas—Geographical scope. [Rule .08.220, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-220.
296-11-060	Appearance and practice before agency—Former employee as expert witness. [Rule .08.060, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-060.	296-11-230	Depositions and interrogatories in contested cases—Right to take. [Rule .08.230, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-230.
296-11-070	Computation of time. [Rule .08.070, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-070.	296-11-240	Depositions and interrogatories in contested cases—Scope. [Rule .08.240, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-240.
296-11-080	Notice and opportunity for hearing in contested cases. [Order 2-68, § 296-11-080, filed 11/1/68; Rule .08.080, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-080.	296-11-250	Depositions and interrogatories in contested cases—Officer before whom taken. [Rule .08.250, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-250.
296-11-090	Service of process—By whom served. [Rule .08.090, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-090.	296-11-260	Depositions and interrogatories in contested cases—Authorization. [Rule .08.260, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-260.
296-11-100	Service of process—Upon whom served. [Rule .08.100, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-100.	296-11-270	Depositions and interrogatories in contested cases—Protection of parties and deponents. [Rule .08.270, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-270.
296-11-110	Service of process—Service upon parties. [Rule .08.110, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-110.	296-11-280	Depositions and interrogatories in contested cases—Oral examination and cross-examination. [Rule .08.280, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-280.
296-11-120	Service of process—Method of service. [Rule .08.120, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-120.	296-11-290	Depositions and interrogatories in contested cases—Recordation. [Rule .08.290, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-290.
296-11-130	Service of process—When service complete. [Rule .08.130, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-130.	296-11-300	Depositions and interrogatories in contested cases—Signing attestation and return. [Rule .08.300, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-300.
296-11-140	Service of process—Filing with agency. [Rule .08.140, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-140.	296-11-310	Depositions and interrogatories in contested cases—Use and effect. [Rule .08.310, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-310.
296-11-150	Subpoenas—Where provided by law—Form. [Rule .08.150, effective 3/1/60, filed 3/23/60.] Decodified by	296-11-320	Depositions and interrogatories in contested cases—Fees of officers and deponents. [Rule .08.320, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-320.
		296-11-330	Depositions upon interrogatories—Submission of interrogatories. [Rule .08.330, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-330.
		296-11-340	Depositions upon interrogatories—Interrogation. [Rule .08.340, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-340.
		296-11-350	Depositions upon interrogatories—Attestation and return. [Rule .08.350, effective 3/1/60, filed 3/23/60.] Decodified

- by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-350.
- 296-11-360 Depositions upon interrogatories—Provisions of deposition rule. [Rule .08.360, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-360.
- 296-11-370 Official notice—Matters of law. [Rule .08.370, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-370.
- 296-11-380 Official notice—Material facts. [Rule .08.380, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-380.
- 296-11-390 Presumptions. [Rule .08.390, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-390.
- 296-11-400 Stipulations and admissions of record. [Rule .08.400, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-400.
- 296-11-410 Form and content of decisions in contested cases. [Rule .08.410, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-410.
- 296-11-420 Definition of issues before hearing. [Rule .08.420, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-420.
- 296-11-430 Prehearing conference rule—Authorized. [Rule .08.430, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-430.
- 296-11-440 Prehearing conference rule—Record of conference action. [Rule .08.440, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-440.
- 296-11-450 Submission of documentary evidence in advance. [Rule .08.450, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-450.
- 296-11-460 Excerpts from documentary evidence. [Rule .08.460, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-460.
- 296-11-470 Expert or opinion testimony and testimony based on economic or statistical data—Number and qualifications of witnesses. [Rule .08.470, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-470.
- 296-11-480 Expert or opinion testimony and testimony based on economic or statistical data—Written sworn statements. [Rule .08.480, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-480.
- 296-11-490 Expert or opinion testimony and testimony based on economic or statistical data—Supporting data. [Rule .08.490, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-490.
- 296-11-500 Expert or opinion testimony and testimony based on economic or statistical data—Effect of noncompliance with WAC 296-11-470 or 296-11-480. [Rule .08.500, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-500.
- 296-11-510 Continuances. [Rule .08.510, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-510.
- 296-11-520 Rules of evidence—Admissibility criteria. [Rule .08.520, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-520.
- 296-11-530 Rules of evidence—Tentative admission—Exclusion—Discontinuance—Objections. [Rule .08.530, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-530.
- 296-11-540 Petitions for rule making, amendment or repeal—Who may petition. [Rule .08.540, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-540.
- 296-11-550 Petitions for rule making, amendment or repeal—Requisites. [Rule .08.550, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-550.
- 296-11-560 Petitions for rule making, amendment or repeal—Agency must consider. [Rule .08.560, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-560.
- 296-11-570 Petitions for rule making, amendment or repeal—Notice of disposition. [Rule .08.570, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-570.
- 296-11-580 Declaratory rulings. [Rule .08.580, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-580.
- 296-11-590 Forms. [Rule .08.590, effective 3/1/60, filed 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-11-590.

WAC 296-11-001 through 296-11-590 Decodified.
See Disposition Table at beginning of this chapter.

Chapter 296-17 WAC

MANUAL OF RULES, CLASSIFICATIONS, RATES, AND RATING SYSTEM FOR WASHINGTON WORKERS' COMPENSATION INSURANCE

WAC

- 296-17-45003 Building, construction and erection contractor reporting rules.
- 296-17-45006 Special drywall industry rule.
- 296-17-52107 Repealed.
- 296-17-52112 Repealed.
- 296-17-52114 Repealed.
- 296-17-52115 Repealed.
- 296-17-52116 Classification 0524.
- 296-17-52117 Repealed.
- 296-17-52118 Classification 0526.
- 296-17-52119 Classification 0527.
- 296-17-52120 Classification 0528.
- 296-17-52121 Classification 0529.
- 296-17-52122 Classification 0530.
- 296-17-52123 Classification 0531.
- 296-17-52124 Classification 0532.
- 296-17-52125 Classification 0533.
- 296-17-52126 Classification 0534.
- 296-17-855 Experience modification.
- 296-17-875 Table I.
- 296-17-880 Table II.
- 296-17-885 Table III.
- 296-17-890 Table IV.
- 296-17-895 Industrial insurance accident fund base rates and medical aid base rates by class of industry.
- 296-17-89502 Industrial insurance accident fund, medical aid and supplemental pension rates by class of industry for nonhourly rated classifications.
- 296-17-919 Table I.
- 296-17-91901 Table II.
- 296-17-91902 Table III.
- 296-17-91903 Table IV.
- 296-17-91904 Table V.
- 296-17-91905 Table VI.
- 296-17-920 Assessment for supplemental pension fund.

DISPOSITION OF SECTIONS FORMERLY
CODIFIED IN THIS CHAPTER

296-17-52107	Classification 0515. [Statutory Authority: RCW 51.16.035, 96-12-039, § 296-17-52107, filed 5/31/96, effective 7/1/96; 88-12-050 (Order 88-06), § 296-17-52107, filed 5/31/88, effective 7/1/88.] Repealed by 97-06-007, filed 2/24/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073.
296-17-52112	Classification 0520. [Statutory Authority: RCW 51.16.035, 96-12-039, § 296-17-52112, filed 5/31/96, effective 7/1/96.] Repealed by 97-06-007, filed 2/24/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073.
296-17-52114	Classification 0522. [Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073, 97-06-007, § 296-17-52114, filed 2/24/97, effective 4/1/97.] Repealed by 97-12-011, filed 5/27/97, effective 7/1/97. Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073.
296-17-52115	Classification 0523. [Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073, 97-06-007, § 296-17-52115, filed 2/24/97, effective 4/1/97.] Repealed by 97-12-011, filed 5/27/97, effective 7/1/97. Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073.
296-17-52117	Classification 0525. [Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073, 97-06-007, § 296-17-52117, filed 2/24/97, effective 4/1/97.] Repealed by 97-12-011, filed 5/27/97, effective 7/1/97. Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073.

WAC 296-17-45003 Building, construction and erection contractor reporting rules. (1) **Who does this rule apply to?** If you are a building, construction or erection contractor and we have assigned one or more of the following classifications to your business this rule applies to you: 0101, 0102, 0103, 0104, 0105, 0107, 0108, 0201, 0202, 0210, 0212, 0214, 0217, 0219, 0301, 0302, 0303, 0306, 0307, 0403, 0502, 0504, 0506, 0507, 0508, 0509, 0510, 0511, 0512, 0513, 0514, 0516, 0517, 0518, 0519, 0521, 0522, 0523, 0524, 0525, 0526, 0527, 0528, 0529, 0530, 0531, 0532, 0533, 0534, 0601, 0602, 0603, 0607, 0608, and 0701.

(2) **How are classifications assigned to my business?** We will assign a classification or number of separate classifications which describe the business(es) you are involved in. For example, if you are a plumbing contractor we will assign a plumbing classification to your business (classification 0306). The plumbing classification covers all of the various phases of plumbing work such as rough in plumbing work, house to sewer hookup if performed by employees of the plumbing contractor and installation of the fixtures. In some cases we will assign several classifications to your business. For example, if you were building a house (single-family dwelling) and you were going to do the foundation, framing, roofing and finish carpentry we would assign your business classification 0217 for the foundation work; classification 0510 for framing the structure; classification 0507 for installing the roofing material; and classification 0513 for finish carpentry work. We will not assign separate classifications to your business for work activities which are included within a classification which we have assigned to your business. For example, if you are a concrete foundation contractor and you employ a carpenter to make and set foundation forms, you would report the carpenter's hours in the concrete foundation classification (0217) and not a carpentry classification (0510).

(3) **What happens if I have several classifications assigned to my business but I did not keep track of the time my employees spent on the different phases of construction?** If we have assigned more than one classification to your business, you must keep track of the actual time your employees spend under each classification which we have assigned to your business. If we audit your business, and we find that you did not keep accurate time records required by WAC 296-17-35201 we will assign all work hours in question to the highest rated classification applicable to the work hours in question.

(4) **Who can I call if questions on how to use the different classification which you have assigned to my business?** We would be happy to assist you with this and other questions you might have. You can call us at (360) 902-4817 Monday through Friday, between the hours of 8:00 a.m. and 5:00 p.m. Pacific time and one of our representatives will assist you.

(5) **Can I report all of my construction operations under one classification?** Yes, you can report all construction operations in one classification if we have preapproved it. To obtain this approval you must contact your policy manager. Your policy manager will ask you for a breakdown of the estimated project hours by phase of construction for the construction project. We will send you a letter confirming the classification which will apply to a project when you have requested a single classification.

(6) **If you approve a single classification for one of my projects does this preapproval apply to all of my projects?** No, the single classification approval only applies to a specific project or group of projects which are specified in our letter to you.

(7) **Can I be held liable for unpaid premiums of subcontractors which I use?** Yes, if you want to avoid being held responsible for unpaid premiums on work you subcontract out to others (RCW 51.12.070), you should only use currently licensed or registered contractors (chapter 18.27 or 19.28 RCW).

(8) **How can I be sure that a contractor is licensed or registered with you?** The best way is to ask the contractor for their license or registration number and expiration date and then call us to verify that the information is correct. It's a good idea to write this information down somewhere that you can locate easily, it may come in handy in the future. If we audit you, we will ask you for a list of the subcontractors that you have used during a specific period of time, their license or registration number and the expiration date of the license or registration. You can simplify the audit by making and keeping this list as a part of your regular business records.

(9) **What happens if you audit me and I do not have a list of the contractors described in subsection (8) of this section?** If we audit you, and you are unable to provide us with this list while we are doing the audit, we will allow you a reasonable amount of time to provide us with this list. In the event that you do not provide us this list, or we cannot verify that a contractor that you used has paid premiums on the work you subcontracted to them and they were either not licensed or registered, or we determine that their license or registration was not current when you used them, we will charge you for the premiums they should have paid.

(10) **Do I need any other information on subcontracted work?** If you purchase materials such as but not limited to roofing material, framing lumber, concrete, or sheet rock, and supply this material to a contractor on a job you are working on, you should keep a record which shows the volume of material you have supplied (square feet) to the contractor; the project name or location; the date when the material was given to the contractor or delivered to the construction site; the approximate completion date of the contracted work; the name of the contractor that performed the work for you; their contractor license or registration number; and the expiration date of their license or registration. We will ask you for this information if we audit your business.

(11) **What classification should I use to report construction site cleanup by my employees?** You should report the cleanup of construction debris in the same classification that applied to the work which generated the debris unless another classification treatment is provided for in other rules. For example, if you are a roofing contractor and you have an employee pick up roofing debris at the construction (project) site, you would report the employee involved in the site cleanup in the roofing classification (0507). If you are the general contractor at a construction site and have either classification 0510 "wood frame building construction" or classification 0518 "nonwood frame building construction" assigned to your business you would report site cleanup in the classification applicable to the type of building you are constructing. For example, if you are a general contractor and you are engaged in building a single-family wood frame dwelling, you would report construction site cleanup by your employees in classification 0510 "wood frame building construction." An example of where construction site cleanup is treated differently is drywall work. Employees of nonbuilding material dealers engaged in wallboard scrapping are reported in either classification 0529 or classification 0534 as applicable.

(12) **I am a construction site clean-up contractor, my employees only pick up construction debris, we do no construction work, what classification do I report site cleanup in?** If your employees are cleaning a construction site where a wood frame building was erected you would report their work time in classification 0510 "wood frame building construction." If your employees are cleaning a construction site where a nonwood frame building was erected you would report their work time in classification 0518 "nonwood frame building construction." If your employees are cleaning other nonbuilding construction sites you would report their work time in the same classification that applied to the construction work that generated the nonbuilding construction debris. For example, if you are doing site cleanup for a concrete contractor that was involved in pouring and finishing sidewalks and drive ways, you would report the work time of your employees involved in this construction site clean-up project in classification 0217 "concrete flatwork." The classification treatment of nonbuilding material dealers engaged in wallboard cleanup (scrapping) are to be reported in either classification 0529 or classification 0534 as applicable.

(13) **What classification should I use to report the work time of my employees when they are involved in**

the set up of scaffolding, hoists, cranes, towers or elevators at a construction site? We use the same classification treatment for this type of work as we do with construction site cleanup. For example, if you are a roofing contractor and you have an employee set up scaffolding at the construction (project) site, you would report the employee involved in the set up of scaffolding in the roofing classification (0507). If you are the general contractor at a construction site and have either classification 0510 "wood frame building construction" or classification 0518 "nonwood frame building construction" assigned to your business you would report the set up of scaffolding at the construction in the classification applicable to the type of building you are constructing. For example, if you are a general contractor and you are engaged in building a single-family wood frame dwelling, you would report scaffolding set up by your employees in classification 0510 "wood frame building construction." Helicopter services that are engaged to assist in lifting beams, air conditioning units, statues and other objects on to buildings or structures are to be reported separately in classification 6803.

(14) **Is preoccupancy cleanup of a building by my employees classified the same as debris cleanup at a construction site?** Since your understanding of what preoccupancy clean-up work is may be different from ours, we need to share with you our understanding before we can answer this question. Our understanding in this area is that preoccupancy cleanup occurs after the building is finished. The clean-up work consists of washing paint and over spray from windows, vacuuming carpets, washing floors and fixtures, and dusting woodwork, doors and cabinets. If you have employees whose duties are limited to this type of cleaning we will allow you to report their work time in classification 6602 "janitors."

(15) **If I have an employee who does some construction work, construction site cleanup and preoccupancy cleanup can I divide their work time between the janitor and a construction classification?** No, we will not permit you to divide the work time of an employee between the janitor classification and a construction classification. If you have an employee who does preoccupancy clean-up work for you, and that employee also performs other nonpreoccupancy clean-up work for you such as construction work, shop work or construction site debris clean-up work, then you must report all of their work time in the applicable construction or nonshop classification. We would be happy to assist you with this and other questions you might have. You can call us at the phone number listed in subsection (4) of this section and one of our representatives will assist you.

(16) **Can I use a shop classification to report the work time of one of my employees who works in my shop or yard?** If you have a shop or yard where you maintain and store construction equipment and machinery, and/or store materials which you use in your construction business, you may qualify for a separate shop classification. There are several conditions which must be met before we will assign a shop classification to your business. A separate rule (WAC 296-17-675) describes these conditions. If you would like to see if you qualify for a shop classification you can call us at the phone number listed in subsection (4) of this section and one of our representatives will assist you.

(17) **What classification do I use to report my construction superintendent or project manager?** We have a special classification (4900) which may apply to your business but there are several conditions which must be met before we will assign this classification to your business. A separate rule (WAC 296-17-64999) describes these conditions. If you would like to see if you qualify for a special classification you can call us at the phone number listed in subsection (4) of this section and one of our representatives will assist you.

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-45003, filed 5/27/97, effective 7/1/97; 97-06-007, § 296-17-45003, filed 2/24/97, effective 4/1/97. Statutory Authority: RCW 51.16.035. 96-12-039, § 296-17-45003, filed 5/31/96, effective 7/1/96. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 90-13-018, § 296-17-45003, filed 6/8/90, effective 7/9/90; 89-24-051 (Order 89-22), § 296-17-45003, filed 12/1/89, effective 1/1/90.]

WAC 296-17-45006 Special drywall industry rule.

(1) **Why are we changing the way you pay premiums?** Under Washington law (RCW 51.16.035), we are given the authority to establish how workers' compensation insurance rates are computed. For most industries, workers' compensation insurance rates are based on hours worked by employees. While the worker hour system works well for most industries, this method of paying premium can be unfair when a large segment of workers within an industry are not paid an hourly wage. The drywall industry is one in which many workers are paid on the basis of material installed, finished, stocked and/or scrapped (piece work), not the hours they work. As a result, employers have developed a variety of different ways of converting payroll to hours worked to comply with our hourly reporting requirements. In many instances the conversion of payroll to hours worked has resulted in the under reporting of work hours to us. Under reporting results in higher premium rates which you pay. To help remedy the problems caused by using work hours as the basis of how you pay premiums, and to provide greater fairness to employers engaged in drywall work, the premium for classifications 0522, 0523, 0524, 0525, 0526, 0527, 0528, 0529, 0530, 0531, 0532, 0533, and 0534 is based on material (square feet).

(2) **How can I qualify for a discounted rate?** For each drywall industry classification, we will establish a second classification covering the same activity. The second classification will carry a discounted rate. To qualify for a discounted classification and rate you will be required to meet all of the following conditions:

(a) Prior to the end of the quarter that you want the discounted classifications and rates to be applied to your business, you must attend two workshops that we will offer. For example, if you want the discounted classifications and rates to apply to your business for the third quarter 1997 (July 1 through September 30, 1997), you must attend the two workshops by September 30, 1997. One of the workshops covers claims and risk management practices. The other workshop will cover premium reporting and recordkeeping. The two workshops may be offered together or separately. Be sure to sign in so that you receive credit for attending the workshops.

(b) Provide us with a signed and completed voluntary release of information form that we will provide to you or

your representative at the workshops. We will use this release form to obtain material and supply/purchase sales records from the material supply dealer(s) that you use in the event of an audit. This will aid us as we verify the information you supply us on your premium and supplemental reports. If we need to verify the information that you supplied us, we will send you written notice before we contact your material supply dealer(s). We must receive this release form prior to the end of the quarter in which you want the discounted classifications and rates to become effective. For example, if you want the discounted classifications and rates to apply to your business for the third quarter 1997 (July 1 through September 30, 1997), we must receive your signed and completed release of information form by September 30, 1997. You can complete the voluntary release form at the workshop and give it to our representative at the workshop or mail it to:

Labor and Industries
Employer Services - Drywall Manager
P.O. Box 44166
Olympia, Washington 98504-4166

(c) Submit complete and accurate premium reports when they are due and be current with all premium reports and payments. If you owe us money (premiums) for any quarter or period prior to December 31, 1996, we will allow you to report in the discounted classifications. To meet this condition you must file all reports required by this section when due; and if you have not paid premiums which were due for any quarterly report you submitted to us prior to and including the fourth quarter 1996 (October 1, through December 31, 1996), either pay the balance due immediately or maintain a current payment agreement with us for any past due premium. For purposes of this section, a "current payment agreement" is a written legal agreement which we have approved and entered into with you. This agreement will set forth your unpaid premium obligation, any applicable penalties and interest that must be paid, the amount of each installment (payment) and a schedule of payment due dates. If you fail to make any payment covered in a payment agreement you will lose the right to use the discounted classifications and rates. You will not be allowed to use a discounted classification or rate if you fail to submit reports, or make premium payments on time for any period beginning with the first quarter 1997. This requirement applies to any classification assigned to your business and for any exposure (hours, square feet, etc.,) which occurs after January 1, 1997.

(d) Provide us with a supplemental quarterly report which shows by employee the employee's name and Social Security number, the wages you paid them during the quarter, the basis for how they are paid, (piece rate, commission, hourly, etc.,) their rate of pay per unit/hour, and a notation as to whether they are an installer, finisher, scrapper, painter, etc. This report is to be attached to and submitted with your quarterly premium report.

(e) For any work which you subcontract to others, you must maintain the records described in WAC 296-17-45003.

(f) Keep and retain the payroll and employment records described in WAC 296-17-35201.

If you do not meet all of the above conditions, we will not assign the discounted rates to your business and you will

be required to pay premiums in the nondiscounted classification(s).

(3) **Can I be disqualified from using the discounted rates?** Yes, as opposed to failing to qualify because you did not meet the conditions of subsection (2) of this section, your business will be disqualified from using the discounted premium rates if you do not file premium reports on time; if you fail to pay premiums on time; if you under report or misclassify the work performed by your employees; if you fail to maintain the payments in a payment agreement you have entered into with us; or fail to meet any other condition set forth in this rule.

(4) **How long will I be disqualified from using the discounted classifications?** If we disqualify your business from using the discounted classifications, the disqualification will be for three years (thirty-six months) from the period of last noncompliance.

(5) **I have several businesses, if one of my businesses is disqualified from using the discounted rates will that affect my other businesses?** Yes, if you have ownership interest in a business which has been disqualified from using the discounted rates, and you also have ownership interest in other construction businesses which have separate industrial insurance accounts or subaccounts, all businesses in which you have ownership interest will be disqualified from using the discounted rates. This includes a business which you own or owned that is in bankruptcy status and for which you have not entered into a payment agreement, if you owe us any money; or money that you owe us which we wrote off as an uncollectible debt.

(6) **What if I make a mistake in how I reported to you, should I correct the error?** Yes, you should send in a revised report with an explanation of the error you are trying to correct. If we audit your business, and we determine that you have under reported exposure in any classification assigned to your business, all exposure which you reported in the discounted classifications for the audit period will be reclassified to the nondiscounted classifications.

(7) **If I disagree with an audit or other decision can I still use the discounted rates while we are resolving the issue?** Yes, if you are involved in a dispute with us over the status of an independent contractor, the issue being whether an individual is a covered worker; the proper classification of work your employees performed; or under reporting; you may qualify for the discounted classifications by paying the disputed amount while the issue is under dispute. In the event the issue is resolved in your favor we will refund any moneys which you paid which were disputed. We will not pay interest on the refunded amount. If you do not pay the audit balance or disputed amount when requested or post an equivalent bond, you will not be permitted to use any of the discounted classifications.

(8) **I am the owner of the business, and I do some of the work myself, can I deduct the work I do from the total square feet to be reported to you?** Yes, as an owner of the business you can deduct the amount of work that you did from the total square feet which you are going to report to us.

(9) **How do I calculate and report this deduction to you?** To claim this deduction you must send us a report which shows by job, project, site or location the total amount

of material that was installed or finished at that job, project, site or location; the amount of material which you as the owner installed and/or finished at the job, project, site or location; the hours that it took you to install and/or finish the material you are claiming deduction for; the total material installed and/or finished by employees at the job, project, site or location; and the hours the employees worked by job, project, site or location. This report must accompany the quarterly report in which you are claiming a deduction. If there are several owners, you must supply this information for each owner you wish to claim a deduction for.

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-45006, filed 5/27/97, effective 7/1/97; 97-06-007, § 296-17-45006, filed 2/24/97, effective 4/1/97.]

WAC 296-17-52107 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-17-52112 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-17-52114 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-17-52115 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-17-52116 Classification 0524.

Wallboard installation - discounted rate

This classification excludes wallboard taping and texturing work which is to be reported separately in classification 0525.

Special note: The basis of premium for this classification is material installed (square feet).

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-06-007, § 296-17-52116, filed 2/24/97, effective 4/1/97.]

WAC 296-17-52117 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-17-52118 Classification 0526.

Wallboard taping - discounted rate

This classification excludes wallboard installation, wallboard priming and texturing, wallboard stocking, and wallboard scapping which is to be reported separately in classification applicable to the work being performed.

Special note: The basis of premium for this classification is material finished (square feet).

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-52118, filed 5/27/97, effective 7/1/97.]

WAC 296-17-52119 Classification 0527.

Wallboard priming and texturing - discounted rate

This classification includes incidental painting when performed by employees of an employer subject to this classification, but excludes wallboard installation, wallboard taping, wallboard stocking, and wallboard scapping which is to be reported separately in classification applicable to the work being performed.

Special note: The basis of premium for this classification is material finished (square feet).

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-52119, filed 5/27/97, effective 7/1/97.]

WAC 296-17-52120 Classification 0528.

Wallboard stocking by nonmaterial dealer employees - discounted rate

This classification excludes wallboard stocking by building material dealer employees which is to be reported separately in classification 1101, wallboard installation, wallboard taping, wallboard priming and texturing and wallboard scrapping which is to be reported separately in classification applicable to the work being performed.

Special note: The basis of premium for this classification is material stocked (square feet).

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-52120, filed 5/27/97, effective 7/1/97.]

WAC 296-17-52121 Classification 0529.

Wallboard scrapping by nonmaterial dealer employees - discounted rate

This classification excludes wallboard scrapping by building material dealer employees which is to be reported separately in classification 1101, wallboard installation, wallboard taping, wallboard stocking, and wallboard priming and texturing which is to be reported separately in classification applicable to the work being performed.

Special note: The basis of premium for this classification is material stocked (square feet).

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-52121, filed 5/27/97, effective 7/1/97.]

WAC 296-17-52122 Classification 0530.

Wallboard installation - nondiscounted rate

This classification excludes wallboard taping, wallboard priming, wallboard texturing work, wallboard stocking and wallboard scrapping which is to be reported separately in the classification applicable to the work being performed. This classification does not apply to employees of a building material dealer engaged in stocking or scrapping which are to be reported separately in classification 1101.

Special note: The basis of premium for this classification is material installed (square feet).

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-52122, filed 5/27/97, effective 7/1/97.]

WAC 296-17-52123 Classification 0531.

Wallboard taping - nondiscounted rate

This classification excludes wallboard installation, wallboard priming and texturing, wallboard stocking, and wallboard scrapping which is to be reported separately in classification applicable to the work being performed.

Special note: The basis of premium for this classification is material finished (square feet).

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-52123, filed 5/27/97, effective 7/1/97.]

WAC 296-17-52124 Classification 0532.

Wallboard priming and texturing - nondiscounted rate

This classification includes incidental painting when performed by employees of an employer subject to this classification, but excludes wallboard installation, wallboard taping, wallboard stocking, and wallboard scrapping which is to be reported separately in classification applicable to the work being performed.

Special note: The basis of premium for this classification is material finished (square feet).

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-52124, filed 5/27/97, effective 7/1/97.]

WAC 296-17-52125 Classification 0533.

Wallboard stocking by nonmaterial dealer employees - nondiscounted rate

This classification excludes wallboard stocking by building material dealer employees which is to be reported separately in classification 1101, wallboard installation, wallboard taping, wallboard priming and texturing and wallboard scrapping which is to be reported separately in classification applicable to the work being performed.

Special note: The basis of premium for this classification is material stocked (square feet).

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-52125, filed 5/27/97, effective 7/1/97.]

WAC 296-17-52126 Classification 0534.

Wallboard scrapping by nonmaterial dealer employees - nondiscounted rate

This classification excludes wallboard scrapping by building material dealer employees which is to be reported separately in classification 1101, wallboard installation, wallboard taping, wallboard stocking, and wallboard priming and texturing which is to be reported separately in classification applicable to the work being performed.

Special note: The basis of premium for this classification is material stocked (square feet).

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-12-011, § 296-17-52126, filed 5/27/97, effective 7/1/97.]

WAC 296-17-855 Experience modification. The basis of the experience modification shall be a comparison of the actual losses charged to an employer during the experience period with the losses which would be expected for an average employer reporting the same exposures in each classification. The comparison shall contain actuarial refinements designed to mitigate the effects of losses which may be considered catastrophic or of doubtful statistical significance, due consideration being given to the volume of the employer's experience. Except for those employers who qualify for an adjusted experience modification as specified in WAC 296-17-860 or 296-17-865, the experience modification shall be calculated from the formula:

$$\text{MODIFICATION} = \frac{A_p + W A_e + (1-W) E_e + B}{E + B}$$

The components A_p , $W A_e$, and $(1-W) E_e$ are values which shall be charged against an employer's experience record. The component, E , shall be the expected value of these charges for an average employer reporting the same

exposures in each classification. The meaning and function of each symbol in the formula is specified below.

"Ap" signifies "primary actual losses." For each claim the primary actual loss is defined as that portion of the claim which is considered completely rateable for all employers and which is to enter the experience modification calculation at its full value. For each claim in excess of \$10,195 the primary actual loss shall be determined from the formula:

$$\text{PRIMARY LOSS} = \frac{25,487}{\text{Total loss} + 15,292} \times \text{total loss}$$

Primary actual losses for selected claim values are shown in Table I. For each claim less than \$10,195 the full value of the claim shall be considered a primary loss.

"Ae" signifies "excess actual losses." For each claim the excess actual loss is defined as that portion of the claim which is not considered completely rateable for all employers. The excess actual loss for each claim shall be determined by subtracting the primary loss from the total loss.

"W" signifies "W value." For each employer, the W value determines the portion of the actual excess losses which shall be included in the calculation of his experience modification, due consideration being given to the volume of his experience. This amount is represented by the symbol "Wae" in the experience modification formula. W values are set forth in Table II.

"E" signifies "expected losses." An employer's expected losses shall be determined by multiplying his reported exposure in each classification during the experience period by the classification expected loss rate. Expected loss rates are set forth in Table III.

"Ee" signifies "expected excess losses." Expected losses in each classification shall be multiplied by the classification "D-Ratio" to obtain "expected primary losses." Expected excess losses shall then be calculated by subtracting expected primary losses from expected total losses. Each employer shall have a statistical charge included in the calculation of his experience modification, said charge to be actuarially equivalent to the amount forgiven an average employer because of the exclusion of a portion of his excess actual losses. This charge is represented by "(1-W) Ee" in the experience modification formula. D-Ratios are set forth in Table III.

"B" signifies "B value" or "ballast." In order to limit the effect of a single severe accident on the modification of a small employer, a stabilizing element (B value) shall be added to both actual and expected losses. B values are set forth in Table II.

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-855, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-855, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.04.020. 95-23-080, § 296-17-855, filed 11/20/95, effective 1/1/96; 94-24-007, § 296-17-855, filed 11/28/94, effective 1/1/95; 93-24-114, § 296-17-855, filed 12/1/93, effective 1/1/94. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 93-12-093, § 296-17-855, filed 5/31/93, effective 7/1/93; 92-24-063, § 296-17-855, filed 11/30/92, effective 1/1/93; 91-24-053, § 296-17-855, filed 11/27/91, effective 1/1/92; 90-24-042, § 296-17-855, filed 11/30/90, effective 1/1/91; 89-24-051 (Order 89-22), § 296-17-855, filed 12/1/89, effective 1/1/90. Statutory Authority: RCW 51.16.035 and 51.04.020. 88-24-012 (Order 88-30), § 296-17-855, filed 12/1/88, effective 1/1/89. Statutory Authority: RCW 51.16.035. 87-24-060 (Order 87-26), § 296-17-855, filed 12/1/87, effective 1/1/88. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 86-24-042 (Order 86-41), § 296-17-855, filed

11/26/86. Statutory Authority: RCW 51.16.035. 85-24-032 (Order 85-33), § 296-17-855, filed 11/27/85, effective 1/1/86; 84-24-016 (Order 84-23), § 296-17-855, filed 11/28/84, effective 1/1/85; 83-24-017 (Order 83-36), § 296-17-855, filed 11/30/83, effective 1/1/84; 82-24-047 (Order 82-38), § 296-17-855, filed 11/29/82, effective 1/1/83; 81-24-042 (Order 81-30), § 296-17-855, filed 11/30/81, effective 1/1/82; 80-17-016 (Order 80-23), § 296-17-855, filed 11/13/80, effective 1/1/81. Statutory Authority: RCW 51.04.030 and 51.16.035. 79-12-086 (Order 79-18), § 296-17-855, filed 11/30/79, effective 1/1/80; Order 77-27, § 296-17-855, filed 11/30/77, effective 1/1/78; Order 74-40, § 296-17-855, filed 11/27/74, effective 1/1/75; Order 73-22, § 296-17-855, filed 11/9/73, effective 1/1/74.]

WAC 296-17-875 Table I.

Primary Losses for Selected Claim Values

CLAIM VALUE	PRIMARY LOSS
10,195	10,195
11,611	11,000
13,606	12,000
15,920	13,000
18,637	14,000
25,790	16,000
36,765	18,000
55,739	20,000
96,479	22,000
161,286*	23,280
254,870**	24,044

* Average death value

** Maximum claim value

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-875, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-875, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.04.020. 95-23-080, § 296-17-875, filed 11/20/95, effective 1/1/96; 94-24-007, § 296-17-875, filed 11/28/94, effective 1/1/95; 93-24-114, § 296-17-875, filed 12/1/93, effective 1/1/94. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 92-24-063, § 296-17-875, filed 11/30/92, effective 1/1/93; 91-24-053, § 296-17-875, filed 11/27/91, effective 1/1/92; 90-24-042, § 296-17-875, filed 11/30/90, effective 1/1/91; 89-24-051 (Order 89-22), § 296-17-875, filed 12/1/89, effective 1/1/90. Statutory Authority: RCW 51.16.035 and 51.04.020. 88-24-012 (Order 88-30), § 296-17-875, filed 12/1/88, effective 1/1/89. Statutory Authority: RCW 51.16.035. 87-24-060 (Order 87-26), § 296-17-875, filed 12/1/87, effective 1/1/88. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 86-24-042 (Order 86-41), § 296-17-875, filed 11/26/86. Statutory Authority: RCW 51.16.035. 86-12-041 (Order 86-18), § 296-17-875, filed 5/30/86, effective 7/1/86; 85-24-032 (Order 85-33), § 296-17-875, filed 11/27/85, effective 1/1/86; 84-24-016 (Order 84-23), § 296-17-875, filed 11/28/84, effective 1/1/85; 83-24-017 (Order 83-36), § 296-17-875, filed 11/30/83, effective 1/1/84; 82-24-047 (Order 82-38), § 296-17-875, filed 11/29/82, effective 1/1/83; 81-24-042 (Order 81-30), § 296-17-875, filed 11/30/81, effective 1/1/82; 80-17-016 (Order 80-23), § 296-17-875, filed 11/13/80, effective 1/1/81. Statutory Authority: RCW 51.04.030 and 51.16.035. 79-12-086 (Order 79-18), § 296-17-875, filed 11/30/79, effective 1/1/80. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 78-12-043 (Order 78-23), § 296-17-875, filed 11/27/78, effective 1/1/79; Order 77-27, § 296-17-875, filed 11/30/77, effective 1/1/78; Order 76-36, § 296-17-875, filed 11/30/76; Order 75-38, § 296-17-875, filed 11/24/75, effective 1/1/76; Order 74-40, § 296-17-875, filed 11/27/74, effective 1/1/75; Order 73-22, § 296-17-875, filed 11/9/73, effective 1/1/74.]

WAC 296-17-880 Table II.

"B" and "W" Values

Maximum Claim Value = \$254,870

Average Death Value = \$161,286

Expected Losses	B	W
5,521 & Under	48,088	0.00
5,522 - 11,126	47,607	0.01

11,127	-	16,814	47,126	0.02	645,044	-	665,531	18,273	0.62
16,815	-	22,589	46,645	0.03	665,532	-	686,674	17,793	0.63
22,590	-	28,451	46,164	0.04	686,675	-	708,505	17,312	0.64
28,452	-	34,405	45,684	0.05	708,506	-	731,061	16,831	0.65
34,406	-	40,451	45,203	0.06	731,062	-	754,377	16,350	0.66
40,452	-	46,592	44,722	0.07	754,378	-	778,495	15,869	0.67
46,593	-	52,830	44,241	0.08	778,496	-	803,458	15,388	0.68
52,831	-	59,169	43,760	0.09	803,459	-	829,310	14,907	0.69
59,170	-	65,610	43,279	0.10	829,311	-	856,102	14,426	0.70
65,611	-	72,157	42,798	0.11	856,103	-	883,887	13,946	0.71
72,158	-	78,813	42,317	0.12	883,888	-	912,722	13,465	0.72
78,814	-	85,579	41,837	0.13	912,723	-	942,669	12,984	0.73
85,580	-	92,460	41,356	0.14	942,670	-	973,795	12,503	0.74
92,461	-	99,459	40,875	0.15	973,796	-	1,006,171	12,022	0.75
99,460	-	106,578	40,394	0.16	1,006,172	-	1,039,876	11,541	0.76
106,579	-	113,821	39,913	0.17	1,039,877	-	1,074,996	11,060	0.77
113,822	-	121,191	39,432	0.18	1,074,997	-	1,111,621	10,579	0.78
121,192	-	128,693	38,951	0.19	1,111,622	-	1,149,853	10,098	0.79
128,694	-	136,330	38,470	0.20	1,149,854	-	1,189,800	9,618	0.80
136,331	-	144,106	37,990	0.21	1,189,801	-	1,231,583	9,137	0.81
144,107	-	152,025	37,509	0.22	1,231,584	-	1,275,333	8,656	0.82
152,026	-	160,091	37,028	0.23	1,275,334	-	1,321,194	8,175	0.83
160,092	-	168,309	36,547	0.24	1,321,195	-	1,369,324	7,694	0.84
168,310	-	176,683	36,066	0.25	1,369,325	-	1,419,897	7,213	0.85
176,684	-	185,219	35,585	0.26	1,419,898	-	1,473,107	6,732	0.86
185,220	-	193,920	35,104	0.27	1,473,108	-	1,529,167	6,251	0.87
193,921	-	202,793	34,623	0.28	1,529,168	-	1,588,314	5,771	0.88
202,794	-	211,842	34,142	0.29	1,588,315	-	1,650,814	5,290	0.89
211,843	-	221,074	33,662	0.30	1,650,815	-	1,716,963	4,809	0.90
221,075	-	230,494	33,181	0.31	1,716,964	-	1,787,091	4,328	0.91
230,495	-	240,108	32,700	0.32	1,787,092	-	1,861,572	3,847	0.92
240,109	-	249,923	32,219	0.33	1,861,573	-	1,940,827	3,366	0.93
249,924	-	259,945	31,738	0.34	1,940,828	-	2,025,334	2,885	0.94
259,946	-	270,182	31,257	0.35	2,025,335	-	2,115,635	2,404	0.95
270,183	-	280,640	30,776	0.36	2,115,636	-	2,212,353	1,924	0.96
280,641	-	291,328	30,295	0.37	2,212,354	-	2,316,199	1,443	0.97
291,329	-	302,253	29,815	0.38	2,316,200	-	2,427,996	962	0.98
302,254	-	313,424	29,334	0.39	2,427,997	-	2,548,699	481	0.99
313,425	-	324,849	28,853	0.40	2,548,700 & Over			0	1.00
324,850	-	336,538	28,372	0.41					
336,539	-	348,501	27,891	0.42					
348,502	-	360,747	27,410	0.43					
360,748	-	373,287	26,929	0.44					
373,288	-	386,133	26,448	0.45					
386,134	-	399,295	25,968	0.46					
399,296	-	412,787	25,487	0.47					
412,788	-	426,621	25,006	0.48					
426,622	-	440,812	24,525	0.49					
440,813	-	455,373	24,044	0.50					
455,374	-	470,319	23,563	0.51					
470,320	-	485,668	23,082	0.52					
485,669	-	501,435	22,601	0.53					
501,436	-	517,639	22,120	0.54					
517,640	-	534,299	21,640	0.55					
534,300	-	551,434	21,159	0.56					
551,435	-	569,067	20,678	0.57					
569,068	-	587,220	20,197	0.58					
587,221	-	605,916	19,716	0.59					
605,917	-	625,182	19,235	0.60					
625,183	-	645,043	18,754	0.61					

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-880, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-880, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.04.020. 95-23-080, § 296-17-880, filed 11/20/95, effective 1/1/96; 94-24-007, § 296-17-880, filed 11/28/94, effective 1/1/95; 93-24-114, § 296-17-880, filed 12/1/93, effective 1/1/94. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 92-24-063, § 296-17-880, filed 11/30/92, effective 1/1/93; 91-24-053, § 296-17-880, filed 11/27/91, effective 1/1/92; 90-24-042, § 296-17-880, filed 11/30/90, effective 1/1/91; 89-24-051 (Order 89-22), § 296-17-880, filed 12/1/89, effective 1/1/90. Statutory Authority: RCW 51.16.035 and 51.04.020. 88-24-012 (Order 88-30), § 296-17-880, filed 12/1/88, effective 1/1/89. Statutory Authority: RCW 51.16.035. 87-24-060 (Order 87-26), § 296-17-880, filed 12/1/87, effective 1/1/88. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 86-24-042 (Order 86-41), § 296-17-880, filed 11/26/86. Statutory Authority: RCW 51.16.035. 85-24-032 (Order 85-33), § 296-17-880, filed 11/27/85, effective 1/1/86; 84-24-016 (Order 84-23), § 296-17-880, filed 11/28/84, effective 1/1/85; 83-24-017 (Order 83-36), § 296-17-880, filed 11/30/83, effective 1/1/84; 82-24-047 (Order 82-38), § 296-17-880, filed 11/29/82, effective 1/1/83; 81-24-042 (Order 81-30), § 296-17-880, filed 11/30/81, effective 1/1/82; 80-17-016 (Order 80-23), § 296-17-880, filed 11/13/80, effective 1/1/81. Statutory Authority: RCW 51.04.030 and 51.16.035. 79-12-086 (Order 79-18), § 296-17-880, filed 11/30/79, effective 1/1/80. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 78-12-043 (Order 78-23), § 296-17-880, filed 11/27/78, effective 1/1/79; Order 77-27, § 296-17-880, filed 11/30/77, effective 1/1/78; Order 76-36, § 296-17-880, filed 11/30/76; Order 75-38, § 296-17-880, filed 11/24/75, effective 1/1/76; Order 74-40, § 296-17-880, filed

11/27/74, effective 1/1/75; Order 73-22, § 296-17-880, filed 11/9/73,
effective 1/1/74.]

WAC 296-17-885 Table III.

Expected Loss Rates and D-Ratios
for Indicated Fiscal Year
Expected Loss Rates in Dollars Per Worker Hour

Class	1994	1995	1996	D-Ratio
0101	1.2466	1.1000	0.9613	0.403
0102	1.1733	1.0355	0.9056	0.399
0103	1.4475	1.2718	1.1087	0.485
0104	0.8593	0.7578	0.6622	0.424
0105	1.1912	1.0501	0.9203	0.487
0106	1.2466	1.1000	0.9613	0.380
0107	1.0964	0.9653	0.8420	0.434
0108	0.8593	0.7578	0.6622	0.424
0109	1.4979	1.3207	1.1524	0.396
0112	0.6590	0.5816	0.5089	0.426
0201	2.5760	2.2771	1.9911	0.363
0202	2.5760	2.2771	1.9911	0.363
0210	0.8654	0.7638	0.6678	0.409
0212	0.8654	0.7638	0.6678	0.409
0214	1.0974	0.9666	0.8443	0.449
0217	1.1733	1.0355	0.9056	0.417
0219	1.0422	0.9203	0.8053	0.412
0301	0.6237	0.5505	0.4839	0.513
0302	1.7171	1.5135	1.3198	0.391
0303	1.5225	1.3399	1.1675	0.421
0306	0.8816	0.7766	0.6783	0.447
0307	0.6672	0.5875	0.5141	0.496
0308	0.5334	0.4696	0.4121	0.557
0403	1.3217	1.1666	1.0224	0.453
0502	1.2872	1.1329	0.9871	0.421
0504	1.2647	1.1175	0.9785	0.404
0506	3.9607	3.4963	3.0532	0.379
0507	2.8965	2.5584	2.2412	0.424
0508	2.8356	2.5017	2.1792	0.347
0509	1.5018	1.3261	1.1599	0.402
0510	1.2892	1.1370	0.9950	0.449
0511	1.0237	0.9002	0.7867	0.509
0512	1.3688	1.2046	1.0513	0.461
0513	0.6329	0.5566	0.4860	0.482
0514	1.2710	1.1202	0.9815	0.492
0515	2.7116	2.3891	2.0829	0.402
0516	1.2892	1.1370	0.9950	0.449
0517	1.5096	1.3317	1.1680	0.488
0518	1.4979	1.3207	1.1524	0.396
0519	1.6772	1.4826	1.3009	0.433
0520	1.4701	1.2937	1.1265	0.408
0521	1.2647	1.1175	0.9785	0.404
0601	0.5630	0.4953	0.4329	0.503
0602	0.3797	0.3333	0.2911	0.541
0603	0.8188	0.7230	0.6323	0.400
0604	1.1120	0.9837	0.8652	0.470
0606	0.2746	0.2416	0.2122	0.601
0607	0.3141	0.2767	0.2427	0.532
0608	0.2793	0.2472	0.2180	0.506
0701	1.8706	1.6468	1.4293	0.339
0803	0.3210	0.2824	0.2474	0.555
0804	0.6590	0.5816	0.5089	0.426
0901	1.4979	1.3207	1.1524	0.396
1002	0.7089	0.6245	0.5478	0.535
1003	0.7050	0.6217	0.5454	0.503
1004	0.4723	0.4170	0.3658	0.465
1005	5.4160	4.7851	4.1820	0.365
1007	0.3238	0.2849	0.2490	0.495
1101	0.5043	0.4445	0.3904	0.545
1102	1.1467	1.0110	0.8843	0.446
1103	0.5765	0.5076	0.4447	0.517
1104	0.4306	0.3808	0.3361	0.550
1105	0.6303	0.5548	0.4863	0.539
1106	0.2653	0.2348	0.2076	0.560
1108	0.3894	0.3438	0.3026	0.542
1109	0.7059	0.6237	0.5497	0.539
1301	0.3668	0.3237	0.2844	0.518
1303	0.1586	0.1396	0.1224	0.553
1304	0.0206	0.0181	0.0160	0.540
1305	0.3648	0.3222	0.2834	0.513
1401	0.5168	0.4571	0.4025	0.490
1404	0.4942	0.4347	0.3806	0.531
1405	0.3820	0.3384	0.2984	0.471
1501	0.3563	0.3134	0.2745	0.542
1507	0.3100	0.2726	0.2391	0.574
1701	0.6740	0.5962	0.5236	0.435
1702	1.5412	1.3618	1.1908	0.379
1703	0.2958	0.2606	0.2280	0.486
1704	0.6740	0.5962	0.5236	0.435
1801	0.8102	0.7167	0.6285	0.399
1802	0.8688	0.7662	0.6711	0.467
2002	0.5156	0.4550	0.4003	0.553
2004	0.5744	0.5053	0.4436	0.594
2005	0.3048	0.2694	0.2375	0.547
2007	0.4205	0.3714	0.3267	0.505
2008	0.2465	0.2177	0.1913	0.514
2009	0.3048	0.2694	0.2375	0.547
2101	0.5388	0.4754	0.4175	0.506
2102	0.3938	0.3476	0.3062	0.555
2104	0.2363	0.2086	0.1840	0.591
2105	0.5279	0.4637	0.4055	0.546
2106	0.3014	0.2667	0.2353	0.517
2201	0.2273	0.2005	0.1762	0.519
2202	0.5107	0.4489	0.3938	0.600
2203	0.3018	0.2659	0.2338	0.594
2204	0.1559	0.1375	0.1209	0.519
2401	0.3539	0.3135	0.2773	0.533
2903	0.5758	0.5080	0.4472	0.566
2904	0.6928	0.6136	0.5410	0.484
2905	0.4317	0.3803	0.3345	0.594
2906	0.2980	0.2626	0.2302	0.529
2907	0.4653	0.4105	0.3609	0.545
2908	0.8630	0.7608	0.6674	0.507
2909	0.4054	0.3576	0.3147	0.562
3101	0.6780	0.5998	0.5266	0.427
3102	0.2260	0.1997	0.1759	0.517
3103	0.7195	0.6365	0.5592	0.437
3104	0.4508	0.3965	0.3463	0.488
3105	0.7006	0.6165	0.5405	0.548
3303	0.2227	0.1967	0.1732	0.547
3304	0.5016	0.4432	0.3906	0.552
3309	0.3570	0.3151	0.2776	0.560
3401	0.3418	0.3016	0.2648	0.510

3402	0.4031	0.3552	0.3118	0.537	4808	0.4093	0.3614	0.3173	0.480
3403	0.1857	0.1644	0.1446	0.463	4809	0.2254	0.1986	0.1748	0.595
3404	0.3917	0.3453	0.3035	0.562	4810	0.1321	0.1172	0.1038	0.555
3405	0.2299	0.2026	0.1777	0.530	4811	0.2125	0.1879	0.1659	0.570
3406	0.2135	0.1884	0.1659	0.574	4812	0.2853	0.2515	0.2212	0.544
3407	0.3115	0.2740	0.2401	0.565	4813	0.1782	0.1581	0.1400	0.498
3408	0.0995	0.0880	0.0775	0.523	4900	0.4339	0.3829	0.3355	0.452
3409	0.0928	0.0818	0.0721	0.590	4901	0.0440	0.0387	0.0340	0.557
3410	0.1967	0.1738	0.1537	0.600	4902	0.0648	0.0570	0.0500	0.590
3411	0.3418	0.3016	0.2648	0.510	4903	0.0509	0.0449	0.0393	0.562
3412	0.3437	0.3026	0.2650	0.530	4904	0.0239	0.0211	0.0187	0.594
3413	0.4775	0.4211	0.3697	0.520	4905	0.2529	0.2235	0.1975	0.605
3414	0.4405	0.3891	0.3419	0.497	4906	0.0701	0.0617	0.0542	0.571
3415	0.4609	0.4069	0.3575	0.503	4907	0.0562	0.0497	0.0438	0.531
3501	0.7988	0.7061	0.6203	0.454	4908	0.1076	0.0961	0.0863	0.642
3503	0.2687	0.2380	0.2111	0.593	4909	0.0489	0.0438	0.0392	0.604
3506	0.8200	0.7196	0.6256	0.469	4910	0.3542	0.3129	0.2757	0.534
3509	0.3517	0.3092	0.2716	0.616	5001	4.0070	3.5355	3.0856	0.379
3510	0.3807	0.3355	0.2949	0.566	5002	0.4430	0.3897	0.3414	0.554
3511	0.5319	0.4692	0.4128	0.552	5003	1.2631	1.1147	0.9740	0.402
3512	0.3386	0.2993	0.2645	0.593	5004	1.2376	1.0952	0.9642	0.472
3513	0.3869	0.3414	0.3004	0.559	5005	0.9987	0.8821	0.7716	0.394
3602	0.1113	0.0982	0.0866	0.596	5006	1.2562	1.1066	0.9658	0.425
3603	0.4156	0.3669	0.3234	0.572	5101	0.7334	0.6452	0.5671	0.617
3604	1.1753	1.0337	0.9064	0.578	5103	0.6624	0.5843	0.5146	0.582
3605	0.4184	0.3686	0.3235	0.540	5106	0.6624	0.5843	0.5146	0.582
3701	0.2260	0.1997	0.1759	0.517	5108	0.5017	0.4432	0.3900	0.531
3702	0.3842	0.3378	0.2960	0.573	5109	0.5959	0.5257	0.4607	0.476
3707	0.5050	0.4501	0.4002	0.456	5201	0.2822	0.2485	0.2177	0.540
3708	0.3737	0.3297	0.2901	0.550	5204	0.8022	0.7086	0.6223	0.474
3801	0.1642	0.1450	0.1278	0.563	5206	0.4339	0.3829	0.3355	0.452
3802	0.1642	0.1450	0.1278	0.563	5207	0.1491	0.1316	0.1163	0.640
3808	0.3183	0.2809	0.2465	0.503	5208	0.7399	0.6524	0.5725	0.519
3901	0.1525	0.1349	0.1194	0.607	5209	0.6211	0.5473	0.4802	0.537
3902	0.3633	0.3208	0.2825	0.547	5301	0.0287	0.0253	0.0223	0.569
3903	1.0603	0.9402	0.8316	0.511	5305	0.0421	0.0371	0.0327	0.628
3905	0.1525	0.1349	0.1194	0.607	5306	0.0416	0.0367	0.0324	0.552
3906	0.3943	0.3478	0.3058	0.541	5307	0.3032	0.2668	0.2338	0.541
3909	0.1621	0.1431	0.1262	0.588	6103	0.0635	0.0562	0.0498	0.631
4002	0.7520	0.6600	0.5758	0.528	6104	0.2394	0.2111	0.1859	0.593
4101	0.2046	0.1803	0.1586	0.562	6105	0.1706	0.1507	0.1326	0.528
4103	0.2494	0.2190	0.1924	0.664	6107	0.1027	0.0910	0.0806	0.592
4107	0.1324	0.1167	0.1028	0.572	6108	0.4194	0.3705	0.3269	0.581
4108	0.1480	0.1308	0.1152	0.510	6109	0.0618	0.0546	0.0481	0.517
4109	0.2034	0.1796	0.1581	0.561	6110	0.3668	0.3235	0.2844	0.555
4201	0.3554	0.3113	0.2710	0.544	6201	0.2646	0.2332	0.2044	0.512
4301	0.6614	0.5853	0.5165	0.519	6202	0.5467	0.4842	0.4269	0.483
4302	0.4942	0.4344	0.3799	0.525	6203	0.0710	0.0626	0.0555	0.656
4304	0.6057	0.5343	0.4697	0.539	6204	0.1423	0.1258	0.1113	0.593
4305	0.7998	0.7028	0.6141	0.530	6205	0.1930	0.1702	0.1501	0.590
4401	0.3882	0.3442	0.3039	0.468	6206	0.1614	0.1424	0.1254	0.595
4402	0.6103	0.5387	0.4741	0.552	6207	1.2029	1.0678	0.9488	0.578
4404	0.3688	0.3263	0.2876	0.505	6208	0.2575	0.2291	0.2038	0.553
4501	0.1274	0.1128	0.0997	0.538	6209	0.2290	0.2026	0.1791	0.569
4502	0.0383	0.0339	0.0298	0.550	6301	0.1219	0.1078	0.0947	0.436
4504	0.0867	0.0766	0.0676	0.632	6302	0.1477	0.1309	0.1157	0.506
4601	0.5595	0.4944	0.4354	0.526	6303	0.0635	0.0561	0.0495	0.517
4802	0.2025	0.1791	0.1579	0.531	6304	0.1759	0.1556	0.1375	0.602
4803	0.1855	0.1640	0.1448	0.576	6305	0.0680	0.0601	0.0530	0.592
4804	0.4761	0.4200	0.3698	0.574	6306	0.2471	0.2180	0.1917	0.557
4805	0.2793	0.2469	0.2176	0.520	6308	0.0451	0.0398	0.0350	0.568
4806	0.0522	0.0462	0.0408	0.514	6309	0.1218	0.1077	0.0951	0.577

Workers' Compensation Insurance

296-17-885

6402	0.2459	0.2165	0.1903	0.584
6403	0.1775	0.1570	0.1389	0.562
6404	0.1588	0.1403	0.1239	0.586
6405	0.4947	0.4365	0.3835	0.515
6406	0.0645	0.0570	0.0502	0.635
6407	0.1999	0.1765	0.1557	0.567
6408	0.2902	0.2552	0.2239	0.590
6409	0.4775	0.4211	0.3697	0.520
6410	0.1479	0.1308	0.1155	0.543
6501	0.0941	0.0827	0.0726	0.618
6502	0.0259	0.0229	0.0202	0.545
6503	0.0605	0.0534	0.0467	0.480
6504	0.3565	0.3157	0.2797	0.593
6505	0.0912	0.0810	0.0718	0.540
6506	0.0750	0.0663	0.0586	0.548
6508	0.3045	0.2695	0.2380	0.543
6509	0.2308	0.2042	0.1806	0.562
6601	0.1683	0.1490	0.1319	0.565
6602	0.4087	0.3609	0.3177	0.541
6603	0.2921	0.2580	0.2271	0.558
6604	0.0566	0.0503	0.0446	0.499
6605	0.2883	0.2539	0.2242	0.692
6607	0.1287	0.1136	0.1002	0.603
6608	0.2548	0.2244	0.1965	0.495
6620	1.0541	0.9282	0.8149	0.569
6704	0.1058	0.0934	0.0825	0.566
6705	0.6722	0.5947	0.5265	0.611
6706	0.3468	0.3074	0.2723	0.568
6707	1.4847	1.3105	1.1563	0.601
6708	5.5467	4.9618	4.4312	0.456
6709	0.1673	0.1478	0.1307	0.640
6801	0.2157	0.1898	0.1665	0.564
6802	0.3797	0.3354	0.2963	0.609
6803	0.7304	0.6441	0.5599	0.339
6804	0.1877	0.1652	0.1449	0.596
6809	4.2268	3.7523	3.3374	0.605
6901	0.0370	0.0335	0.0308	0.716
6902	0.7066	0.6231	0.5437	0.395
6903	3.6518	3.2407	2.8433	0.334
6904	0.1990	0.1745	0.1527	0.603
6905	0.2501	0.2199	0.1929	0.590
6906	0.1165	0.1058	0.0972	0.683
6907	0.9630	0.8477	0.7430	0.533
6908	0.4092	0.3609	0.3172	0.545
6909	0.0889	0.0785	0.0691	0.593
7101	0.0268	0.0237	0.0210	0.490
7102	3.4640	3.0938	2.7727	0.585
7103	0.2711	0.2391	0.2096	0.504
7104	0.0229	0.0202	0.0178	0.604
7105	0.0229	0.0202	0.0178	0.618
7106	0.1301	0.1149	0.1011	0.551
7107	0.2250	0.1985	0.1749	0.583
7108	0.1743	0.1540	0.1362	0.645
7109	0.1508	0.1334	0.1179	0.594
7110	0.2580	0.2274	0.1992	0.505
7111	0.3597	0.3179	0.2801	0.543
7112	0.5052	0.4451	0.3909	0.560
7113	0.5133	0.4519	0.3963	0.550
7114	0.6847	0.6032	0.5324	0.666
7115	0.4596	0.4048	0.3558	0.598
7116	0.4297	0.3794	0.3339	0.541

7117	0.9950	0.8765	0.7718	0.605
7118	1.7351	1.5296	1.3446	0.569
7119	1.6187	1.4225	1.2455	0.567
7120	4.2908	3.8002	3.3528	0.500
7121	4.5012	3.9769	3.4986	0.508
7201	0.8716	0.7651	0.6676	0.523
7202	0.0395	0.0350	0.0308	0.498
7203	0.1122	0.0997	0.0886	0.565
7204	0.0000	0.0000	0.0000	0.500
7301	0.4802	0.4233	0.3712	0.510
7302	0.5918	0.5235	0.4621	0.541
7307	0.5426	0.4792	0.4226	0.569
7308	0.1941	0.1712	0.1512	0.651
7309	0.1673	0.1478	0.1307	0.640

Expected Loss Rates in Dollars Per Sq. Ft. of Wallboard Installed

Class	1994	1995	1996	D-Ratio
0522	0.0195	0.0172	0.0150	0.402
0523	0.0123	0.0108	0.0094	0.408
0524	0.0116	0.0102	0.0089	0.402
0525	0.0081	0.0071	0.0062	0.408
0526	0.0075	0.0066	0.0058	0.408
0527	0.0005	0.0005	0.0004	0.408
0528	0.0019	0.0017	0.0015	0.402
0529	0.0013	0.0011	0.0010	0.402
0530	0.0176	0.0155	0.0135	0.402
0531	0.0114	0.0101	0.0088	0.408
0532	0.0008	0.0007	0.0006	0.408
0533	0.0029	0.0026	0.0022	0.402
0534	0.0019	0.0017	0.0015	0.402
7900	0.0129	0.0113	0.0099	0.402
7901	0.0081	0.0071	0.0062	0.408

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-885, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-885, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.16.035, 96-12-039, § 296-17-885, filed 5/31/96, effective 7/1/96. Statutory Authority: RCW 51.04.020, 95-23-080, § 296-17-885, filed 11/20/95, effective 1/1/96; 94-24-007, § 296-17-885, filed 11/28/94, effective 1/1/95; 93-24-114, § 296-17-885, filed 12/1/93, effective 1/1/94. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 92-24-063, § 296-17-885, filed 11/30/92, effective 1/1/93; 91-24-053, § 296-17-885, filed 11/27/91, effective 1/1/92; 91-12-014, § 296-17-885, filed 5/31/91, effective 7/1/91; 90-24-042, § 296-17-885, filed 11/30/90, effective 1/1/91; 90-13-018, § 296-17-885, filed 6/8/90, effective 7/9/90; 89-24-051 (Order 89-22), § 296-17-885, filed 12/1/89, effective 1/1/90. Statutory Authority: RCW 51.04.020(1), 89-16-001 (Order 89-07), § 296-17-885, filed 7/20/89, effective 8/20/89. Statutory Authority: RCW 51.16.035 and 51.04.020. 88-24-012 (Order 88-30), § 296-17-885, filed 12/1/88, effective 1/1/89. Statutory Authority: RCW 51.16.035. 88-12-065 (Order 88-05), § 296-17-885, filed 5/31/88; 88-12-050 (Order 88-06), § 296-17-885, filed 5/31/88, effective 7/1/88; 88-06-047 (Order 87-33), § 296-17-885, filed 3/1/88; 87-24-060 (Order 87-26), § 296-17-885, filed 12/1/87, effective 1/1/88; 87-12-032 (Order 87-12), § 296-17-885, filed 5/29/87, effective 7/1/87. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 86-24-042 (Order 86-41), § 296-17-885, filed 11/26/86. Statutory Authority: RCW 51.16.035. 86-12-041 (Order 86-18), § 296-17-885, filed 5/30/86, effective 7/1/86; 85-24-032 (Order 85-33), § 296-17-885, filed 11/27/85, effective 1/1/86; 85-06-026 (Order 85-7), § 296-17-885, filed 2/28/85, effective 4/1/85; 84-24-016 (Order 84-23), § 296-17-885, filed 11/28/84, effective 1/1/85; 83-24-017 (Order 83-36), § 296-17-885, filed 11/30/83, effective 1/1/84; 82-24-047 (Order 82-38), § 296-17-885, filed 11/29/82, effective 1/1/83; 81-24-042 (Order 81-30), § 296-17-885, filed 11/30/81, effective 1/1/82; 80-17-016 (Order 80-23), § 296-17-885, filed 11/13/80, effective 1/1/81. Statutory Authority: RCW 51.04.030 and 51.16.035. 79-12-086 (Order 79-18), § 296-17-885, filed 11/30/79, effective 1/1/80. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 78-12-043 (Order 78-23), § 296-17-885, filed 11/27/78, effective 1/1/79,

effective 1/1/80. Order 77-27, § 296-17-885, filed 11/30/77, effective 1/1/78; Emergency Order 77-25, § 296-17-885, filed 12/1/77; Order 77-10, § 296-17-885, filed 5/31/77; Order 76-36, § 296-17-885, filed 11/30/76; Order 76-18, § 296-17-885, filed 5/28/76, effective 7/1/76; Order 75-38, § 296-17-885, filed 11/24/75, effective 1/1/76; Order 74-40, § 296-17-885, filed 11/27/74, effective 1/1/75; Order 73-22, § 296-17-885, filed 11/9/73, effective 1/1/74.]

30), § 296-17-890, filed 11/30/81, effective 1/1/82; 80-17-016 (Order 80-23), § 296-17-890, filed 11/13/80, effective 1/1/81. Statutory Authority: RCW 51.04.030 and 51.16.035. 79-12-086 (Order 79-18), § 296-17-890, filed 11/30/79, effective 1/1/80.].

WAC 296-17-890 Table IV.

Maximum experience modifications for firms with no compensable accidents:

Expected Loss Range	Maximum Experience Modification
2,412 & Lower	0.90
2,413 - 2,581	0.89
2,582 - 2,763	0.88
2,764 - 2,961	0.87
2,962 - 3,175	0.86
3,176 - 3,408	0.85
3,409 - 3,661	0.84
3,662 - 3,935	0.83
3,936 - 4,235	0.82
4,236 - 4,561	0.81
4,562 - 4,917	0.80
4,918 - 5,305	0.79
5,306 - 5,730	0.78
5,731 - 6,195	0.77
6,196 - 6,705	0.76
6,706 - 7,265	0.75
7,266 - 7,879	0.74
7,880 - 8,555	0.73
8,556 - 9,300	0.72
9,301 - 10,122	0.71
10,123 - 11,029	0.70
11,030 - 12,033	0.69
12,034 - 13,145	0.68
13,146 - 14,378	0.67
14,379 - 15,749	0.66
15,750 - 17,275	0.65
17,276 - 18,976	0.64
18,977 - 20,875	0.63
20,876 - 23,000	0.62
23,001 - 25,381	0.61
25,382 & Higher	0.60

WAC 296-17-895 Industrial insurance accident fund base rates and medical aid base rates by class of industry. Industrial insurance accident fund and medical aid fund base rates by class of industry shall be as set forth below.

Class	Base Rates Effective January 1, 1998	
	Accident Fund	Medical Aid Fund
0101	1.6071	0.4584
0103	1.8351	0.5549
0104	1.0933	0.3245
0105	1.3874	0.5243
0107	1.4267	0.3972
0108	1.0933	0.3245
0112	0.8229	0.2575
0201	3.3774	0.9111
0202	3.3774	0.9111
0210	1.1029	0.3252
0212	1.1029	0.3252
0214	1.3827	0.4230
0217	1.4818	0.4490
0219	1.3064	0.4042
0301	0.6772	0.3016
0302	2.3045	0.5805
0303	2.0291	0.5249
0306	1.1146	0.3373
0307	0.7917	0.2849
0308	0.5771	0.2602
0403	1.5775	0.5574
0502	1.7171	0.4424
0504	1.5798	0.4930
0506	5.2406	1.3770
0507	3.5434	1.1731
0508	3.9663	0.8627
0509	1.9123	0.5650
0510	1.5777	0.5226
0511	1.2325	0.4282
0512	1.7355	0.5221
0513	0.7873	0.2504
0514	1.4829	0.5566
0515	3.6223	0.9275
0516	1.5777	0.5226
0517	1.7320	0.6778
0518	1.9875	0.5183
0519	1.9882	0.7142
0520	1.9963	0.4853
0521	1.5798	0.4930
0601	0.6761	0.2363
0602	0.4525	0.1620
0603	1.0471	0.3055
0604	1.2275	0.5245
0606	0.2819	0.1426
0607	0.3494	0.1473

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-890, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-890, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.04.020. 95-23-080, § 296-17-890, filed 11/20/95, effective 1/1/96; 94-24-007, § 296-17-890, filed 11/28/94, effective 1/1/95; 93-24-114, § 296-17-890, filed 12/1/93, effective 1/1/94. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 92-24-063, § 296-17-890, filed 11/30/92, effective 1/1/93; 91-24-053, § 296-17-890, filed 11/27/91, effective 1/1/92; 90-24-042, § 296-17-890, filed 11/30/90, effective 1/1/91; 89-24-051 (Order 89-22), § 296-17-890, filed 12/1/89, effective 1/1/90. Statutory Authority: RCW 51.16.035 and 51.04.020. 88-24-012 (Order 88-30), § 296-17-890, filed 12/1/88, effective 1/1/89. Statutory Authority: RCW 51.16.035. 87-24-060 (Order 87-26), § 296-17-890, filed 12/1/87, effective 1/1/88. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 86-24-042 (Order 86-41), § 296-17-890, filed 11/26/86. Statutory Authority: RCW 51.16.035. 85-24-032 (Order 85-33), § 296-17-890, filed 11/27/85, effective 1/1/86; 84-24-016 (Order 84-23), § 296-17-890, filed 11/28/84, effective 1/1/85; 83-24-017 (Order 83-36), § 296-17-890, filed 11/30/83, effective 1/1/84; 82-24-047 (Order 82-38), § 296-17-890, filed 11/29/82, effective 1/1/83; 81-24-042 (Order 81-

Workers' Compensation Insurance

296-17-895

0608	0.2859	0.1445	3309	0.3577	0.1899
0701	2.7641	0.4866	3402	0.4396	0.1940
0803	0.3574	0.1508	3403	0.2054	0.0871
0901	1.9875	0.5183	3404	0.4086	0.1991
1002	0.7837	0.3358	3405	0.2559	0.1077
1003	0.7984	0.3224	3406	0.2107	0.1149
1004	0.5504	0.2067	3407	0.3416	0.1495
1005	7.1440	1.8946	3408	0.1010	0.0519
1007	0.3916	0.1343	3409	0.0901	0.0509
1101	0.5399	0.2486	3410	0.1772	0.1156
1102	1.4183	0.4572	3411	0.3785	0.1609
1103	0.6601	0.2607	3412	0.3913	0.1565
1104	0.4163	0.2370	3413	0.5270	0.2261
1105	0.7044	0.2947	3414	0.4856	0.2085
1106	0.2475	0.1509	3415	0.5075	0.2187
1108	0.4014	0.1999	3501	0.9144	0.3594
1109	0.7135	0.3709	3503	0.2242	0.1679
1301	0.3972	0.1783	3506	1.0939	0.2832
1303	0.1747	0.0756	3509	0.3560	0.1857
1304	0.0206	0.0109	3510	0.3964	0.1940
1305	0.3898	0.1799	3511	0.5503	0.2730
1401	0.5514	0.2549	3512	0.3069	0.1978
1404	0.5673	0.2228	3513	0.3961	0.2007
1405	0.4040	0.1894	3602	0.1061	0.0622
1501	0.4020	0.1644	3603	0.4065	0.2264
1507	0.3343	0.1518	3604	1.2653	0.5772
1701	0.7855	0.2945	3605	0.4585	0.2005
1702	1.9988	0.5581	3701	0.2363	0.1142
1703	0.3545	0.1245	3702	0.4202	0.1849
1704	0.7855	0.2945	3707	0.4514	0.2969
1801	0.9945	0.3244	3708	0.3857	0.1919
1802	1.0362	0.3682	3802	0.1629	0.0881
2002	0.5301	0.2663	3808	0.3562	0.1478
2004	0.5979	0.2937	3901	0.1317	0.0926
2007	0.4532	0.2051	3902	0.3682	0.1905
2008	0.2661	0.1199	3903	1.0189	0.5842
2009	0.3035	0.1626	3905	0.1317	0.0926
2101	0.5968	0.2541	3906	0.4147	0.1984
2102	0.3980	0.2070	3909	0.1542	0.0907
2104	0.2239	0.1329	4002	0.9145	0.3110
2105	0.6125	0.2346	4101	0.2127	0.1045
2106	0.3038	0.1583	4103	0.2408	0.1385
2201	0.2459	0.1104	4107	0.1317	0.0708
2202	0.5350	0.2594	4108	0.1555	0.0741
2203	0.3038	0.1599	4109	0.2049	0.1074
2204	0.1687	0.0757	4201	0.4422	0.1418
2401	0.3349	0.1985	4301	0.6635	0.3496
2903	0.5826	0.3029	4302	0.5826	0.2142
2904	0.7225	0.3505	4304	0.6394	0.3038
2905	0.4304	0.2309	4305	0.9470	0.3447
2906	0.3346	0.1380	4401	0.3995	0.1990
2907	0.4882	0.2348	4402	0.6263	0.3155
2908	0.9739	0.3970	4404	0.3812	0.1883
2909	0.4137	0.2111	4501	0.1231	0.0700
3101	0.7987	0.2912	4502	0.0387	0.0201
3102	0.2363	0.1142	4504	0.0767	0.0517
3103	0.8335	0.3169	4601	0.5782	0.2869
3104	0.5547	0.1819	4802	0.2047	0.1064
3105	0.7748	0.3320	4803	0.1743	0.1049
3303	0.2273	0.1156	4804	0.4751	0.2542
3304	0.4970	0.2693	4805	0.2870	0.1439

4806	0.0517	0.0279	6309	0.1348	0.0829
4808	0.4642	0.1864	6402	0.2712	0.1362
4809	0.2239	0.1211	6403	0.1718	0.1067
4810	0.1173	0.0783	6404	0.1604	0.0994
4811	0.2001	0.1199	6405	0.5424	0.2360
4812	0.3017	0.1426	6406	0.0622	0.0406
4813	0.1716	0.0981	6407	0.1950	0.1090
4900	0.5219	0.1808	6408	0.3073	0.1456
4901	0.0489	0.0207	6409	0.5270	0.2261
4902	0.0687	0.0324	6410	0.1438	0.0806
4903	0.0548	0.0249	6501	0.0962	0.0491
4904	0.0228	0.0134	6502	0.0253	0.0141
4905	0.2252	0.1500	6503	0.0728	0.0252
4906	0.0737	0.0353	6504	0.3039	0.2187
4907	0.0574	0.0292	6505	0.0798	0.0545
4908	0.0572	0.0847	6506	0.0737	0.0441
4909	0.0286	0.0371	6508	0.2925	0.1685
4910	0.3621	0.1836	6509	0.2135	0.1322
5001	5.3508	1.3677	6601	0.1525	0.0981
5002	0.4919	0.2089	6602	0.4193	0.2114
5003	1.6322	0.4623	6603	0.2957	0.1532
5004	1.3436	0.5964	6604	0.0523	0.0323
5005	1.2765	0.3733	6605	0.2417	0.1805
5006	1.6270	0.4598	6607	0.1198	0.0735
5101	0.7303	0.3937	6608	0.2993	0.1107
5103	0.6538	0.3576	6614	399.0000*	460.0000*
5106	0.6538	0.3576	6615	147.0000*	167.0000*
5108	0.5240	0.2536	6616	125.0000*	144.0000*
5109	0.6986	0.2587	6617	44.0000*	50.0000*
5201	0.3163	0.1312	6618	70.0000*	79.0000*
5204	0.9080	0.3662	6620	1.1163	0.5271
5206	0.5219	0.1808	6704	0.1026	0.0580
5207	0.1289	0.0907	6705	0.5747	0.4118
5208	0.8234	0.3465	6706	0.3038	0.2076
5209	0.6803	0.2976	6707	1.3843	0.8472
5301	0.0287	0.0152	6708	4.4763	3.5090
5305	0.0390	0.0242	6709	0.1414	0.1035
5306	0.0412	0.0223	6801	0.2337	0.1047
5307	0.3396	0.1413	6802	0.3428	0.2222
6103	0.0529	0.0397	6803	1.0538	0.2027
6104	0.2333	0.1312	6804	0.1957	0.0956
6105	0.1800	0.0854	6809	3.2414	2.7886
6107	0.0883	0.0624	6901	0.0000	0.0399
6108	0.3969	0.2358	6902	0.9373	0.2451
6109	0.0641	0.0315	6903	4.6292	1.3618
6110	0.3812	0.1874	6904	0.2188	0.0954
6201	0.3014	0.1201	6905	0.2642	0.1256
6202	0.5730	0.2749	6906	0.0000	0.1256
6203	0.0591	0.0444	6907	1.0827	0.4467
6204	0.1284	0.0834	6908	0.4326	0.2047
6205	0.1867	0.1063	6909	0.0866	0.0487
6206	0.1564	0.0889	7101	0.0264	0.0144
6207	0.9751	0.7654	7102	2.1732	2.5468
6208	0.2087	0.1632	7103	0.3091	0.1232
6209	0.2111	0.1314	7104	0.0204	0.0135
6301	0.1426	0.0529	7105	0.0210	0.0132
6302	0.1442	0.0800	7106	0.1334	0.0673
6303	0.0651	0.0327	7107	0.2202	0.1226
6304	0.1710	0.1155	7108	0.1487	0.1072
6305	0.0656	0.0402	7109	0.1350	0.0890
6306	0.2547	0.1272	7110	0.2958	0.1160
6308	0.0521	0.0267	7111	0.3619	0.1902

7112	0.5361	0.2518
7113	0.5638	0.2450
7114	0.5968	0.4148
7115	0.4644	0.2423
7116	0.4441	0.2204
7117	0.9669	0.5481
7118	1.7933	0.8898
7119	1.8051	0.7607
7120	4.3722	2.2248
7121	4.8163	2.2131
7201	1.0637	0.3586
7202	0.0414	0.0199
7203	0.0914	0.0709
7204	0.0000	0.0000
7301	0.5428	0.2204
7302	0.5759	0.3230
7307	0.5278	0.2969
7308	0.1680	0.1181
7309	0.1414	0.1035

* These rates are calculated on a per license basis for parimutuel race tracks and are base rated.

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-895, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-895, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.16.035. 96-12-039, § 296-17-895, filed 5/31/96, effective 7/1/96. Statutory Authority: RCW 51.16.035 and 51.32.073. 96-06-025, § 296-17-895, filed 2/28/96, effective 4/1/96. Statutory Authority: RCW 51.04.020. 95-23-080, § 296-17-895, filed 11/20/95, effective 1/1/96; 94-24-007, § 296-17-895, filed 11/28/94, effective 1/1/95. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 94-12-051, § 296-17-895, filed 5/27/94, effective 7/1/94. Statutory Authority: RCW 51.04.020. 93-24-114, § 296-17-895, filed 12/1/93, effective 1/1/94. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 93-12-093, § 296-17-895, filed 5/31/93, effective 7/1/93; 92-24-063, § 296-17-895, filed 11/30/92, effective 1/1/93; 91-24-053, § 296-17-895, filed 11/27/91, effective 1/1/92; 91-12-014, § 296-17-895, filed 5/31/91, effective 7/1/91; 90-24-042, § 296-17-895, filed 11/30/90, effective 1/1/91; 90-13-018, § 296-17-895, filed 6/8/90, effective 7/9/90; 89-24-051 (Order 89-22), § 296-17-895, filed 12/1/89, effective 1/1/90. Statutory Authority: RCW 51.04.020(1). 89-16-001 (Order 89-07), § 296-17-895, filed 7/20/89, effective 8/20/89. Statutory Authority: RCW 51.16.035 and 51.04.020. 88-24-012 (Order 88-30), § 296-17-895, filed 12/1/88, effective 1/1/89. Statutory Authority: RCW 51.16.035. 88-12-065 (Order 88-05), § 296-17-895, filed 5/31/88; 88-12-050 (Order 88-06), § 296-17-895, filed 5/31/88, effective 7/1/88; 88-06-047 (Order 87-33), § 296-17-895, filed 3/1/88; 87-24-060 (Order 87-26), § 296-17-895, filed 12/1/87, effective 1/1/88; 87-12-032 (Order 87-12), § 296-17-895, filed 5/29/87, effective 7/1/87. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 86-24-042 (Order 86-41), § 296-17-895, filed 11/26/86. Statutory Authority: RCW 51.16.035. 86-12-041 (Order 86-18), § 296-17-895, filed 5/30/86, effective 7/1/86; 85-24-032 (Order 85-33), § 296-17-895, filed 11/27/85, effective 1/1/86; 85-13-046 (Order 85-13), § 296-17-895, filed 6/17/85; 85-06-026 (Order 85-7), § 296-17-895, filed 2/28/85, effective 4/1/85; 84-24-016 (Order 84-23), § 296-17-895, filed 11/28/84, effective 1/1/85. Statutory Authority: RCW 51.04.020(1). 84-12-048 (Order 84-12), § 296-17-895, filed 6/1/84. Statutory Authority: RCW 51.16.035. 83-24-017 (Order 83-36), § 296-17-895, filed 11/30/83, effective 1/1/84; 82-24-047 (Order 82-38), § 296-17-895, filed 11/29/82, effective 1/1/83; 81-24-042 (Order 81-30), § 296-17-895, filed 11/30/81, effective 1/1/82; 81-04-024 (Order 81-02), § 296-17-895, filed 1/30/81; 80-17-016 (Order 80-23), § 296-17-895, filed 11/13/80, effective 1/1/81. Statutory Authority: RCW 51.04.030 and 51.16.035. 79-12-086 (Order 79-18), § 296-17-895, filed 11/30/79, effective 1/1/80. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 78-12-043 (Order 78-23), § 296-17-895, filed 11/27/78, effective 1/1/79; Order 77-27, § 296-17-895, filed 11/30/77, effective 1/1/78; Emergency Order 77-25, § 296-17-895, filed 12/1/77; Order 77-10, § 296-17-895, filed 5/31/77; Order 76-36, § 296-17-895, filed 11/30/76; Order 76-18, § 296-17-895, filed 5/28/76, effective 7/1/76; Order 75-38, § 296-17-895, filed 11/24/75, effective 1/1/76; Order 75-28, § 296-17-895, filed 8/29/75, effective 10/1/75; Order 74-40, § 296-17-895, filed 11/27/74, effective 1/1/75; Order 73-22, § 296-17-895, filed 11/9/73, effective 1/1/74.]

WAC 296-17-89502 Industrial insurance accident fund, medical aid and supplemental pension rates by class of industry for nonhourly rated classifications. The base rates as set forth below are for classifications whose premium rates are based on units other than hours worked.

Base Rates Effective
January 1, 1998

Class	Accident Fund	Medical Aid Fund	Supplemental Pension Fund
0524	0.0155	0.0040	0.0004
0526	0.0102	0.0025	0.0004
0527	0.0007	0.0002	0.0001
0528	0.0025	0.0007	0.0001
0529	0.0017	0.0004	0.0001
0530	0.0236	0.0059	0.0004
0531	0.0155	0.0038	0.0004
0532	0.0011	0.0003	0.0001
0533	0.0038	0.0011	0.0001
0534	0.0025	0.0007	0.0001

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-89502, filed 12/1/97, effective 1/1/98; 97-12-011, § 296-17-89502, filed 5/27/97, effective 7/1/97; 97-06-007, § 296-17-89502, filed 2/24/97, effective 4/1/97.]

WAC 296-17-919 Table I.

RETROSPECTIVE RATING PLANS A, A1, A2, A3, AND B
STANDARD PREMIUM SIZE RANGES
Effective January 1, 1998

Size Group Number	Standard Premium Range
63	\$ 3,389 - \$ 4,095
62	4,096 - 4,916
61	4,917 - 5,850
60	5,851 - 6,923
59	6,924 - 8,148
58	8,149 - 9,528
57	9,529 - 11,096
56	11,097 - 12,874
55	12,875 - 14,857
54	14,858 - 17,092
53	17,093 - 19,606
52	19,607 - 21,752
51	21,753 - 23,603
50	23,604 - 25,403
49	25,404 - 27,369
48	27,370 - 29,541
47	29,542 - 31,943
46	31,944 - 34,582
45	34,583 - 37,517
44	37,518 - 40,786
43	40,787 - 44,401
42	44,402 - 48,449
41	48,450 - 52,996
40	52,997 - 58,060
39	58,061 - 63,781

38	63,782	-	70,265	13	1,426,607	-	1,822,433
37	70,266	-	77,548	12	1,822,434	-	2,328,085
36	77,549	-	85,303	11	2,328,086	-	2,974,013
35	85,304	-	93,834	10	2,974,014	-	4,275,044
34	93,835	-	103,217	9	4,275,045	-	6,274,174
33	103,218	-	113,539	8	6,274,175	-	8,920,630
32	113,540	-	124,893	7	8,920,631	-	13,143,844
31	124,894	-	136,754	6	13,143,845	-	20,442,550
30	136,755	-	149,836	5	20,442,551	-	32,269,999
29	149,837	-	164,746	4	32,270,000	& Over	
28	164,747	-	181,609				
27	181,610	-	201,018				
26	201,019	-	223,468				
25	223,469	-	249,231				
24	249,232	-	279,394				
23	279,395	-	314,946				
22	314,947	-	356,499				
21	356,500	-	406,237				
20	406,238	-	466,296				
19	466,297	-	538,203				
18	538,204	-	626,836				
17	626,837	-	737,396				
16	737,397	-	874,197				
15	874,198	-	1,116,752				
14	1,116,753	-	1,426,606				

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-919, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-919, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.16.035. 96-10-029, § 296-17-919, filed 4/24/96, effective 4/26/96. Statutory Authority: RCW 51.04.020. 95-23-080, § 296-17-919, filed 11/20/95, effective 1/1/96; 95-06-069, § 296-17-919, filed 3/1/95, effective 4/10/95; 94-24-007, § 296-17-919, filed 11/28/94, effective 1/1/95; 93-24-114, § 296-17-919, filed 12/1/93, effective 1/1/94. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 92-24-063, § 296-17-919, filed 11/30/92, effective 1/1/93; 91-24-053, § 296-17-919, filed 11/27/91, effective 1/1/92; 90-24-042, § 296-17-919, filed 11/30/90, effective 1/1/91; 89-24-051 (Order 89-22), § 296-17-919, filed 12/1/89, effective 1/1/90; 88-24-010 (Order 88-26), § 296-17-919, filed 12/1/88, effective 1/1/89. Statutory Authority: RCW 51.16.035. 86-06-018 (Order 86-18), § 296-17-919, filed 2/25/86; 85-06-025 (Order 85-8), § 296-17-919, filed 2/28/85, effective 7/1/85; 84-06-024 (Order 84-2), § 296-17-919, filed 2/29/84, effective 7/1/84; 83-05-018 (Order 83-4), § 296-17-919, filed 2/9/83, effective 7/1/83; 82-05-019 (Order 82-5), § 296-17-919, filed 2/10/82; 81-24-042 (Order 81-30), § 296-17-919, filed 11/30/81, effective 1/1/82; 81-04-024 (Order 81-02), § 296-17-919, filed 1/30/81.]

WAC 296-17-91901 Table II.

RETROSPECTIVE RATING PLAN A
 BASIC PREMIUM RATIOS
 LOSS CONVERSION FACTOR = .729
 Effective January 1, 1998

Maximum Premium Ratio:	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.60	1.70	1.80	2.00
Size Group														
63	.907	.856	.820	.791	.766	.745	.725	.708	.692	.677	.649	.625	.602	.563
62	.902	.850	.813	.783	.757	.735	.715	.698	.681	.666	.638	.612	.590	.550
61	.897	.844	.805	.774	.748	.726	.705	.687	.670	.654	.625	.600	.577	.536
60	.892	.838	.798	.766	.739	.716	.695	.676	.658	.642	.613	.587	.563	.522
59	.888	.831	.790	.758	.730	.706	.684	.665	.647	.630	.600	.574	.550	.508
58	.883	.825	.783	.749	.720	.696	.674	.654	.635	.618	.588	.561	.537	.495
57	.878	.818	.775	.740	.711	.686	.663	.643	.624	.607	.576	.548	.524	.482
56	.872	.810	.766	.731	.701	.675	.652	.631	.612	.594	.563	.535	.511	.468
55	.865	.802	.757	.721	.690	.664	.640	.619	.599	.582	.550	.522	.497	.455
54	.858	.794	.747	.710	.679	.652	.628	.607	.587	.569	.537	.509	.484	.442
53	.851	.785	.738	.700	.668	.641	.616	.595	.575	.556	.524	.496	.471	.429
52	.843	.776	.728	.690	.657	.629	.605	.582	.562	.544	.511	.483	.458	.417
51	.836	.767	.718	.679	.646	.618	.592	.570	.550	.531	.498	.470	.446	.405
50	.828	.758	.708	.668	.634	.605	.580	.557	.537	.518	.485	.457	.432	.392
49	.821	.748	.697	.656	.622	.593	.567	.544	.524	.505	.472	.444	.419	.379
48	.813	.739	.686	.645	.610	.581	.555	.531	.511	.492	.459	.431	.406	.367
47	.804	.729	.675	.633	.598	.568	.542	.519	.498	.479	.446	.418	.394	.355
46	.796	.718	.663	.620	.584	.554	.528	.505	.484	.465	.433	.406	.382	.344
45	.787	.707	.650	.607	.571	.541	.514	.491	.471	.452	.420	.394	.371	.334
44	.778	.695	.638	.594	.557	.527	.501	.478	.458	.440	.408	.382	.360	.324
43	.768	.683	.625	.580	.544	.514	.488	.465	.445	.427	.396	.371	.349	.314
42	.758	.671	.612	.567	.530	.500	.474	.451	.431	.413	.383	.357	.336	.301
41	.748	.659	.599	.554	.517	.486	.460	.437	.417	.399	.368	.343	.322	.288
40	.737	.647	.586	.540	.503	.472	.446	.423	.403	.385	.355	.330	.309	.276

Workers' Compensation Insurance

296-17-91901

39	.726	.635	.573	.526	.489	.458	.432	.409	.389	.372	.342	.317	.296	.264
38	.714	.622	.560	.513	.476	.445	.418	.396	.376	.359	.329	.305	.284	.252
37	.702	.608	.546	.499	.462	.431	.405	.383	.363	.346	.317	.293	.273	.242
36	.688	.594	.532	.485	.448	.417	.392	.369	.350	.333	.304	.281	.262	.231
35	.673	.578	.516	.469	.433	.402	.377	.355	.336	.320	.292	.269	.250	.221
34	.657	.562	.500	.454	.418	.388	.363	.342	.323	.307	.280	.258	.240	.211
33	.640	.546	.484	.439	.403	.374	.349	.329	.310	.295	.268	.247	.229	.202
32	.623	.529	.468	.424	.389	.360	.336	.316	.298	.283	.257	.237	.220	.193
31	.607	.512	.452	.408	.373	.345	.322	.302	.285	.270	.246	.226	.210	.185
30	.589	.495	.435	.392	.358	.331	.308	.289	.273	.259	.235	.216	.201	.178
29	.571	.478	.419	.377	.344	.317	.295	.277	.261	.247	.225	.207	.193	.171
28	.553	.461	.403	.361	.329	.303	.282	.264	.248	.235	.213	.195	.181	.160
27	.537	.446	.388	.346	.314	.288	.267	.248	.233	.219	.197	.179	.165	.143
26	.521	.430	.373	.331	.299	.273	.252	.234	.218	.205	.183	.165	.151	.129
25	.504	.414	.358	.317	.285	.259	.238	.220	.205	.192	.170	.152	.138	.117
24	.482	.394	.339	.300	.269	.245	.225	.208	.194	.181	.161	.145	.132	.113
23	.460	.374	.321	.283	.254	.231	.213	.197	.184	.172	.153	.138	.127	.109
22	.437	.355	.304	.268	.241	.219	.201	.187	.174	.163	.146	.132	.121	.105
21	.414	.336	.288	.254	.228	.208	.191	.177	.166	.156	.139	.127	.117	.102
20	.394	.318	.272	.239	.214	.194	.179	.166	.155	.145	.130	.119	.110	.096
19	.377	.301	.254	.222	.198	.179	.164	.152	.142	.133	.120	.109	.101	.089
18	.358	.283	.238	.207	.184	.166	.152	.140	.131	.123	.110	.101	.094	.083
17	.339	.266	.222	.192	.171	.154	.140	.130	.121	.114	.103	.094	.088	.079
16	.320	.249	.208	.179	.159	.143	.131	.121	.113	.106	.096	.088	.083	.075
15	.303	.234	.194	.168	.148	.134	.122	.113	.106	.100	.091	.084	.079	.072
14	.293	.220	.180	.157	.141	.128	.117	.109	.103	.097	.089	.082	.078	.071
13	.281	.204	.167	.148	.133	.122	.112	.105	.099	.094	.086	.081	.076	.070
12	.269	.187	.156	.139	.126	.116	.108	.101	.096	.091	.084	.079	.075	.069
11	.254	.167	.145	.130	.119	.110	.103	.097	.092	.088	.082	.077	.073	.068
10	.238	.150	.135	.122	.113	.105	.098	.093	.089	.085	.079	.075	.072	.067
9	.219	.138	.125	.115	.106	.100	.094	.089	.085	.082	.077	.073	.071	.066
8	.197	.127	.116	.107	.100	.094	.090	.086	.082	.079	.075	.072	.069	.065
7	.170	.117	.108	.100	.094	.089	.085	.082	.079	.077	.073	.070	.068	.064
6	.137	.107	.100	.094	.089	.085	.081	.078	.076	.074	.071	.068	.066	.064
5	.105	.098	.092	.087	.083	.080	.077	.075	.073	.071	.068	.066	.065	.063
4	.096	.089	.084	.081	.078	.076	.074	.072	.070	.068	.066	.065	.064	.063

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-91901, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-91901, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.04.020. 95-06-069, § 296-17-91901, filed 3/1/95, effective 4/10/95. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 88-24-010 (Order 88-26), § 296-17-91901, filed 12/1/88, effective 1/1/89; 88-14-107 (Order 88-10), § 296-17-91901, filed 7/6/88; 86-17-002 (Order 86-29), § 296-17-91901, filed 8/8/86. Statutory Authority: RCW 51.16.035. 86-06-018 (Order 86-18), § 296-17-91901, filed 2/25/86; 85-06-025 (Order 85-8), § 296-17-91901, filed 2/28/85, effective 7/1/85; 84-06-024 (Order 84-2), § 296-17-91901, filed 2/29/84, effective 7/1/84; 83-05-018 (Order 83-4), § 296-17-91901, filed 2/9/83, effective 7/1/83; 82-05-019 (Order 82-5), § 296-17-91901, filed 2/10/82; 81-04-024 (Order 81-02), § 296-17-91901, filed 1/30/81.]

WAC 296-17-91902 Table III.

RETROSPECTIVE RATING PLAN B
BASIC PREMIUM RATIOS
AND LOSS CONVERSION FACTORS
Effective January 1, 1998

Maximum Premium Ratio:	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.60	1.70	1.80	2.00
Size Group														
63 Basic Premium Ratio	.993	.986	.979	.972	.965	.958	.951	.944	.938	.931	.917	.903	.889	.861
63 Loss Conversion Factor	.007	.014	.021	.028	.035	.042	.049	.056	.062	.069	.083	.097	.111	.139
62 Basic Premium Ratio	.992	.985	.977	.970	.962	.954	.947	.939	.931	.924	.909	.893	.878	.848
62 Loss Conversion Factor	.008	.015	.023	.030	.038	.046	.053	.061	.069	.076	.091	.107	.122	.152
61 Basic Premium Ratio	.992	.983	.975	.967	.959	.950	.942	.934	.926	.917	.901	.884	.868	.835
61 Loss Conversion Factor	.008	.017	.025	.033	.041	.050	.058	.066	.074	.083	.099	.116	.132	.165
60 Basic Premium Ratio	.991	.982	.973	.964	.955	.946	.937	.928	.919	.910	.892	.874	.856	.819
60 Loss Conversion Factor	.009	.018	.027	.036	.045	.054	.063	.072	.081	.090	.108	.126	.144	.181
59 Basic Premium Ratio	.990	.980	.971	.961	.951	.941	.931	.921	.912	.902	.882	.862	.843	.803
59 Loss Conversion Factor	.010	.020	.029	.039	.049	.059	.069	.079	.088	.098	.118	.138	.157	.197

58	Basic Premium Ratio	.989	.979	.968	.957	.947	.936	.926	.915	.904	.894	.872	.851	.830	.787
	Loss Conversion Factor	.011	.021	.032	.043	.053	.064	.074	.085	.096	.106	.128	.149	.170	.213
57	Basic Premium Ratio	.989	.977	.966	.954	.943	.931	.920	.908	.897	.886	.863	.840	.817	.771
	Loss Conversion Factor	.011	.023	.034	.046	.057	.069	.080	.092	.103	.114	.137	.160	.183	.229
56	Basic Premium Ratio	.988	.976	.963	.951	.939	.927	.914	.902	.890	.878	.853	.829	.805	.756
	Loss Conversion Factor	.012	.024	.037	.049	.061	.073	.086	.098	.110	.122	.147	.171	.195	.244
55	Basic Premium Ratio	.987	.974	.961	.948	.935	.922	.909	.896	.883	.870	.844	.818	.792	.741
	Loss Conversion Factor	.013	.026	.039	.052	.065	.078	.091	.104	.117	.130	.156	.182	.208	.259
54	Basic Premium Ratio	.986	.972	.959	.945	.931	.917	.904	.890	.876	.862	.835	.807	.780	.724
	Loss Conversion Factor	.014	.028	.041	.055	.069	.083	.096	.110	.124	.138	.165	.193	.220	.276
53	Basic Premium Ratio	.985	.971	.956	.941	.927	.912	.898	.883	.868	.854	.824	.795	.766	.707
	Loss Conversion Factor	.015	.029	.044	.059	.073	.088	.102	.117	.132	.146	.176	.205	.234	.293
52	Basic Premium Ratio	.984	.969	.953	.938	.922	.907	.891	.876	.860	.845	.814	.783	.752	.690
	Loss Conversion Factor	.016	.031	.047	.062	.078	.093	.109	.124	.140	.155	.186	.217	.248	.310
51	Basic Premium Ratio	.983	.967	.950	.934	.917	.901	.884	.868	.851	.835	.802	.769	.735	.669
	Loss Conversion Factor	.017	.033	.050	.066	.083	.099	.116	.132	.149	.165	.198	.231	.265	.331
50	Basic Premium Ratio	.982	.965	.947	.929	.911	.894	.876	.858	.841	.823	.787	.752	.717	.646
	Loss Conversion Factor	.018	.035	.053	.071	.089	.106	.124	.142	.159	.177	.213	.248	.283	.354
49	Basic Premium Ratio	.981	.962	.943	.924	.905	.886	.867	.848	.829	.810	.772	.734	.696	.621
	Loss Conversion Factor	.019	.038	.057	.076	.095	.114	.133	.152	.171	.190	.228	.266	.304	.379
48	Basic Premium Ratio	.980	.959	.939	.919	.898	.878	.858	.837	.817	.797	.756	.716	.675	.594
	Loss Conversion Factor	.020	.041	.061	.081	.102	.122	.142	.163	.183	.203	.244	.284	.325	.406
47	Basic Premium Ratio	.978	.957	.935	.913	.891	.870	.848	.826	.805	.783	.740	.696	.653	.566
	Loss Conversion Factor	.022	.043	.065	.087	.109	.130	.152	.174	.195	.217	.260	.304	.347	.434
46	Basic Premium Ratio	.977	.954	.931	.908	.885	.862	.839	.816	.793	.770	.724	.677	.631	.539
	Loss Conversion Factor	.023	.046	.069	.092	.115	.138	.161	.184	.207	.230	.276	.323	.369	.461
45	Basic Premium Ratio	.976	.951	.927	.902	.878	.854	.829	.805	.780	.756	.707	.658	.609	.512
	Loss Conversion Factor	.024	.049	.073	.098	.122	.146	.171	.195	.220	.244	.293	.342	.391	.488
44	Basic Premium Ratio	.974	.948	.922	.897	.871	.845	.819	.793	.767	.742	.690	.638	.587	.483
	Loss Conversion Factor	.026	.052	.078	.103	.129	.155	.181	.207	.233	.258	.310	.362	.413	.517
43	Basic Premium Ratio	.973	.945	.918	.891	.863	.836	.809	.781	.754	.727	.672	.617	.562	.453
	Loss Conversion Factor	.027	.055	.082	.109	.137	.164	.191	.219	.246	.273	.328	.383	.438	.547
42	Basic Premium Ratio	.970	.941	.911	.881	.852	.822	.792	.763	.733	.703	.644	.585	.525	.406
	Loss Conversion Factor	.030	.059	.089	.119	.148	.178	.208	.237	.267	.297	.356	.415	.475	.594
41	Basic Premium Ratio	.968	.935	.903	.870	.838	.806	.773	.741	.708	.676	.611	.546	.481	.352
	Loss Conversion Factor	.032	.065	.097	.130	.162	.194	.227	.259	.292	.324	.389	.454	.519	.648
40	Basic Premium Ratio	.965	.929	.894	.859	.823	.788	.753	.718	.682	.647	.576	.506	.435	.294
	Loss Conversion Factor	.035	.071	.106	.141	.177	.212	.247	.282	.318	.353	.424	.494	.565	.706
39	Basic Premium Ratio	.962	.923	.885	.847	.808	.770	.732	.693	.655	.616	.540	.463	.386	.233
	Loss Conversion Factor	.038	.077	.115	.153	.192	.230	.268	.307	.345	.384	.460	.537	.614	.767
38	Basic Premium Ratio	.958	.917	.875	.834	.792	.751	.709	.668	.626	.585	.502	.419	.336	.170
	Loss Conversion Factor	.042	.083	.125	.166	.208	.249	.291	.332	.374	.415	.498	.581	.664	.830
37	Basic Premium Ratio	.955	.910	.865	.820	.776	.731	.686	.641	.596	.551	.461	.371	.282	.102
	Loss Conversion Factor	.045	.090	.135	.180	.224	.269	.314	.359	.404	.449	.539	.629	.718	.898
36	Basic Premium Ratio	.951	.903	.854	.806	.757	.709	.660	.612	.563	.514	.417	.320	.223	.029
	Loss Conversion Factor	.049	.097	.146	.194	.243	.291	.340	.388	.437	.486	.583	.680	.777	.971
35	Basic Premium Ratio	.947	.895	.842	.789	.736	.684	.631	.578	.525	.473	.367	.262	.156	.000
	Loss Conversion Factor	.053	.105	.158	.211	.264	.316	.369	.422	.475	.527	.633	.738	.844	.987
34	Basic Premium Ratio	.943	.886	.829	.771	.714	.657	.600	.543	.486	.428	.314	.200	.085	.000
	Loss Conversion Factor	.057	.114	.171	.229	.286	.343	.400	.457	.514	.572	.686	.800	.915	.969
33	Basic Premium Ratio	.938	.876	.814	.752	.690	.628	.567	.505	.443	.381	.257	.133	.009	.000
	Loss Conversion Factor	.062	.124	.186	.248	.310	.372	.433	.495	.557	.619	.743	.867	.991	.953
32	Basic Premium Ratio	.933	.866	.799	.732	.665	.598	.531	.463	.396	.329	.195	.061	.000	.000
	Loss Conversion Factor	.067	.134	.201	.268	.335	.402	.469	.537	.604	.671	.805	.939	.984	.939
31	Basic Premium Ratio	.927	.854	.781	.707	.634	.561	.488	.415	.342	.268	.122	.000	.000	.000
	Loss Conversion Factor	.073	.146	.219	.293	.366	.439	.512	.585	.658	.732	.878	.994	.965	.925
30	Basic Premium Ratio	.920	.840	.760	.680	.600	.520	.440	.360	.280	.200	.040	.000	.000	.000
	Loss Conversion Factor	.080	.160	.240	.320	.400	.480	.560	.640	.720	.800	.960	.975	.949	.913

Workers' Compensation Insurance

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29	Basic Premium Ratio	.913	.826	.739	.651	.564	.477	.390	.303	.216	.128	.000	.000	.000	.000
	Loss Conversion Factor	.087	.174	.261	.349	.436	.523	.610	.697	.784	.872	.990	.958	.935	.902
28	Basic Premium Ratio	.904	.807	.711	.615	.519	.422	.326	.230	.134	.037	.000	.000	.000	.000
	Loss Conversion Factor	.096	.193	.289	.385	.481	.578	.674	.770	.866	.963	.969	.940	.918	.887
27	Basic Premium Ratio	.892	.785	.677	.570	.462	.355	.247	.140	.032	.000	.000	.000	.000	.000
	Loss Conversion Factor	.108	.215	.323	.430	.538	.645	.753	.860	.968	.983	.946	.918	.897	.868
26	Basic Premium Ratio	.881	.761	.642	.522	.403	.283	.164	.044	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.119	.239	.358	.478	.597	.717	.836	.956	.983	.960	.925	.899	.879	.851
25	Basic Premium Ratio	.868	.736	.604	.472	.340	.208	.075	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.132	.264	.396	.528	.660	.792	.925	.987	.961	.940	.907	.883	.864	.838
24	Basic Premium Ratio	.852	.705	.557	.409	.261	.114	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.148	.295	.443	.591	.739	.886	.992	.964	.941	.922	.893	.872	.855	.832
23	Basic Premium Ratio	.835	.669	.504	.338	.173	.008	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.165	.331	.496	.662	.827	.992	.969	.944	.924	.907	.881	.862	.848	.827
22	Basic Premium Ratio	.814	.628	.442	.256	.070	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.186	.372	.558	.744	.930	.978	.949	.927	.909	.894	.871	.854	.841	.823
21	Basic Premium Ratio	.790	.579	.369	.159	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.210	.421	.631	.841	.990	.957	.932	.912	.896	.882	.862	.847	.835	.818
20	Basic Premium Ratio	.758	.516	.274	.032	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.242	.484	.726	.968	.966	.936	.913	.895	.881	.869	.851	.837	.827	.812
19	Basic Premium Ratio	.720	.439	.159	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.280	.561	.841	.979	.942	.915	.894	.878	.865	.854	.838	.826	.817	.805
18	Basic Premium Ratio	.672	.344	.016	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.328	.656	.984	.954	.920	.896	.877	.863	.851	.842	.827	.817	.810	.799
17	Basic Premium Ratio	.617	.234	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.383	.766	.977	.932	.902	.879	.863	.850	.839	.831	.819	.810	.803	.794
16	Basic Premium Ratio	.550	.100	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.450	.900	.953	.913	.885	.865	.851	.839	.830	.823	.812	.804	.798	.790
15	Basic Premium Ratio	.477	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.523	.992	.932	.896	.872	.854	.841	.831	.822	.816	.806	.799	.794	.788
14	Basic Premium Ratio	.414	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.586	.973	.912	.881	.861	.846	.834	.825	.818	.812	.804	.797	.793	.787
13	Basic Premium Ratio	.344	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.656	.953	.889	.867	.851	.838	.828	.821	.814	.809	.801	.796	.791	.786
12	Basic Premium Ratio	.256	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.744	.931	.874	.856	.842	.831	.823	.816	.810	.806	.799	.794	.790	.785
11	Basic Premium Ratio	.159	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.841	.906	.860	.846	.834	.825	.818	.812	.807	.803	.796	.792	.788	.784
10	Basic Premium Ratio	.042	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.958	.879	.848	.836	.827	.819	.813	.807	.803	.800	.794	.790	.787	.783
9	Basic Premium Ratio	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.982	.850	.838	.828	.820	.813	.808	.803	.800	.797	.792	.788	.786	.782
8	Basic Premium Ratio	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.952	.838	.828	.820	.813	.808	.803	.800	.796	.794	.790	.787	.784	.781
7	Basic Premium Ratio	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.917	.828	.820	.813	.807	.803	.799	.796	.793	.791	.788	.785	.783	.780
6	Basic Premium Ratio	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.876	.818	.812	.806	.802	.798	.795	.792	.790	.788	.785	.783	.782	.779
5	Basic Premium Ratio	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.826	.809	.804	.800	.797	.794	.791	.789	.787	.786	.783	.782	.780	.778
4	Basic Premium Ratio	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Loss Conversion Factor	.815	.800	.797	.794	.792	.790	.788	.786	.785	.784	.782	.781	.779	.777

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-91902, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-91902, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.04.020. 95-06-069, § 296-17-91902, filed 3/1/95, effective 4/10/95. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 88-24-010 (Order 88-26), § 296-17-91902, filed 12/1/88, effective 1/1/89; 88-14-107 (Order 88-10), § 296-17-91902, filed 7/6/88; 86-17-002 (Order 86-29), § 296-17-91902, filed 8/8/86. Statutory Authority: RCW 51.16.035. 86-06-018 (Order 86-18), § 296-17-91902, filed 2/25/86; 85-06-025 (Order 85-8), § 296-17-91902, filed 2/28/85, effective 7/1/85; 84-06-024 (Order 84-2), § 296-17-91902, filed 2/29/84, effective 7/1/84; 83-05-018 (Order 83-4), § 296-17-91902, filed 2/9/83, effective 7/1/83; 82-05-019 (Order 82-5), § 296-17-91902, filed 2/10/82; 81-04-024 (Order 81-02), § 296-17-91902, filed 1/30/81.]

WAC 296-17-91903 Table IV.

RETROSPECTIVE RATING PLAN A1
 MINIMUM PREMIUM RATIOS
 BASIC PREMIUM RATIO = .058
 LOSS CONVERSION FACTOR = .729

Effective January 1, 1998

Maximum Premium Ratio:	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.60	1.70	1.80	2.00
Size Group														
63	.987	.975	.963	.951	.940	.928	.918	.907	.897	.887	.868	.850	.833	.801
62	.987	.974	.961	.949	.938	.926	.915	.904	.894	.884	.864	.845	.828	.795
61	.986	.973	.960	.948	.936	.924	.912	.901	.890	.880	.860	.841	.823	.789
60	.986	.972	.959	.946	.933	.921	.909	.898	.887	.876	.855	.836	.817	.783
59	.985	.971	.958	.944	.931	.919	.907	.895	.883	.872	.851	.831	.812	.777
58	.985	.970	.956	.943	.929	.917	.904	.892	.880	.869	.847	.826	.807	.771
57	.985	.970	.955	.941	.927	.914	.901	.889	.877	.865	.843	.822	.802	.765
56	.984	.969	.954	.939	.925	.912	.899	.886	.874	.862	.839	.818	.797	.760
55	.984	.968	.953	.938	.924	.910	.896	.884	.871	.859	.836	.814	.793	.756
54	.983	.967	.951	.936	.922	.908	.894	.881	.868	.856	.832	.810	.790	.752
53	.983	.966	.950	.935	.920	.906	.892	.878	.866	.853	.829	.807	.786	.748
52	.982	.965	.949	.933	.918	.904	.890	.876	.863	.850	.826	.804	.783	.744
51	.982	.965	.948	.932	.917	.902	.887	.874	.860	.847	.823	.800	.779	.740
50	.982	.964	.947	.930	.915	.899	.885	.871	.857	.844	.819	.796	.775	.735
49	.981	.963	.946	.929	.913	.897	.882	.868	.854	.841	.816	.792	.770	.731
48	.981	.962	.945	.927	.911	.895	.880	.866	.852	.838	.812	.789	.767	.727
47	.980	.962	.944	.926	.910	.894	.878	.864	.849	.836	.810	.786	.764	.723
46	.980	.961	.943	.925	.909	.893	.877	.863	.848	.835	.809	.785	.763	.723
45	.980	.961	.942	.925	.908	.892	.877	.862	.848	.834	.808	.784	.762	.722
44	.980	.960	.942	.924	.907	.891	.876	.861	.847	.833	.808	.784	.762	.722
43	.980	.960	.941	.924	.907	.891	.875	.861	.846	.833	.807	.784	.762	.722
42	.979	.959	.940	.922	.905	.888	.872	.857	.843	.829	.803	.779	.757	.717
41	.978	.958	.938	.920	.902	.885	.869	.853	.839	.825	.798	.774	.751	.710
40	.978	.957	.937	.918	.899	.882	.866	.850	.835	.820	.793	.768	.745	.704
39	.977	.956	.935	.916	.897	.879	.863	.846	.831	.816	.789	.764	.741	.699
38	.977	.955	.934	.914	.895	.877	.860	.843	.828	.813	.785	.760	.736	.694
37	.976	.954	.933	.912	.893	.875	.857	.841	.825	.810	.782	.756	.732	.690
36	.976	.953	.932	.911	.891	.873	.855	.838	.822	.807	.779	.753	.729	.686
35	.976	.953	.931	.910	.890	.871	.854	.837	.821	.805	.777	.751	.727	.684
34	.975	.952	.930	.909	.889	.870	.852	.835	.819	.804	.775	.749	.725	.683
33	.975	.951	.929	.908	.888	.869	.851	.834	.818	.802	.774	.748	.724	.682
32	.975	.951	.929	.907	.887	.868	.850	.833	.817	.802	.773	.747	.724	.682
31	.975	.951	.928	.907	.886	.867	.849	.832	.816	.801	.773	.747	.724	.682
30	.974	.950	.927	.906	.886	.867	.849	.832	.816	.801	.773	.747	.724	.682
29	.974	.950	.927	.906	.886	.867	.849	.832	.816	.801	.773	.747	.724	.682
28	.974	.949	.926	.904	.883	.864	.846	.828	.812	.797	.769	.744	.721	.682
27	.973	.947	.922	.899	.877	.857	.837	.819	.802	.785	.754	.727	.701	.657
26	.972	.945	.919	.895	.872	.851	.830	.811	.792	.775	.742	.712	.685	.636
25	.971	.943	.917	.892	.868	.846	.824	.804	.785	.766	.732	.701	.672	.620
24	.971	.943	.917	.892	.868	.846	.824	.804	.785	.766	.732	.701	.672	.620
23	.971	.943	.917	.892	.868	.846	.824	.804	.785	.766	.732	.701	.672	.620
22	.971	.943	.917	.892	.868	.846	.824	.804	.785	.766	.732	.701	.672	.620
21	.971	.943	.917	.892	.868	.846	.824	.804	.785	.766	.732	.701	.672	.620
20	.971	.943	.917	.892	.868	.846	.824	.804	.785	.766	.732	.701	.672	.620
19	.970	.941	.915	.891	.868	.846	.824	.804	.785	.766	.732	.701	.672	.620
18	.969	.940	.912	.887	.864	.843	.823	.804	.785	.766	.732	.701	.672	.620
17	.968	.938	.911	.885	.862	.840	.820	.801	.784	.766	.732	.701	.672	.620
16	.968	.937	.910	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
15	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
14	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
13	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
12	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
11	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
10	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
9	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
8	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620

Workers' Compensation Insurance

296-17-91903

7	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
6	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
5	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620
4	.967	.937	.909	.884	.860	.838	.818	.800	.783	.766	.732	.701	.672	.620

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-91903, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-91903, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.04.020. 95-06-069, § 296-17-91903, filed 3/1/95, effective 4/10/95. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 88-24-010 (Order 88-26), § 296-17-91903, filed 12/1/88, effective 1/1/89; 88-14-107 (Order 88-10), § 296-17-91903, filed 7/6/88; 86-17-002 (Order 86-29), § 296-17-91903, filed 8/8/86. Statutory Authority: RCW 51.16.035. 86-06-018 (Order 86-18), § 296-17-91903, filed 2/25/86.]

WAC 296-17-91904 Table V.

RETROSPECTIVE RATING PLAN A2
 MINIMUM PREMIUM RATIOS
 AND BASIC PREMIUM RATIOS
 LOSS CONVERSION FACTOR = .729
 Effective January 1, 1998

Maximum Premium Ratio: 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.60 1.70 1.80 2.00

Size Group		1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.60	1.70	1.80	2.00
63	Basic Premium Ratio	.483	.457	.439	.425	.412	.402	.392	.383	.375	.368	.354	.342	.330	.311
	Minimum Premium Ratio	.979	.960	.943	.927	.912	.898	.884	.871	.859	.846	.823	.802	.782	.745
62	Basic Premium Ratio	.480	.454	.436	.421	.408	.397	.387	.378	.370	.362	.348	.335	.324	.304
	Minimum Premium Ratio	.978	.959	.941	.925	.909	.894	.880	.867	.854	.841	.818	.796	.775	.738
61	Basic Premium Ratio	.478	.451	.432	.416	.403	.392	.382	.373	.364	.356	.342	.329	.318	.297
	Minimum Premium Ratio	.977	.957	.939	.922	.906	.891	.876	.862	.849	.836	.811	.789	.768	.730
60	Basic Premium Ratio	.475	.448	.428	.412	.399	.387	.377	.367	.358	.350	.336	.323	.311	.290
	Minimum Premium Ratio	.976	.955	.936	.919	.902	.886	.871	.857	.843	.830	.805	.781	.760	.721
59	Basic Premium Ratio	.473	.445	.424	.408	.394	.382	.371	.362	.353	.344	.329	.316	.304	.283
	Minimum Premium Ratio	.975	.954	.934	.916	.898	.882	.867	.852	.837	.824	.798	.774	.752	.713
58	Basic Premium Ratio	.471	.442	.421	.404	.389	.377	.366	.356	.347	.338	.323	.310	.298	.277
	Minimum Premium Ratio	.974	.952	.931	.912	.895	.878	.862	.847	.832	.818	.792	.767	.745	.704
57	Basic Premium Ratio	.468	.438	.417	.399	.385	.372	.361	.351	.341	.333	.317	.303	.291	.270
	Minimum Premium Ratio	.973	.950	.929	.909	.891	.874	.857	.842	.827	.813	.786	.761	.738	.697
56	Basic Premium Ratio	.465	.434	.412	.395	.380	.367	.355	.345	.335	.326	.311	.297	.285	.263
	Minimum Premium Ratio	.972	.948	.926	.906	.887	.870	.853	.837	.822	.807	.780	.755	.731	.690
55	Basic Premium Ratio	.462	.430	.408	.390	.374	.361	.349	.339	.329	.320	.304	.290	.278	.257
	Minimum Premium Ratio	.971	.946	.924	.903	.884	.866	.849	.832	.817	.802	.774	.749	.725	.683
54	Basic Premium Ratio	.458	.426	.403	.384	.369	.355	.343	.333	.323	.314	.298	.284	.271	.250
	Minimum Premium Ratio	.970	.945	.922	.900	.880	.862	.844	.827	.812	.797	.768	.743	.719	.677
53	Basic Premium Ratio	.455	.422	.398	.379	.363	.350	.337	.327	.317	.307	.291	.277	.265	.244
	Minimum Premium Ratio	.969	.943	.919	.897	.877	.858	.840	.823	.807	.792	.763	.737	.713	.671
52	Basic Premium Ratio	.451	.417	.393	.374	.358	.344	.332	.320	.310	.301	.285	.271	.258	.238
	Minimum Premium Ratio	.968	.941	.917	.895	.874	.854	.836	.819	.803	.787	.758	.732	.709	.666
51	Basic Premium Ratio	.447	.413	.388	.369	.352	.338	.325	.314	.304	.295	.278	.264	.252	.232
	Minimum Premium Ratio	.967	.939	.914	.891	.870	.851	.832	.815	.798	.782	.753	.727	.703	.660
50	Basic Premium Ratio	.443	.408	.383	.363	.346	.332	.319	.308	.298	.288	.272	.258	.245	.225
	Minimum Premium Ratio	.966	.937	.912	.888	.867	.846	.828	.810	.793	.777	.747	.721	.697	.654
49	Basic Premium Ratio	.440	.403	.378	.357	.340	.326	.313	.301	.291	.282	.265	.251	.239	.219
	Minimum Premium Ratio	.965	.935	.909	.885	.863	.842	.823	.805	.788	.772	.742	.715	.690	.647
48	Basic Premium Ratio	.436	.399	.372	.352	.334	.320	.307	.295	.285	.275	.259	.245	.232	.213
	Minimum Premium Ratio	.964	.933	.907	.882	.860	.839	.819	.801	.783	.767	.737	.710	.685	.641
47	Basic Premium Ratio	.431	.394	.367	.346	.328	.313	.300	.289	.278	.269	.252	.238	.226	.207
	Minimum Premium Ratio	.962	.931	.904	.879	.856	.835	.816	.797	.780	.763	.733	.706	.681	.637
46	Basic Premium Ratio	.427	.388	.361	.339	.321	.306	.293	.282	.271	.262	.246	.232	.220	.201
	Minimum Premium Ratio	.961	.929	.901	.876	.853	.832	.812	.793	.776	.760	.729	.702	.678	.635
45	Basic Premium Ratio	.423	.383	.354	.333	.315	.300	.286	.275	.265	.255	.239	.226	.215	.196
	Minimum Premium Ratio	.960	.927	.899	.873	.850	.829	.809	.790	.773	.757	.727	.700	.675	.633

44	Basic Premium Ratio	.418	.377	.348	.326	.308	.293	.280	.268	.258	.249	.233	.220	.209	.191
	Minimum Premium Ratio	.958	.925	.897	.871	.848	.826	.806	.788	.771	.754	.725	.698	.674	.631
43	Basic Premium Ratio	.413	.371	.342	.319	.301	.286	.273	.262	.252	.243	.227	.215	.204	.186
	Minimum Premium Ratio	.957	.924	.895	.869	.846	.824	.804	.786	.768	.752	.723	.696	.672	.630
42	Basic Premium Ratio	.408	.365	.335	.313	.294	.279	.266	.255	.245	.236	.221	.208	.197	.180
	Minimum Premium Ratio	.956	.921	.892	.865	.842	.820	.799	.781	.763	.747	.716	.690	.666	.623
41	Basic Premium Ratio	.403	.359	.329	.306	.288	.272	.259	.248	.238	.229	.213	.201	.190	.173
	Minimum Premium Ratio	.954	.919	.889	.862	.837	.815	.794	.775	.757	.740	.710	.683	.659	.616
40	Basic Premium Ratio	.398	.353	.322	.299	.281	.265	.252	.241	.231	.222	.207	.194	.184	.167
	Minimum Premium Ratio	.953	.917	.886	.858	.833	.810	.789	.770	.752	.735	.704	.677	.651	.609
39	Basic Premium Ratio	.392	.347	.316	.292	.274	.258	.245	.234	.224	.215	.200	.188	.177	.161
	Minimum Premium Ratio	.951	.914	.883	.855	.829	.806	.785	.765	.747	.730	.699	.671	.646	.603
38	Basic Premium Ratio	.386	.340	.309	.286	.267	.252	.238	.227	.217	.209	.194	.182	.171	.155
	Minimum Premium Ratio	.950	.913	.880	.852	.826	.802	.781	.761	.743	.725	.694	.666	.641	.598
37	Basic Premium Ratio	.380	.333	.302	.279	.260	.245	.232	.221	.211	.202	.188	.176	.166	.150
	Minimum Premium Ratio	.949	.911	.878	.849	.823	.800	.778	.757	.739	.722	.690	.661	.636	.593
36	Basic Premium Ratio	.373	.326	.295	.272	.253	.238	.225	.214	.204	.196	.181	.170	.160	.145
	Minimum Premium Ratio	.948	.909	.876	.847	.821	.797	.775	.755	.736	.718	.687	.658	.634	.590
35	Basic Premium Ratio	.366	.318	.287	.264	.246	.230	.218	.207	.197	.189	.175	.164	.154	.140
	Minimum Premium Ratio	.947	.908	.874	.845	.818	.795	.773	.752	.734	.716	.685	.656	.632	.588
34	Basic Premium Ratio	.358	.310	.279	.256	.238	.223	.211	.200	.191	.183	.169	.158	.149	.135
	Minimum Premium Ratio	.946	.906	.873	.844	.817	.793	.771	.751	.732	.714	.683	.655	.630	.587
33	Basic Premium Ratio	.349	.302	.271	.249	.231	.216	.204	.194	.184	.177	.163	.153	.144	.130
	Minimum Premium Ratio	.945	.906	.872	.842	.816	.792	.770	.750	.732	.714	.683	.655	.630	.588
32	Basic Premium Ratio	.341	.294	.263	.241	.224	.209	.197	.187	.178	.171	.158	.148	.139	.126
	Minimum Premium Ratio	.945	.905	.872	.842	.816	.792	.770	.750	.732	.714	.683	.655	.631	.589
31	Basic Premium Ratio	.333	.285	.255	.233	.216	.202	.190	.180	.172	.164	.152	.142	.134	.122
	Minimum Premium Ratio	.944	.904	.870	.841	.814	.790	.769	.749	.730	.714	.683	.656	.633	.591
30	Basic Premium Ratio	.324	.277	.247	.225	.208	.195	.183	.174	.166	.159	.147	.137	.130	.118
	Minimum Premium Ratio	.943	.902	.869	.840	.814	.790	.769	.748	.730	.713	.683	.658	.634	.595
29	Basic Premium Ratio	.315	.268	.239	.218	.201	.188	.177	.168	.160	.153	.142	.133	.126	.115
	Minimum Premium Ratio	.942	.902	.868	.839	.813	.790	.769	.749	.731	.715	.685	.659	.637	.599
28	Basic Premium Ratio	.306	.260	.231	.210	.194	.181	.170	.161	.153	.147	.136	.127	.120	.109
	Minimum Premium Ratio	.942	.901	.867	.838	.811	.788	.766	.747	.729	.711	.681	.655	.632	.593
27	Basic Premium Ratio	.298	.252	.223	.202	.186	.173	.163	.153	.146	.139	.128	.119	.112	.101
	Minimum Premium Ratio	.940	.898	.864	.833	.806	.781	.758	.738	.718	.700	.668	.640	.614	.571
26	Basic Premium Ratio	.290	.244	.216	.195	.179	.166	.155	.146	.138	.132	.121	.112	.105	.094
	Minimum Premium Ratio	.939	.896	.860	.829	.801	.775	.752	.731	.711	.691	.657	.627	.599	.553
25	Basic Premium Ratio	.281	.236	.208	.188	.172	.159	.148	.139	.132	.125	.114	.105	.098	.088
	Minimum Premium Ratio	.938	.895	.858	.826	.797	.771	.747	.725	.704	.685	.650	.619	.592	.542
24	Basic Premium Ratio	.270	.226	.199	.179	.164	.152	.142	.133	.126	.120	.110	.102	.095	.086
	Minimum Premium Ratio	.938	.894	.858	.827	.798	.773	.749	.729	.708	.689	.655	.625	.600	.551
23	Basic Premium Ratio	.259	.216	.190	.171	.156	.145	.136	.128	.121	.115	.106	.098	.093	.084
	Minimum Premium Ratio	.938	.895	.860	.829	.802	.777	.753	.733	.714	.697	.663	.636	.608	.564
22	Basic Premium Ratio	.248	.207	.181	.163	.150	.139	.130	.123	.116	.111	.102	.095	.090	.082
	Minimum Premium Ratio	.938	.896	.862	.832	.805	.781	.760	.739	.722	.704	.674	.648	.622	.580
21	Basic Premium Ratio	.236	.197	.173	.156	.143	.133	.125	.118	.112	.107	.099	.093	.088	.080
	Minimum Premium Ratio	.940	.899	.865	.836	.811	.787	.766	.747	.730	.714	.685	.659	.636	.599
20	Basic Premium Ratio	.226	.188	.165	.149	.136	.126	.119	.112	.107	.102	.094	.089	.084	.077
	Minimum Premium Ratio	.939	.898	.865	.835	.810	.788	.766	.748	.730	.715	.689	.662	.642	.607
19	Basic Premium Ratio	.218	.180	.156	.140	.128	.119	.111	.105	.100	.096	.089	.084	.080	.074
	Minimum Premium Ratio	.937	.894	.860	.830	.804	.781	.761	.742	.724	.708	.680	.655	.633	.597
18	Basic Premium Ratio	.208	.171	.148	.133	.121	.112	.105	.099	.095	.091	.084	.080	.076	.071
	Minimum Premium Ratio	.935	.892	.857	.826	.800	.777	.756	.737	.718	.703	.677	.651	.631	.594
17	Basic Premium Ratio	.199	.162	.140	.125	.115	.106	.099	.094	.090	.086	.081	.076	.073	.069
	Minimum Premium Ratio	.934	.891	.856	.826	.798	.775	.755	.736	.717	.703	.673	.653	.631	.592
16	Basic Premium Ratio	.189	.154	.133	.119	.109	.101	.095	.090	.086	.082	.077	.073	.071	.067
	Minimum Premium Ratio	.934	.890	.855	.825	.798	.775	.754	.736	.719	.706	.679	.658	.633	.598

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15	Basic Premium Ratio	.181	.146	.126	.113	.103	.096	.090	.086	.082	.079	.075	.071	.069	.065
	Minimum Premium Ratio	.933	.889	.855	.826	.801	.778	.759	.739	.724	.710	.682	.663	.641	.613
14	Basic Premium Ratio	.176	.139	.119	.108	.100	.093	.088	.084	.081	.078	.074	.070	.068	.065
	Minimum Premium Ratio	.924	.878	.850	.821	.796	.775	.755	.737	.720	.706	.679	.663	.642	.608
13	Basic Premium Ratio	.170	.131	.113	.103	.096	.090	.085	.082	.079	.076	.072	.070	.067	.064
	Minimum Premium Ratio	.915	.868	.844	.818	.793	.772	.754	.735	.719	.706	.682	.656	.643	.612
12	Basic Premium Ratio	.164	.123	.107	.099	.092	.087	.083	.080	.077	.075	.071	.069	.067	.064
	Minimum Premium Ratio	.904	.860	.839	.812	.791	.770	.751	.732	.718	.702	.680	.655	.637	.606
11	Basic Premium Ratio	.156	.113	.102	.094	.089	.084	.081	.078	.075	.073	.070	.068	.066	.063
	Minimum Premium Ratio	.892	.859	.834	.811	.786	.768	.747	.730	.718	.704	.678	.655	.638	.612
10	Basic Premium Ratio	.148	.104	.097	.090	.086	.082	.078	.076	.074	.072	.069	.067	.065	.063
	Minimum Premium Ratio	.876	.858	.829	.807	.782	.762	.748	.728	.712	.699	.676	.654	.640	.605
9	Basic Premium Ratio	.139	.098	.092	.087	.082	.079	.076	.074	.072	.070	.068	.066	.065	.062
	Minimum Premium Ratio	.856	.853	.825	.800	.782	.761	.744	.727	.712	.702	.674	.654	.631	.612
8	Basic Premium Ratio	.106	.093	.087	.083	.079	.076	.074	.072	.070	.069	.067	.065	.064	.062
	Minimum Premium Ratio	.855	.846	.823	.798	.779	.761	.741	.725	.713	.697	.671	.654	.633	.604
7	Basic Premium Ratio	.097	.088	.083	.079	.076	.074	.072	.070	.069	.068	.066	.064	.063	.061
	Minimum Premium Ratio	.855	.840	.818	.797	.777	.756	.738	.725	.707	.691	.668	.655	.636	.613
6	Basic Premium Ratio	.089	.083	.079	.076	.074	.072	.070	.068	.067	.066	.065	.063	.062	.061
	Minimum Premium Ratio	.855	.836	.814	.792	.768	.749	.735	.725	.709	.696	.664	.656	.640	.602
5	Basic Premium Ratio	.082	.078	.075	.073	.071	.069	.068	.067	.066	.065	.063	.062	.062	.061
	Minimum Premium Ratio	.855	.833	.811	.787	.767	.752	.732	.714	.700	.689	.677	.658	.624	.586
4	Basic Premium Ratio	.077	.074	.071	.070	.068	.067	.066	.065	.064	.063	.062	.062	.061	.061
	Minimum Premium Ratio	.855	.830	.811	.782	.767	.752	.729	.714	.700	.689	.677	.658	.624	.586

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-91904, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-91904, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.04.020. 95-06-069, § 296-17-91904, filed 3/1/95, effective 4/10/95. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 88-24-010 (Order 88-26), § 296-17-91904, filed 12/1/88, effective 1/1/89; 88-14-107 (Order 88-10), § 296-17-91904, filed 7/6/88; 86-17-002 (Order 86-29), § 296-17-91904, filed 8/8/86. Statutory Authority: RCW 51.16.035. 86-06-018 (Order 86-18), § 296-17-91904, filed 2/25/86.]

WAC 296-17-91905 Table VI.

RETROSPECTIVE RATING PLAN A3
 MINIMUM PREMIUM RATIOS
 AND BASIC PREMIUM RATIOS
 LOSS CONVERSION FACTOR = .729
 Effective January 1, 1998

Maximum Premium Ratio:	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.60	1.70	1.80	2.00	
Size Group															
63	Basic Premium Ratio	.818	.762	.722	.692	.666	.642	.622	.603	.586	.571	.543	.517	.495	.458
	Minimum Premium Ratio	.947	.916	.892	.871	.853	.837	.822	.808	.795	.782	.759	.738	.718	.682
62	Basic Premium Ratio	.814	.760	.719	.687	.659	.636	.616	.596	.578	.562	.534	.509	.486	.448
	Minimum Premium Ratio	.945	.912	.887	.866	.848	.831	.815	.801	.788	.775	.751	.729	.709	.673
61	Basic Premium Ratio	.813	.754	.713	.680	.652	.628	.606	.587	.570	.553	.524	.497	.475	.437
	Minimum Premium Ratio	.942	.909	.883	.861	.842	.825	.809	.794	.780	.767	.743	.721	.700	.663
60	Basic Premium Ratio	.811	.749	.705	.672	.644	.618	.597	.577	.558	.543	.513	.486	.464	.425
	Minimum Premium Ratio	.939	.905	.879	.856	.836	.819	.802	.787	.773	.759	.734	.712	.690	.653
59	Basic Premium Ratio	.805	.744	.699	.664	.634	.608	.586	.567	.549	.532	.501	.475	.452	.413
	Minimum Premium Ratio	.937	.901	.874	.851	.831	.813	.796	.780	.765	.751	.726	.703	.681	.643
58	Basic Premium Ratio	.802	.737	.691	.655	.626	.599	.577	.557	.538	.521	.490	.464	.441	.403
	Minimum Premium Ratio	.934	.898	.870	.846	.825	.807	.789	.773	.758	.744	.718	.694	.672	.633
57	Basic Premium Ratio	.796	.731	.685	.647	.618	.591	.568	.547	.528	.511	.480	.454	.431	.392
	Minimum Premium Ratio	.932	.894	.865	.841	.819	.800	.782	.766	.751	.736	.710	.685	.663	.624
56	Basic Premium Ratio	.794	.725	.678	.640	.609	.581	.558	.537	.518	.501	.470	.443	.421	.382
	Minimum Premium Ratio	.928	.890	.860	.835	.813	.794	.776	.759	.743	.728	.701	.677	.654	.614
55	Basic Premium Ratio	.790	.721	.671	.632	.601	.573	.550	.527	.509	.490	.460	.433	.411	.371
	Minimum Premium Ratio	.925	.885	.855	.830	.807	.787	.768	.752	.735	.721	.693	.668	.645	.606

54	Basic Premium Ratio	.787	.714	.666	.626	.592	.565	.541	.518	.499	.481	.450	.423	.400	.363
	Minimum Premium Ratio	.921	.881	.849	.823	.801	.780	.761	.744	.728	.713	.685	.660	.637	.597
53	Basic Premium Ratio	.784	.709	.659	.617	.585	.555	.532	.509	.489	.472	.440	.414	.391	.353
	Minimum Premium Ratio	.917	.876	.844	.818	.794	.774	.754	.737	.721	.705	.677	.652	.629	.589
52	Basic Premium Ratio	.780	.704	.651	.610	.577	.548	.522	.501	.481	.463	.431	.405	.382	.345
	Minimum Premium Ratio	.913	.871	.839	.812	.788	.767	.748	.729	.713	.697	.669	.644	.621	.581
51	Basic Premium Ratio	.775	.698	.644	.602	.567	.539	.514	.491	.471	.454	.422	.396	.372	.336
	Minimum Premium Ratio	.909	.866	.833	.806	.782	.760	.740	.722	.705	.689	.661	.635	.613	.573
50	Basic Premium Ratio	.769	.690	.634	.593	.557	.529	.502	.480	.460	.442	.411	.384	.362	.325
	Minimum Premium Ratio	.905	.861	.828	.799	.775	.752	.733	.714	.697	.681	.652	.627	.604	.564
49	Basic Premium Ratio	.763	.682	.626	.583	.548	.519	.493	.470	.450	.432	.400	.374	.352	.316
	Minimum Premium Ratio	.901	.856	.822	.793	.768	.745	.725	.706	.689	.673	.644	.618	.595	.555
48	Basic Premium Ratio	.756	.674	.617	.574	.538	.509	.482	.460	.439	.422	.390	.365	.342	.307
	Minimum Premium Ratio	.897	.851	.816	.786	.761	.738	.718	.699	.682	.665	.636	.610	.587	.547
47	Basic Premium Ratio	.750	.665	.607	.564	.528	.498	.472	.449	.429	.411	.381	.355	.333	.298
	Minimum Premium Ratio	.892	.846	.810	.780	.754	.731	.710	.692	.674	.658	.628	.602	.579	.539
46	Basic Premium Ratio	.741	.654	.596	.552	.516	.485	.460	.437	.418	.400	.370	.345	.323	.289
	Minimum Premium Ratio	.888	.840	.803	.773	.747	.724	.703	.684	.666	.650	.621	.596	.573	.534
45	Basic Premium Ratio	.731	.643	.585	.540	.503	.473	.448	.426	.406	.389	.360	.335	.315	.282
	Minimum Premium Ratio	.884	.834	.796	.766	.740	.717	.696	.677	.660	.643	.614	.589	.567	.528
44	Basic Premium Ratio	.722	.633	.573	.528	.493	.463	.437	.415	.396	.379	.350	.326	.306	.274
	Minimum Premium Ratio	.879	.828	.790	.759	.732	.709	.689	.670	.653	.637	.608	.583	.561	.523
43	Basic Premium Ratio	.712	.622	.562	.517	.481	.451	.426	.405	.386	.370	.341	.318	.298	.267
	Minimum Premium Ratio	.874	.822	.783	.752	.726	.703	.682	.663	.646	.630	.602	.578	.556	.518
42	Basic Premium Ratio	.703	.612	.551	.506	.470	.440	.415	.394	.375	.358	.330	.307	.288	.257
	Minimum Premium Ratio	.869	.815	.776	.745	.718	.694	.673	.654	.637	.621	.593	.568	.547	.509
41	Basic Premium Ratio	.696	.602	.541	.495	.458	.429	.403	.382	.363	.347	.319	.296	.277	.247
	Minimum Premium Ratio	.863	.809	.769	.737	.710	.686	.665	.645	.628	.612	.583	.559	.537	.499
40	Basic Premium Ratio	.686	.592	.530	.484	.448	.418	.392	.371	.352	.336	.308	.286	.267	.237
	Minimum Premium Ratio	.858	.802	.762	.729	.701	.677	.656	.637	.619	.603	.574	.549	.527	.490
39	Basic Premium Ratio	.677	.581	.520	.473	.437	.407	.382	.360	.342	.325	.298	.275	.257	.228
	Minimum Premium Ratio	.852	.796	.754	.721	.693	.669	.648	.628	.610	.594	.566	.541	.519	.482
38	Basic Premium Ratio	.668	.571	.509	.463	.426	.396	.372	.350	.332	.315	.288	.266	.248	.220
	Minimum Premium Ratio	.846	.789	.747	.714	.686	.661	.639	.620	.602	.586	.557	.533	.510	.473
37	Basic Premium Ratio	.659	.562	.499	.453	.416	.387	.362	.340	.322	.306	.279	.257	.240	.212
	Minimum Premium Ratio	.839	.781	.740	.706	.678	.653	.631	.612	.594	.578	.550	.525	.503	.466
36	Basic Premium Ratio	.649	.551	.488	.442	.405	.376	.351	.330	.312	.297	.270	.249	.231	.204
	Minimum Premium Ratio	.832	.774	.732	.698	.670	.645	.624	.604	.586	.570	.542	.517	.496	.459
35	Basic Premium Ratio	.635	.538	.475	.429	.393	.365	.340	.320	.302	.286	.260	.240	.223	.196
	Minimum Premium Ratio	.825	.766	.724	.690	.662	.637	.616	.596	.579	.563	.535	.510	.489	.453
34	Basic Premium Ratio	.623	.525	.463	.418	.382	.354	.330	.309	.292	.277	.252	.231	.215	.189
	Minimum Premium Ratio	.816	.757	.715	.682	.654	.629	.608	.589	.571	.556	.528	.504	.483	.447
33	Basic Premium Ratio	.610	.513	.451	.406	.371	.343	.320	.300	.283	.268	.244	.224	.208	.183
	Minimum Premium Ratio	.808	.749	.707	.674	.646	.622	.600	.582	.564	.549	.521	.498	.477	.442
32	Basic Premium Ratio	.597	.501	.440	.395	.361	.334	.311	.291	.274	.260	.236	.217	.201	.177
	Minimum Premium Ratio	.799	.740	.699	.666	.638	.614	.593	.575	.558	.543	.515	.492	.472	.438
31	Basic Premium Ratio	.582	.486	.425	.382	.348	.321	.299	.280	.264	.250	.226	.208	.193	.171
	Minimum Premium Ratio	.791	.732	.690	.658	.630	.606	.586	.567	.551	.536	.510	.487	.467	.434
30	Basic Premium Ratio	.567	.471	.412	.369	.336	.309	.288	.269	.254	.240	.218	.201	.187	.165
	Minimum Premium Ratio	.782	.723	.681	.649	.622	.599	.579	.561	.545	.530	.504	.482	.463	.430
29	Basic Premium Ratio	.551	.457	.398	.356	.324	.299	.277	.260	.245	.232	.210	.194	.180	.160
	Minimum Premium Ratio	.773	.714	.673	.642	.615	.592	.572	.555	.539	.524	.499	.477	.459	.427
28	Basic Premium Ratio	.537	.444	.386	.344	.313	.287	.266	.249	.234	.221	.200	.184	.171	.151
	Minimum Premium Ratio	.764	.705	.665	.633	.606	.584	.564	.546	.530	.516	.491	.470	.451	.421
27	Basic Premium Ratio	.524	.431	.373	.332	.300	.275	.254	.236	.221	.208	.187	.170	.157	.136
	Minimum Premium Ratio	.755	.697	.655	.623	.596	.573	.552	.534	.518	.502	.476	.453	.433	.400
26	Basic Premium Ratio	.510	.418	.361	.320	.288	.263	.242	.224	.209	.196	.175	.158	.145	.124
	Minimum Premium Ratio	.747	.688	.646	.613	.586	.562	.541	.523	.505	.490	.463	.439	.418	.383

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25	Basic Premium Ratio	.497	.405	.348	.307	.276	.251	.230	.213	.198	.185	.164	.147	.134	.114
	Minimum Premium Ratio	.738	.679	.638	.605	.577	.553	.531	.512	.495	.479	.451	.427	.405	.369
24	Basic Premium Ratio	.476	.386	.331	.292	.262	.238	.218	.202	.188	.176	.157	.141	.129	.111
	Minimum Premium Ratio	.727	.669	.628	.596	.569	.546	.525	.506	.490	.474	.447	.423	.402	.367
23	Basic Premium Ratio	.454	.368	.315	.277	.249	.226	.208	.192	.179	.168	.150	.136	.124	.107
	Minimum Premium Ratio	.716	.659	.619	.588	.561	.539	.519	.501	.485	.469	.443	.420	.400	.365
22	Basic Premium Ratio	.434	.351	.300	.264	.237	.216	.198	.184	.172	.161	.144	.131	.120	.104
	Minimum Premium Ratio	.704	.649	.611	.580	.555	.533	.513	.496	.480	.465	.439	.417	.397	.363
21	Basic Premium Ratio	.414	.335	.286	.252	.226	.206	.190	.176	.165	.155	.139	.126	.117	.102
	Minimum Premium Ratio	.693	.640	.603	.573	.548	.527	.508	.491	.476	.461	.436	.414	.395	.361
20	Basic Premium Ratio	.394	.318	.271	.238	.214	.194	.178	.166	.155	.145	.130	.119	.110	.096
	Minimum Premium Ratio	.683	.631	.595	.566	.541	.520	.502	.485	.470	.456	.431	.410	.391	.358
19	Basic Premium Ratio	.377	.301	.254	.222	.198	.179	.164	.152	.142	.133	.120	.109	.101	.089
	Minimum Premium Ratio	.674	.621	.585	.557	.533	.513	.494	.478	.464	.450	.426	.405	.387	.355
18	Basic Premium Ratio	.358	.283	.238	.207	.184	.166	.152	.140	.131	.123	.110	.101	.094	.083
	Minimum Premium Ratio	.664	.612	.575	.547	.524	.505	.488	.472	.458	.445	.421	.401	.383	.352
17	Basic Premium Ratio	.339	.266	.222	.192	.171	.154	.140	.130	.121	.114	.103	.094	.088	.079
	Minimum Premium Ratio	.654	.602	.567	.539	.517	.497	.480	.466	.453	.440	.418	.398	.380	.350
16	Basic Premium Ratio	.320	.249	.208	.179	.159	.143	.131	.121	.113	.106	.096	.088	.083	.075
	Minimum Premium Ratio	.644	.593	.559	.532	.510	.491	.475	.461	.448	.436	.414	.395	.378	.348
15	Basic Premium Ratio	.303	.234	.194	.168	.148	.134	.122	.113	.106	.100	.091	.084	.079	.072
	Minimum Premium Ratio	.635	.586	.552	.526	.504	.486	.470	.457	.445	.433	.412	.393	.376	.346
14	Basic Premium Ratio	.293	.220	.180	.157	.141	.128	.117	.109	.103	.097	.089	.082	.078	.071
	Minimum Premium Ratio	.630	.579	.545	.521	.501	.483	.468	.455	.443	.432	.411	.392	.375	.346
13	Basic Premium Ratio	.281	.204	.167	.148	.133	.122	.112	.105	.099	.094	.086	.081	.076	.070
	Minimum Premium Ratio	.624	.571	.538	.516	.497	.480	.465	.453	.441	.430	.409	.391	.374	.345
12	Basic Premium Ratio	.269	.187	.156	.139	.126	.116	.108	.101	.096	.091	.084	.079	.075	.069
	Minimum Premium Ratio	.618	.562	.533	.512	.493	.477	.463	.451	.440	.429	.408	.390	.374	.345
11	Basic Premium Ratio	.254	.167	.145	.130	.119	.110	.103	.097	.092	.088	.082	.077	.073	.068
	Minimum Premium Ratio	.611	.552	.527	.507	.490	.474	.461	.449	.438	.427	.407	.389	.373	.344
10	Basic Premium Ratio	.238	.150	.135	.122	.113	.105	.098	.093	.089	.085	.079	.075	.072	.067
	Minimum Premium Ratio	.603	.544	.522	.503	.487	.472	.458	.447	.436	.426	.406	.388	.372	.344
9	Basic Premium Ratio	.219	.138	.125	.115	.106	.100	.094	.089	.085	.082	.077	.073	.071	.066
	Minimum Premium Ratio	.593	.538	.517	.500	.483	.469	.456	.445	.434	.424	.405	.387	.372	.343
8	Basic Premium Ratio	.197	.127	.116	.107	.100	.094	.090	.086	.082	.079	.075	.072	.069	.065
	Minimum Premium Ratio	.582	.532	.513	.496	.480	.466	.454	.443	.433	.423	.404	.387	.371	.343
7	Basic Premium Ratio	.170	.117	.108	.100	.094	.089	.085	.082	.079	.077	.073	.070	.068	.064
	Minimum Premium Ratio	.569	.527	.509	.492	.477	.464	.452	.441	.431	.422	.403	.386	.370	.342
6	Basic Premium Ratio	.137	.107	.100	.094	.089	.085	.081	.078	.076	.074	.071	.068	.066	.064
	Minimum Premium Ratio	.552	.522	.505	.489	.475	.462	.450	.439	.430	.420	.402	.385	.369	.342
5	Basic Premium Ratio	.105	.098	.092	.087	.083	.080	.077	.075	.073	.071	.068	.066	.065	.063
	Minimum Premium Ratio	.536	.518	.501	.486	.472	.459	.448	.438	.428	.419	.400	.384	.369	.342
4	Basic Premium Ratio	.104	.089	.085	.081	.078	.075	.073	.072	.070	.068	.066	.065	.064	.062
	Minimum Premium Ratio	.532	.513	.497	.483	.469	.457	.446	.436	.427	.417	.399	.383	.368	.342

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-91905, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-91905, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.04.020. 95-06-069, § 296-17-91905, filed 3/1/95, effective 4/10/95. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 88-24-010 (Order 88-26), § 296-17-91905, filed 12/1/88, effective 1/1/89; 88-14-107 (Order 88-10), § 296-17-91905, filed 7/6/88; 86-17-002 (Order 86-29), § 296-17-91905, filed 8/8/86. Statutory Authority: RCW 51.16.035. 86-06-018 (Order 86-18), § 296-17-91905, filed 2/25/86.]

WAC 296-17-920 Assessment for supplemental pension fund. The amount of 22.8 mills (\$.0228) shall be retained by each employer from the earnings of each worker for each hour or fraction thereof the worker is employed. The amount of money so retained from the employee shall

be matched in an equal amount by each employer, except as otherwise provided in these rules, all such moneys shall be remitted to the department on or before the last day of January, April, July and October of each year for the preceding calendar quarter, provided self-insured employers shall remit to the department as provided under WAC 296-15-060. All such moneys shall be deposited in the supplemental pension fund.

[Statutory Authority: RCW 51.04.020, 51.16.035 and 51.32.073. 97-24-062, § 296-17-920, filed 12/1/97, effective 1/1/98; 96-24-063, § 296-17-920, filed 11/29/96, effective 1/1/97. Statutory Authority: RCW 51.16.035 and 51.32.073. 96-06-025, § 296-17-920, filed 2/28/96, effective 4/1/96. Statutory Authority: RCW 51.04.020. 95-23-080, § 296-17-920, filed 11/20/95, effective 1/1/96; 94-24-007, § 296-17-920, filed 11/28/94, effective 1/1/95; 93-24-114, § 296-17-920, filed 12/1/93, effective 1/1/94.]

Statutory Authority: RCW 51.04.020(1) and 51.16.035. 92-24-063, § 296-17-920, filed 11/30/92, effective 1/1/93; 91-24-053, § 296-17-920, filed 11/27/91, effective 1/1/92; 89-24-051 (Order 89-22), § 296-17-920, filed 12/1/89, effective 1/1/90. Statutory Authority: RCW 51.04.020 and 51.32.073. 87-04-006 (Order 86-49), § 296-17-920, filed 1/23/87. Statutory Authority: RCW 51.16.035. 86-12-041 (Order 86-18), § 296-17-920, filed 5/30/86, effective 7/1/86; 83-24-017 (Order 83-36), § 296-17-920, filed 11/30/83, effective 1/1/84; 82-24-047 (Order 82-38), § 296-17-920, filed 11/29/82, effective 1/1/83; 81-24-042 (Order 81-30), § 296-17-920, filed 11/30/81, effective 1/1/82; 80-17-016 (Order 80-23), § 296-17-920, filed 11/13/80, effective 1/1/81. Statutory Authority: RCW 51.04.030 and 51.16.035. 79-12-086 (Order 79-18), § 296-17-920, filed 11/30/79, effective 1/1/80. Statutory Authority: RCW 51.04.020(1) and 51.16.035. 78-12-043 (Order 78-23), § 296-17-920, filed 11/27/78, effective 1/1/79; Order 77-27, § 296-17-920, filed 11/30/77, effective 1/1/78; Order 77-10, § 296-17-920, filed 5/31/77; Order 76-36, § 296-17-920, filed 11/30/76; Order 75-38, § 296-17-920, filed 11/24/75, effective 1/1/76; Order 75-28, § 296-17-920, filed 8/29/75, effective 10/1/75; Order 74-40, § 296-17-920, filed 11/27/74, effective 1/1/75; Order 74-6, § 296-17-920, filed 1/23/74.]

Chapter 296-20 WAC MEDICAL AID RULES

WAC

296-20-135	Conversion factors.
296-20-200	General information.
296-20-210	General rules.
296-20-220	Special rules for evaluation of permanent bodily impairment.

WAC 296-20-135 Conversion factors. (1) Conversion factors are used to calculate payment levels for services reimbursed under the Washington resource based relative value scale (RBRVS), and for anesthesia services payable with base and time units.

(2) **Washington RBRVS** services have a conversion factor of \$46.21. The fee schedules list the reimbursement levels for these services.

(3) **Anesthesia services** that are paid with base and time units have a conversion factor of \$1.94 per minute. The base units and payment policies can be found in the fee schedules.

(4) Services that do **not** use a conversion factor to establish reimbursement levels have dollar values, not relative values listed in the fee schedules.

[Statutory Authority: RCW 51.04.020(4) and 51.04.030. 97-10-017, § 296-20-135, filed 4/28/97, effective 7/1/97. Statutory Authority: RCW 51.04.020 and 51.04.030. 96-19-060, § 296-20-135, filed 9/16/96, effective 10/17/96; 96-10-086, § 296-20-135, filed 5/1/96, effective 7/1/96; 95-17-001 § 296-20-135, filed 8/2/95, effective 10/1/95; 95-05-072, § 296-20-135, filed 2/15/95, effective 3/18/95. Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 94-02-045 and 94-03-008, § 296-20-135, filed 12/30/93 and 1/6/94, effective 3/1/94; 93-16-072, § 296-20-135, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 91-02-063, § 296-20-135, filed 12/28/90, effective 1/28/91; 88-24-011 (Order 88-28), § 296-20-135, filed 12/1/88, effective 1/1/89; 87-03-004 (Order 86-45), § 296-20-135, filed 1/8/87; 83-24-016 (Order 83-35), § 296-20-135, filed 11/30/83, effective 1/1/84; 82-24-050 (Order 82-39), § 296-20-135, filed 11/29/82, effective 7/1/83. Statutory Authority: RCW 51.04.020(4), 51.04.030, and 51.16.120(3). 81-24-041 (Order 81-28), § 296-20-135, filed 11/30/81, effective 1/1/82; 80-18-033 (Order 80-24), § 296-20-135, filed 12/1/80, effective 1/1/81. Statutory Authority: RCW 51.04.030 and 51.16.035. 79-12-086 (Order 79-18), § 296-20-135, filed 11/30/79, effective 1/1/80; Order 77-27, § 296-20-135, filed 11/30/77, effective 1/1/78; Order 76-34, § 296-20-135, filed 11/24/76, effective 1/1/77; Order 75-39, § 296-20-135, filed 11/28/75, effective 1/1/76; Order 74-7, § 296-20-135, filed 1/30/74; Order 71-6, § 296-20-135, filed 6/1/71; Order 68-7, § 296-20-135, filed 11/27/68, effective 1/1/69.]

WAC 296-20-200 General information. (1) The department of labor and industries has promulgated the following rules and categories to provide a comprehensive system of classifying unspecified permanent partial disabilities in the proportion they reasonably bear to total bodily impairment. The department's objectives are to reduce litigation and establish more certainty and uniformity in the rating of unspecified permanent partial disabilities pursuant to RCW 51.32.080(2).

(2) The following system of rules and categories directs the examiner's attention to the actual conditions found and establishes a uniform system for conducting rating examinations and reporting findings and conclusions in accord with broadly accepted medical principles.

The evaluation of bodily impairment must be made by experts authorized to perform rating examinations. This system recognizes and provides for this. After conducting the examination, the examiner will choose the appropriate category for each bodily area or system involved in the particular claim and include this information in the report. The examiner will, therefore, in addition to describing the worker's condition in the report, submit the conclusions as to the relative severity of the impairment by giving it in terms of a defined condition rather than a personal opinion as to a percentage figure. In the final section of this system of categories and rules are some rules for determining disabilities and the classification of disabilities in bodily impairment is listed for each category. These last provisions are for the department's administrative use in acting upon the expert opinions which have been submitted to it.

(3) In preparing this system, the department has complied with its duty to enact rules classifying unspecified disabilities in light of statutory references to nationally recognized standards or guides for determining various bodily impairments. Accordingly, the department has obtained and acted upon sound established medical opinion in thus classifying unspecified disabilities in the reasonable proportion they bear to total bodily impairment. In framing descriptive language of the categories and in assigning a percentage of disability, careful consideration has been given to nationally recognized medical standards and guides. Both are matters calling for the use of expert medical knowledge. For this reason, the meaning given the words used in this set of categories and accompanying rules, unless the text or context clearly indicates the contrary, is the meaning attached to the words in normal medical usage.

(4) The categories describe levels of physical and mental impairment. Impairment is anatomic or functional abnormality or loss of function after maximum medical rehabilitation has been achieved. This is the meaning of "impairment" as the word is used in the guides mentioned above. This standard applies to all persons equally, regardless of factors other than loss of physical or mental function. Impairment is evaluated without reference to the nature of injury or the treatment therefore, but is based on the functional loss due to the injury or occupational disease. The categories have been framed to include conditions in other bodily areas which derive from the primary impairment. The categories also include the presence of pain, tenderness

and other complaints. Workers with comparable loss of function thus receive comparable awards.

(5) These rules and categories (WAC 296-20-200 through 296-20-690) shall only be applicable to compensable injuries occurring on or after the effective date of these rules and categories.

(6) These rules and categories (WAC 296-20-200 through 296-20-690) shall be applicable only to cases of permanent partial disability. They have no applicability to determinations of permanent total disability.

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-20-200, filed 4/14/97, effective 5/15/97. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 91-07-008, § 296-20-200, filed 3/8/91, effective 5/1/91; Order 74-32, § 296-20-200, filed 6/21/74, effective 10/1/74.]

WAC 296-20-210 General rules. These general rules establish a uniform standard for conducting examinations and submitting reports of examinations. These general rules must be followed by doctors who make examinations or evaluations of permanent bodily impairment.

(1) Examinations for the determination of the extent of permanent bodily impairment shall be made only by doctors currently licensed in medicine and surgery (including osteopathic and podiatric) or dentistry, and department-approved chiropractors. A chiropractic evaluation of permanent impairment may be performed only where the worker has been clinically managed by a chiropractor.

(2) Whenever an examination is made, the examiner shall record, among other pertinent information, the complete history as obtained from the person examined; the complete history of past injuries and diseases; the complaints; the age, sex, height and weight; x-ray findings and diagnostic tests made or reviewed in connection with the examination; the diagnosis; and all findings, including negative findings, in all bodily areas and systems where a detailed review of systems reveals past or present complaints. The examiner shall record his conclusions as to: Whether the residuals of the injury are fixed; whether treatment is required for the injury and, if so, any treatment shall be described. If the examiner finds residuals of the injury are fixed, he shall record the appropriate category or categories of permanent impairment for diagnoses attributable to the industrial injury or occupational disease. Conditions or impairments not attributable to the industrial injury or occupational disease shall be described and diagnosed in the report, with a description of how they affect the person examined and the appropriate category of permanent impairment where possible.

(3) The examiner shall not assign a percentage figure for permanent bodily impairment described in the categories established herein.

(4) Reports shall specify diagnoses and medical terms as listed in current procedural terminology (CPT), current medical information and terminology (CMIT), international classification of diseases adopted (ICDA), or standard nomenclature of disease, except when otherwise specified in these rules.

(5) Workers who are scheduled for disability examinations are allowed to bring with them an accompanying person to be present during the physical examination. The accompanying person cannot be compensated in any manner, except that language interpreters may be necessary for the

communication process and may be reimbursed for interpretative services.

The department may designate those conditions under which the accompanying person is allowed to be present during the disability examination process.

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-20-210, filed 4/14/97, effective 5/15/97. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 88-14-012 (Order 88-09), § 296-20-210, filed 6/24/88; Order 74-32, § 296-20-210, filed 6/21/74, effective 10/1/74.]

WAC 296-20-220 Special rules for evaluation of permanent bodily impairment. (1) Evaluations of permanent bodily impairment using categories require uniformity in procedure and terminology. The following rules have been enacted to produce this uniformity and shall apply to all evaluations of permanent impairment of an unspecified nature.

(a) Gradations of relative severity shall be expressed by the words "minimal," "mild," "moderate" and "marked" in an ascending scale. "Minimal" shall describe deviations from normal responses which are not medically significant. "Mild," "moderate" and "marked" shall describe ranges of medically significant deviations from normal responses. "Mild" shall describe the least severe third. "Moderate" shall describe the middle third. "Marked" shall describe the most severe third.

(b) "Permanent" describes those conditions which are fixed, lasting and stable, and from which within the limits of medical probability, further recovery is not expected.

(c) "Impairment" means a loss of physical or mental function.

(d) "Total bodily impairment," as used in these rules, is the loss of physical or mental function which is essentially complete short of death.

(e) The examiner shall not assign a percentage figure for permanent bodily impairment described in the categories established herein.

(f) The method of evaluating impairment levels is by selection of the appropriate level of impairment. These descriptive levels are called "categories." Assessments of the level of impairment are to be made by comparing the condition of the injured workman with the conditions described in the categories and selecting the most appropriate category.

These rules and categories for various bodily areas and systems provide a comprehensive system for the measurement of disabling conditions which are not already provided for in the list of specified permanent partial disabilities in RCW 51.32.080(1). Disabilities resulting from loss of central visual acuity, loss of an eye by enucleation, loss of hearing, amputation or loss of function of the extremities will continue to be evaluated as elsewhere provided in RCW 51.32.080.

The categories have been classified in percentages in reasonable proportion to total bodily impairment for the purpose of determining the proper award. Provision has been made for correctly weighing the overall impairment due to particular injuries or occupational disease in cases in which there are preexisting impairments.

(g) The categories of the various bodily areas and systems are listed in the order of increasing impairment

except as otherwise specified. Where several categories are given for the evaluation of the extent of permanent bodily impairment, the impairments in the higher numbered categories, unless otherwise specified, include the impairments in the lesser numbered categories. No category for a condition due to an injury shall be selected unless that condition is permanent as defined by these rules.

The examiner shall select the one category which most accurately indicates the overall degree of permanent impairment unless otherwise instructed. Where there is language in more than one category which may appear applicable, the category which most accurately reflects the overall impairment shall be selected.

The categories include appropriate subjective complaints in an ascending scale in keeping with the severity of objective findings, thus a higher or lower category is not to be selected purely on the basis of unusually great or minor complaints.

(h) When the examination discloses a preexisting permanent bodily impairment in the area of the injury, the examiner shall report the findings and any category of impairment appropriate to the worker's condition prior to the industrial injury in addition to the findings and the categories appropriate to the worker's condition after the injury.

(i) Objective physical or clinical findings are those findings on examination which are independent of voluntary action and can be seen, felt, or consistently measured by examiners.

(j) Subjective complaints or symptoms are those perceived only by the senses and feelings of the person being examined which cannot be independently proved or established.

(k) Muscle spasm as used in these rules is an involuntary contraction of a muscle or group of muscles of a more than momentary nature.

(l) An involuntary action is one performed independently of the will.

(m) These special rules for evaluation of permanent bodily impairment shall apply to all examinations for the evaluation of impairment, in accordance with RCW 51.32.080, for the body areas or systems covered by or enumerated in WAC 296-20-230 through 296-20-660.

(n) The rules for evaluation of each body area or system are an integral part of the categories for that body area or system.

(o) In cases of injury or occupational disease of bodily areas and/or systems which are not included in these categories or rules and which do not involve loss of hearing, loss of central visual acuity, loss of an eye by enucleation or loss of the extremities or use thereof, examiners shall determine the impairment of such bodily areas and/or systems in terms of percentage of total bodily impairment.

(p) The words used in the categories of impairments, in the rules for evaluation of specific impairments, the general rules, and the special rules shall be deemed, unless the context indicates the contrary, to have their general and accepted medical meanings.

(q) The rating of impairment due to total joint replacement shall be in accordance with the limitation of motion guidelines as set forth in the "Guides to the Evaluation of Permanent Impairment" of American Medical Association, with department of labor and industries acknowledgement of

responsibility for failure of prostheses beyond the seven year limitation.

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-20-220, filed 4/14/97, effective 5/15/97. Statutory Authority: RCW 51.04.030 and 51.16.035. 79-12-086 (Order 79-18), § 296-20-220, filed 11/30/79, effective 1/1/80; Order 74-32, § 296-20-220, filed 6/21/74, effective 10/1/74.]

Chapter 296-23 WAC

RADIOLOGY, RADIATION THERAPY, NUCLEAR MEDICINE, PATHOLOGY, HOSPITAL, CHIROPRACTIC, PHYSICAL THERAPY, DRUGLESS THERAPEUTICS AND NURSING—DRUGLESS THERAPEUTICS, ETC.

WAC

296-23-190	Repealed.
296-23-210	Repealed.
296-23-220	Physical therapy rules.
296-23-230	Occupational therapy rules.
296-23-265	Who may perform independent medical examinations?
296-23-26501	How do doctors become approved examiners?
296-23-26502	Where can doctors get an application to become an approved examiner and other information about independent medical examinations?
296-23-26503	What factors does the medical director consider in approving, suspending or removing doctors from the approved examiners list?
296-23-26504	What happens if an examiner is suspended or removed from the approved examiner list by the medical director?
296-23-26505	Is there a fee schedule for independent medical examinations?
296-23-26506	Can a worker file a complaint about an independent medical examiner's conduct?
296-23-267	When may attending doctors perform impairment rating examinations?

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

296-23-190	General instructions—Chiropractic. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23-190, filed 8/1/93, effective 9/1/93.] Repealed by 97-24-044, filed 11/26/97, effective 1/1/98. Statutory Authority: RCW 51.04.020, 51.04.030, 51.36.080 and 51.36.110.
296-23-210	Chiropractic office visits and special services. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23-210, filed 8/1/93, effective 9/1/93.] Repealed by 97-24-044, filed 11/26/97, effective 1/1/98. Statutory Authority: RCW 51.04.020, 51.04.030, 51.36.080 and 51.36.110.

WAC 296-23-190 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23-210 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23-220 Physical therapy rules. Practitioners should refer to WAC 296-20-010 through 296-20-125 for general information and rules pertaining to the care of workers.

Refer to WAC 296-20-132 and 296-20-135 regarding the use of conversion factors.

All supplies and materials must be billed using HCPCS Level II codes. Refer to chapter 296-21 WAC for additional information. HCPCS codes are listed in the fee schedules.

Refer to chapter 296-20 WAC (WAC 296-20-125) and to the department's billing instructions for additional information.

Physical therapy treatment will be reimbursed only when ordered by the worker's attending doctor and rendered by a licensed physical therapist or a physical therapist assistant serving under the direction of a licensed physical therapist. Doctors rendering physical therapy should refer to WAC 296-21-290.

The department or self-insurer will review the quality and medical necessity of physical therapy services provided to workers. Practitioners should refer to WAC 296-20-01002 for the department's rules regarding medical necessity and to WAC 296-20-024 for the department's rules regarding utilization review and quality assurance.

The department or self-insurer will pay for a maximum of one physical therapy visit per day. When multiple treatments (different billing codes) are performed on one day, the department or self-insurer will pay either the sum of the individual fee maximums, the provider's usual and customary charge, or \$76.81 whichever is less. These limits will not apply to physical therapy that is rendered as part of a physical capacities evaluation, work hardening program, or pain management program, provided a qualified representative of the department or self-insurer has authorized the service.

The department will publish specific billing instructions, utilization review guidelines, and reporting requirements for physical therapists who render care to workers.

Use of diapulse or similar machines on workers is not authorized. See WAC 296-20-03002 for further information.

A physical therapy progress report must be submitted to the attending doctor and the department or the self-insurer following twelve treatment visits or one month, whichever occurs first. Physical therapy treatment beyond initial twelve treatments will be authorized only upon substantiation of improvement in the worker's condition. An outline of the proposed treatment program, the expected restoration goals, and the expected length of treatment will be required.

Physical therapy services rendered in the home and/or places other than the practitioner's usual and customary office, clinic, or business facilities will be allowed only upon prior authorization by the department or self-insurer.

No inpatient physical therapy treatment will be allowed when such treatment constitutes the only or major treatment received by the worker. See WAC 296-20-030 for further information.

The department may discount maximum fees for treatment performed on a group basis in cases where the treatment provided consists of a nonindividualized course of therapy (e.g., pool therapy; group aerobics; and back classes).

Biofeedback treatment may be rendered on doctor's orders only. The extent of biofeedback treatment is limited to those procedures allowed within the scope of practice of a licensed physical therapist. See chapter 296-21 WAC for

rules pertaining to conditions authorized and report requirements.

Billing codes and reimbursement levels are listed in the fee schedules.

[Statutory Authority: RCW 51.04.020(4) and 51.04.030. 97-10-017, § 296-23-220, filed 4/28/97, effective 7/1/97; 96-10-086, § 296-23-220, filed 5/1/96, effective 7/1/96; 95-05-072, § 296-23-220, filed 2/15/95, effective 3/18/95. Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 94-02-045, § 296-23-220, filed 12/30/93, effective 3/1/94; 93-16-072, § 296-23-220, filed 8/1/93, effective 9/1/93.]

WAC 296-23-230 Occupational therapy rules.

Practitioners should refer to WAC 296-20-010 through 296-20-125 for general information and rules pertaining to the care of workers.

Refer to WAC 296-20-132 and 296-20-135 for information regarding the conversion factors.

All supplies and materials must be billed using HCPCS Level II codes, refer to the department's billing instructions for additional information.

Occupational therapy treatment will be reimbursed only when ordered by the worker's attending doctor and rendered by a licensed occupational therapist or an occupational therapist assistant serving under the direction of a licensed occupational therapist. Vocational counselors assigned to injured workers by the department or self-insurer may request an occupational therapy evaluation. However, occupational therapy treatment must be ordered by the worker's attending doctor.

An occupational therapy progress report must be submitted to the attending doctor and the department or self-insurer following twelve treatment visits or one month, whichever occurs first. Occupational therapy treatment beyond the initial twelve treatments will be authorized only upon substantiation of improvement in the worker's condition. An outline of the proposed treatment program, the expected restoration goals, and the expected length of treatment will be required.

The department or self-insurer will review the quality and medical necessity of occupational therapy services. Practitioners should refer to WAC 296-20-01002 for the department's definition of medically necessary and to WAC 296-20-024 for the department's rules regarding utilization review and quality assurance.

The department will pay for a maximum of one occupational therapy visit per day. When multiple treatments (different billing codes) are performed on one day, the department or self-insurer will pay either the sum of the individual fee maximums, the provider's usual and customary charge, or \$76.81 whichever is less. These limits will not apply to occupational therapy which is rendered as part of a physical capacities evaluation, work hardening program, or pain management program, provided a qualified representative of the department or self-insurer has authorized the service.

The department will publish specific billing instructions, utilization review guidelines, and reporting requirements for occupational therapists who render care to workers.

Occupational therapy services rendered in the worker's home and/or places other than the practitioner's usual and customary office, clinic, or business facility will be allowed

only upon prior authorization by the department or self-insurer.

No inpatient occupational therapy treatment will be allowed when such treatment constitutes the only or major treatment received by the worker. See WAC 296-20-030 for further information.

The department may discount maximum fees for treatment performed on a group basis in cases where the treatment provided consists of a nonindividualized course of therapy (e.g., pool therapy; group aerobics; and back classes).

Billing codes, reimbursement levels, and supporting policies for occupational therapy services are listed in the fee schedules.

[Statutory Authority: RCW 51.04.020(4) and 51.04.030. 97-10-017, § 296-23-230, filed 4/28/97, effective 7/1/97; 96-10-086, § 296-23-230, filed 5/1/96, effective 7/1/96; 95-05-072, § 296-23-230, filed 2/15/95, effective 3/18/95. Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 94-02-045, § 296-23-230, filed 12/30/93, effective 3/1/94; 93-16-072, § 296-23-230, filed 8/1/93, effective 9/1/93.]

WAC 296-23-265 Who may perform independent medical examinations? Doctors in Washington, Oregon, or Idaho who wish to perform independent medical examinations for the department or self-insurers providing coverage to workers covered under Title 51 RCW must be approved examiners. Independent medical examinations must be performed according to WAC 296-20-200 by the following:

Doctors licensed to practice:

Examiner is:	Medicine & surgery	Osteopathic medicine & surgery	Podiatric medicine & surgery	Chiropractic	Dentistry
In Washington, Oregon, or Idaho and is approved by department to perform IMEs	Yes	Yes	Yes	Yes	Yes
Not in Washington, Oregon, or Idaho and is a board certified specialist	Yes	Yes	Yes	No	Yes
The treating doctor in a department approved chronic pain management program	Yes	Yes	Yes	No	Yes

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-23-265, filed 4/14/97 effective 5/15/97. Statutory Authority: RCW 51.32.112. 95-04-056, § 296-23-265, filed 1/26/95, effective 3/1/95. Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23-265, filed 8/1/93, effective 9/1/93.]

WAC 296-23-26501 How do doctors become approved examiners? Doctors must submit a completed department application to the provider review and education unit at the Department of Labor and Industries, P.O. Box 44322, Olympia, WA 98504 and receive the medical director's approval. Approved examiners will be included on the department's approved examiners list.

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-23-26501, filed 4/14/97 effective 5/15/97.]

WAC 296-23-26502 Where can doctors get an application to become an approved examiner and other information about independent medical examinations? The application for approved examiner status and the standards for independent medical examiners are published in the *Medical Examiners' Handbook* available from the department of labor and industries.

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-23-26502, filed 4/14/97 effective 5/15/97.]

WAC 296-23-26503 What factors does the medical director consider in approving, suspending or removing

doctors from the approved examiners list? The medical director may consider several factors in approving, disapproving, or suspending examiners. Examples include, but are not limited to:

- (1) Board certification;
- (2) Complaints from workers about the conduct of the examiner (see WAC 296-23-26506);
- (3) Disciplinary proceedings or actions;
- (4) Experience in direct patient care in the area of specialty;
- (5) Ability to effectively convey and substantiate medical opinions and conclusions concerning workers;
- (6) Quality and timeliness of reports;
- (7) Geographical need of the department and self-insurer;
- (8) Availability and willingness to testify on behalf of the department, worker, or employer; and
- (9) Acceptance of the department fee schedule rate for testimony.

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-23-26503, filed 4/14/97 effective 5/15/97.]

WAC 296-23-26504 What happens if an examiner is suspended or removed from the approved examiner list by the medical director? Examiners who are suspended or removed from the approved examiners list will not receive examination referrals from the department or self-insurers.

In addition, suspended or removed examiners will not be reimbursed by the department or self-insurer for examinations performed at the request of other referral sources.

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-23-26504, filed 4/14/97 effective 5/15/97.]

WAC 296-23-26505 Is there a fee schedule for independent medical examinations? The maximum fee schedule for performing independent medical examinations is published in the *Medical Examiners' Handbook* available from the department.

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-23-26505, filed 4/14/97 effective 5/15/97.]

WAC 296-23-26506 Can a worker file a complaint about an independent medical examiner's conduct? Workers can send written complaints about the examiner's conduct during an independent medical examination to the self-insurer or department. Complaints received by the self-insurer and department staff must be promptly forwarded to the provider review and education unit. Based on the nature of the complaint, the department may refer the complaint to the department of health.

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-23-26506, filed 4/14/97 effective 5/15/97.]

WAC 296-23-267 When may attending doctors perform impairment rating examinations? Attending doctors may perform impairment rating examinations for workers under their care at the direction of the state fund or self-insurer if licensed to perform:

- Medicine and surgery;
- Osteopathic medicine and surgery;
- Podiatric medicine and surgery;
- Dentistry; or
- Chiropractic (chiropractors must be on the approved examiners list).

Attending doctors performing rating exams must be available and willing to testify on behalf of the department, worker, or employer and accept the department fee schedule rate for testimony.

[Statutory Authority: RCW 51.04.020, 51.04.030, 51.32.112, 51.32.114 and 51.36.015. 97-09-036, § 296-23-267, filed 4/14/97 effective 5/15/97.]

**Chapter 296-23A WAC
HOSPITALS**

WAC

296-23A-0100	Where can I find general information and rules pertaining to the care of workers?
296-23A-0110	When will the department or self-insurer pay for hospital services?
296-23A-0120	What services are subject to review by the department or self-insurer?
296-23A-0130	How does the department establish hospital payment rates?
296-23A-0140	How can interested persons request advance notice of changes to hospital payment rates, methods and policies?
296-23A-0150	How must hospitals submit bills for hospital services?
296-23A-0160	How must hospitals submit charges for ambulance and professional services?

296-23A-0170	How must hospitals bill the department or self-insurer for preadmission services?
296-23A-0180	What supporting documentation must hospitals send for hospital services?
296-23A-0190	Where must hospitals send supporting documentation for hospital services for state fund claims?
296-23A-0195	When must providers using electronic medium submit supporting documentation?
296-23A-0200	How does the department pay for hospital inpatient services?
296-23A-0210	How do self-insurers pay for hospital inpatient services?
296-23A-0220	How does the department or self-insurer pay for hospital outpatient services?
296-23A-0230	How does the department or self-insurer pay out-of-state hospitals for hospital services?
296-23A-0240	How does the department define and pay a new hospital?
296-23A-0250	Does a change in hospital ownership affect a hospital's payment rate?
296-23A-0300	When do percent of allowed charges (POAC) payment factors apply?
296-23A-0310	What is the method for calculating percent of allowed charges (POAC) factors?
296-23A-0350	When do per diem rates apply?
296-23A-0360	What is the method for calculating per diem rates?
296-23A-0400	What is a "diagnosis-related-group" payment system?
296-23A-0410	How does the department calculate diagnosis-related-group (DRG) relative weights?
296-23A-0420	How does the department determine the base price for hospital services paid using per case rates?
296-23A-0430	How does the department calculate a hospital specific case-mix adjusted average cost per case?
296-23A-0440	How does the department calculate the base price for DRG hospitals, except major teaching hospitals?
296-23A-0450	What cases does the department exclude from base price calculations?
296-23A-0460	How does the department calculate the diagnosis-related-group (DRG) per case payment rate for a particular hospital?
296-23A-0470	Which exclusions and exceptions apply to diagnosis-related-group (DRG) payments for hospital services?
296-23A-0480	Which hospitals does the department exclude from diagnosis-related-group (DRG) payments?
296-23A-0490	Which hospital services does the department include in diagnosis-related-group (DRG) rates?
296-23A-0500	When does a case qualify for high outlier status?
296-23A-0520	How does the department pay for high outlier cases?
296-23A-0530	How does a case qualify for low outlier status?
296-23A-0540	How does the department pay for low outlier cases?
296-23A-0550	Under what circumstances will the department pay for interim bills?
296-23A-0560	How does the department define and pay for hospital readmissions?
296-23A-0570	How does the department define a transfer case?
296-23A-0575	How does the department pay a transferring hospital for a transfer case?
296-23A-0580	How does the department pay the receiving hospital for a transfer case?
296-23A-0600	How can a hospital request a rate adjustment?
296-23A-0610	Where must hospitals submit requests for rate adjustments?
296-23A-0620	What action will the department take upon receipt of a request for a rate adjustment?
296-23A-100	Repealed.
296-23A-105	Repealed.
296-23A-106	Repealed.
296-23A-110	Repealed.
296-23A-115	Repealed.
296-23A-120	Repealed.
296-23A-125	Repealed.
296-23A-130	Repealed.
296-23A-135	Repealed.
296-23A-140	Repealed.
296-23A-145	Repealed.

296-23A-150	Repealed.		
296-23A-155	Repealed.		
296-23A-160	Repealed.		
296-23A-165	Repealed.		
296-23A-170	Repealed.		
296-23A-175	Repealed.		
296-23A-180	Repealed.		
296-23A-185	Repealed.		
296-23A-190	Repealed.		
296-23A-200	Repealed.		
296-23A-205	Repealed.		
296-23A-210	Repealed.		
296-23A-215	Repealed.		
296-23A-220	Repealed.		
296-23A-225	Repealed.		
296-23A-230	Repealed.		
296-23A-235	Repealed.		
296-23A-300	Repealed.		
296-23A-310	Repealed.		
296-23A-315	Repealed.		
296-23A-320	Repealed.		
296-23A-400	Repealed.		
296-23A-430	Repealed.		
DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER			
296-23A-100	General information. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-100, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-16-004 (Order 87-18), § 296-23A-100, filed 7/23/87; 87-03-005 (Order 86-47), § 296-23A-100, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.		
296-23A-105	Payment for hospital inpatient and outpatient services. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 92-24-066, § 296-23A-105, filed 12/1/92, effective 1/1/93; 87-24-050 (Order 87-23), § 296-23A-105, filed 11/30/87, effective 1/1/88; 87-03-005 (Order 86-47), § 296-23A-105, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.		
296-23A-106	Reimbursement for inpatient services by per case rates and percentage of allowed charges. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 92-24-066, § 296-23A-106, filed 12/1/92, effective 1/1/93.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.		
296-23A-110	Hospital outpatient fee schedule information. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-110, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-110, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.		
296-23A-115	Hospital outpatient services conversion factors. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-115, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 91-02-063, § 296-23A-115, filed 12/28/90, effective 1/28/91; 88-24-011 (Order 88-28), § 296-23A-115, filed 12/1/88, effective 1/1/89; 87-03-005 (Order 86-47), § 296-23A-115, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.		
296-23A-120	Questionable eligibility. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-120, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.		
296-23A-125	Refund of incorrect payments. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-125, filed 1/8/87.] Repealed by 97-06-		
		296-23A-130	Treatment of unrelated illness or injury. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-130, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-130, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-135	Closed claims. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-135, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-140	Take-home Rx's. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-140, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-145	Routine laboratory procedures on admission. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-145, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-150	Billing procedures. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-150, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 90-04-057, § 296-23A-150, filed 2/2/90, effective 3/5/90; 87-16-004 (Order 87-18), § 296-23A-150, filed 7/23/87; 87-03-005 (Order 86-47), § 296-23A-150, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-155	New hospitals. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-24-050 (Order 87-23), § 296-23A-155, filed 11/30/87, effective 1/1/88.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-160	Excluded and included services. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 92-24-066, § 296-23A-160, filed 12/1/92, effective 1/1/93; 87-24-050 (Order 87-23), § 296-23A-160, filed 11/30/87, effective 1/1/88.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-165	Out-of-state hospitals. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-24-050 (Order 87-23), § 296-23A-165, filed 11/30/87, effective 1/1/88.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-170	Outliers. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 92-24-066, § 296-23A-170, filed 12/1/92, effective 1/1/93; 90-04-057, § 296-23A-170, filed 2/2/90, effective 3/5/90; 87-24-050 (Order 87-23), § 296-23A-170, filed 11/30/87, effective 1/1/88.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-175	Interim bills. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-24-050 (Order 87-23), § 296-23A-175, filed 11/30/87, effective 1/1/88.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-180	Readmissions. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-24-050 (Order 87-23), § 296-23A-180, filed 11/30/87, effective 1/1/88.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-185	Transfers. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-24-050 (Order 87-23), § 296-23A-185, filed 11/30/87, effective 1/1/88.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
		296-23A-190	Adjustment of rates. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 92-24-066, § 296-23A-190, filed 12/1/92, effective 1/1/93; 87-24-050 (Order 87-23),

- § 296-23A-190, filed 11/30/87, effective 1/1/88.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-200 General information—Hospital outpatient radiology. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-200, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-200, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-205 Billing procedures. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-205, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 91-17-038, § 296-23A-205, filed 8/16/91, effective 9/30/91; 89-17-039 (Order 89-09), § 296-23A-205, filed 8/10/89, effective 9/10/89; 87-03-005 (Order 86-47), § 296-23A-205, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-210 Injection procedures. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-210, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-215 Responsibility for x-rays. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-215, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-220 Duplication of x-rays. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-220, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-225 Additional views. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-225, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-230 Unlisted service or procedure. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-230, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-230, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-235 Special report. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-235, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-235, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-300 General information—Hospital outpatient pathology and laboratory. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-300, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 89-17-039 (Order 89-09), § 296-23A-300, filed 8/10/89, effective 9/10/89; 87-03-005 (Order 86-47), § 296-23A-300, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-310 Billing procedures. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-310, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-310, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-315 Unlisted service or procedure. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-315, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-315, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-320 Special report. [Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 93-16-072, § 296-23A-320, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 87-03-005 (Order 86-47), § 296-23A-320, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-400 Hospital outpatient physical therapy rules. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 96-10-086, § 296-23A-400, filed 5/1/96, effective 7/1/96; 95-05-072, § 296-23A-400, filed 2/15/95, effective 3/18/95. Statutory Authority: RCW 51.04.020, 51.04.030 and 1993 c 159. 94-02-045, § 296-23A-400, filed 12/30/93, effective 3/1/94; 93-16-072, § 296-23A-400, filed 8/1/93, effective 9/1/93. Statutory Authority: RCW 51.04.020(4) and 51.04.030. 89-08-002 (Order 89-01), § 296-23A-400, filed 3/23/89, effective 5/1/89; 87-03-005 (Order 86-47), § 296-23A-400, filed 1/8/87.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.
- 296-23A-430 Work hardening. [Statutory Authority: RCW 51.04.020(4) and 51.04.030. 89-08-002 (Order 89-01), § 296-23A-430, filed 3/23/89, effective 5/1/89.] Repealed by 97-06-066, filed 2/28/97, effective 4/1/97. Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080.

WAC 296-23A-0100 Where can I find general information and rules pertaining to the care of workers? Hospitals may find general information and rules pertaining to the care of workers in chapters 296-20, 296-21 and 296-23 WAC, department bulletins and other department publications. This list is not exhaustive and hospitals remain responsible for other applicable rules.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0100, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0110 When will the department or self-insurer pay for hospital services? The department or self-insurer will pay for hospital services when proper and necessary for the treatment of the accepted occupational disease or injury.

See WAC 296-20-01002 for the definition of medically necessary.

See WAC 296-20-075 for further rules regarding hospitalization.

See WAC 296-20-03001 for treatment requiring authorization.

See WAC 296-20-03002 for treatment not authorized.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0110, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0120 What services are subject to review by the department or self-insurer? The department uses utilization review criteria and all hospital inpatient and outpatient services and billed charges are subject to review by the department, self-insurer or a representative chosen by the department or self-insurer.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0120, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0130 How does the department establish hospital payment rates? The department will

establish and update hospital payment rates, methods and policies in consultation with interested persons at times determined by the department. The department will publish a description of payment methods, rates, and policies for hospital services at least thirty calendar days prior to implementation.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0130, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0140 How can interested persons request advance notice of changes to hospital payment rates, methods and policies? The department will give at least thirty calendar days notice to interested persons who request advance notice of changes to hospital payment rates, methods and policies. Interested persons may request advance notice by contacting the department at the following address:

Department of Labor and Industries
Health Services Analysis
Mailing List for Hospital Payment Rates
P.O. Box 44322
Olympia, Washington 98504-4322

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0140, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0150 How must hospitals submit bills for hospital services? Hospitals must submit bills for hospital services using the current National Uniform Billing Form (billing form), or electronically using department file format specifications. Providers using the paper billing form must follow both the billing instructions provided by the department and the Washington state version of the *National Uniform Billing Data Element Specifications* as adopted by the National Uniform Billing Committee.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0150, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0160 How must hospitals submit charges for ambulance and professional services? Hospitals must submit charges for ambulance services and professional services provided by hospital staff physicians on the Health Insurance Claim Form, HCFA 1500 using the provider account number(s) assigned by the department for these services. Hospitals using any of the electronic transfer options must follow department instructions for electronic billing.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0160, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0170 How must hospitals bill the department or self-insurer for preadmission services? Preadmission services performed in a hospital outpatient setting within one day prior to hospital admission must be billed as hospital inpatient services.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0170, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0180 What supporting documentation must hospitals send for hospital services? Hospitals

must send the following supporting documentation for hospital services:

- Admission history and physical examination
- Discharge summary for stays over forty-eight hours
- Emergency room reports
- Operative reports
- Anesthesia records
- Other documentation as requested by the department or self-insurer.

Hospitals must place the worker's name and claim number on the upper right-hand corner of each page of supporting documentation submitted.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0180, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0190 Where must hospitals send supporting documentation for hospital services for state fund claims? Do not submit supporting documentation with the bill for services. Hospitals must send supporting documentation for hospital services for state fund claims to:

Department of Labor and Industries
Claims Section
P.O. Box 44291
Olympia, WA 98504-4291

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0190, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0195 When must providers using electronic medium submit supporting documentation? Providers using any of the electronic transfer options provided by the department must send the department or self-insurer the required supporting documentation within thirty calendar days of the date billing information was sent to the department on electronic medium. Providers must comply with the electronic billing instructions supplied by the department regarding the submission of hospital bill documentation.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0195, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0200 How does the department pay for hospital inpatient services? The department will pay for hospital inpatient services according to the following table:

<i>Hospital Type or Location</i>	<i>Do Diagnosis Related Group (DRG) payment methods apply?</i>	<i>Do per diem payment methods apply?</i>	<i>Do percent of allowed charges (POAC) payment methods apply to hospital inpatient services?</i>
Children's Hospitals	No	No	Yes, paid 100% of allowed charges
Chronic Pain Management Program	Exempt, paid per department agreement.	Exempt, paid per department agreement.	Exempt, paid per department agreement.
Health Maintenance Organizations	No	No	Yes, paid 100% of allowed charges
Military	No	No	Yes, paid 100% of allowed charges
Veterans Administration	No	No	Yes, paid 100% of allowed charges
State psychiatric facility	No	No	Yes, paid 100% of allowed charges
Hospitals not in Oregon, Idaho or Washington	No	No	Yes, paid 97% of allowed charges
Oregon and Idaho	No	No	Yes, paid the Washington statewide average POAC factor
Washington rural (Peer Group A)	No	Yes, statewide per diem rates apply for five DRG categories: chemical dependency, psychiatric, rehabilitation, medical, and surgical DRGs	No
All other Washington hospitals	Yes	Yes, state-wide average per diem rates apply for designated categories: chemical dependency, psychiatric, rehabilitation, low volume medical, and low volume surgical DRGs	Yes, applies to low cost outlier payments and high cost outlier payments above the high cost outlier threshold

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0200, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0210 How do self-insurers pay for hospital inpatient services? Self-insurers will pay for hospital inpatient services using percent of allowed charges (POAC) factors, according to the following table:

<i>Hospital Type or Location</i>	<i>Do percent of allowed charges (POAC) payment methods apply to hospital inpatient services?</i>
Military, Veteran's Administration, Health Maintenance Organizations, State Psychiatric Facilities, Children's Hospitals	Yes, paid 100% of allowed charges
Hospitals not in Oregon, Idaho or Washington	Yes, paid 97% of allowed charges
Oregon and Idaho	Yes, paid the Washington state-wide average POAC factor
All other Washington hospitals	Yes, paid the hospital specific POAC factor

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0210, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0220 How does the department or self-insurer pay for hospital outpatient services? The department or self-insurer will pay for hospital outpatient services according to the following table:

<i>Hospital Type or Location</i>	<i>Do percent of allowed charges (POAC) payment methods apply?</i>	<i>Does the department's Medical Aid Rules and Fee Schedules apply to hospital outpatient radiology, laboratory, pathology and physical therapy services?</i>
Children's Hospitals	Yes, paid 100% of allowed charges	Yes
Chronic Pain Management Program	Exempt, paid per department agreement	Exempt, paid per department agreement
Health Maintenance Organizations	Yes, paid 100% of allowed charges	Yes
Military	Yes, paid 100% of allowed charges	No, paid 100% of allowed charges
Veterans Administration	Yes, paid 100% of allowed charges	No, paid 100% of allowed charges
State psychiatric facility	Yes, paid 100% of allowed charges	Yes
Hospitals not in Oregon, Idaho or Washington	Yes, paid 97% of allowed charges	No, paid 100% of allowed charges
Oregon and Idaho	Yes, paid the Washington statewide average POAC	Yes
Washington rural (Peer Group A)	Yes, applies to hospital outpatient services except radiology, laboratory, pathology and physical therapy	Yes
All other Washington hospitals	Yes, applies to hospital outpatient services except radiology, laboratory, pathology and physical therapy	Yes

Hospitals are reimbursed only for the technical component of rates listed in the fee schedules, for outpatient radiology, pathology and laboratory services.

See chapter 296-23 WAC for rules on radiology, pathology, laboratory, physical therapy and work hardening services.

See WAC 296-20-132 and 296-20-135 for information on the conversion factor used for hospital outpatient services.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0220, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0230 How does the department or self-insurer pay out-of-state hospitals for hospital services? The department or self-insurer pays out-of-state hospitals for hospital services using a percent of allowed charges (POAC) factor or department fee schedule. The POAC factor may differ for services performed in inpatient and outpatient settings. The department or self-insurer will pay out-of-state hospitals according to the following table:

<i>Hospital Location (State)</i>	<i>Hospital Outpatient Services</i>	<i>Hospital Inpatient Services</i>
Oregon and Idaho	Hospital outpatient radiology, pathology and laboratory, and physical therapy services are to be billed and will be paid using the appropriate Labor and Industries fee schedule procedure codes. All other hospital outpatient services will be paid at the Washington state-wide average percent of allowed charges (POAC) factor.	Washington state-wide average percent of allowed charges (POAC) factor.
Hospitals not in Oregon, Idaho or Washington	Hospital outpatient radiology, pathology and laboratory, and physical therapy services are paid 100% of allowed charges. All other hospital outpatient services are paid 97% of allowed charges.	97% of allowed charges.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0230, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0240 How does the department define and pay a new hospital? New hospitals are those open for less than one year prior to the implementation of the department's most recent hospital payment rates. The department will pay new hospitals according to the following table:

<i>Hospital Type or Location</i>	<i>What Diagnosis Related Group (DRG) base price applies?</i>	<i>What Per Diem Payment Rates Apply?</i>	<i>What percent of allowed charges (POAC) factor applies?</i>
Oregon and Idaho	Exempt	Exempt	Washington state-wide average POAC
Hospitals not in Oregon, Idaho, or Washington	Exempt	Exempt	Paid 97% of allowed charges
Military, Veterans Administration, State Psychiatric, Health Maintenance Organization, Children's,	Exempt	Exempt	Paid 100% of allowed charges
Chronic Pain Management Program	Exempt, paid per department agreement	Exempt, paid per department agreement	Exempt, paid per department agreement
Washington Rural Hospital (Peer Group A)	Exempt	Washington state-wide average per diem rates	Washington state-wide average POAC
Other Washington Hospital	Weighted median case-mix adjusted average cost per case for Washington DRG hospitals, except major teaching hospitals	Washington state-wide average per diem rates	Washington state-wide average POAC

A new hospital will be paid using its hospital-specific POAC within three years of receiving a provider account number(s) from the department.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0240, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0250 Does a change in hospital ownership affect a hospital's payment rate? A change in ownership does not constitute the creation of a new hospital. If a hospital changes ownership, rates will remain the same as those payable to the previous owner.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0250, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0300 When do percent of allowed charges (POAC) payment factors apply? The department may designate from time to time, those hospitals and hospital services to be paid using POAC factors.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0300, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0310 What is the method for calculating percent of allowed charges (POAC) factors? POAC factors are based on Medicare cost report data and are calculated by dividing adjusted operating expenses by adjusted patient revenues. The department will allow costs for graduate medical education and charity care. Allowable costs for charity care shall not exceed a maximum of two

percent of the facility's total allowable costs. A hospital's POAC factor shall not exceed one hundred percent of allowed charges.

Payment rates are calculated by multiplying the POAC factor by the allowed charges.

Amount Paid = (POAC Factor) X (Allowed Charges)

Each hospital will be notified of their revised POAC factor thirty days prior to implementation. Incorrect data or erroneous calculations can be appealed in accordance with WAC 296-23A-0600.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0310, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0350 When do per diem rates apply? The department may designate from time to time, those hospitals and hospital services paid on a per diem basis. For example, the department may develop per diem rates for the following diagnosis-related-group (DRG) categories:

- Psychiatric;
- Rehabilitation;
- Substance abuse;
- Medical;
- Surgical; and
- Other categories as determined by the department.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0350, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0360 What is the method for calculating per diem rates? Per diem rates are calculated by dividing the total costs for all relevant cases in the historical data base by the total number of days. The total number of days is equal to the sum of the number of days for each relevant case. The number of days per case is equal to last date of service minus the first date of service. The department will allocate costs at the detailed revenue code level using Medicare cost report data and Medicare definitions for allowable costs. The department will allow costs for graduate medical education and charity care. Allowable costs for charity care shall not exceed a maximum of two percent of the facility's total allowable costs.

Payment rates are equal to the applicable per diem rate multiplied by the number of days allowed by the department. The department does not pay for the day of discharge. Payment shall not exceed allowed billed charges.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0360, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0400 What is a "diagnosis-related-group" payment system? A diagnosis-related-group (DRG) system categorizes patients into clinically coherent and homogenous groups with respect to resource use. The department will use an all-patient grouper to perform the diagnostic categorization. To the extent feasible, where DRG relative weights meet acceptable reliability and validity standards, the department will use DRG per case rates for payment of hospital inpatient services.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0400, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0410 How does the department calculate diagnosis-related-group (DRG) relative weights? In calculating DRG relative weights, the department will:

(1) Allocate costs for hospital services at a detailed revenue code level using Medicare cost report data and

Medicare definitions for allowable costs. The department will allow costs for graduate medical education and charity care. Allowable costs for charity care shall not exceed a maximum of two percent of the facility's total allowable costs.

(2) Classify department hospital admissions data and hospital discharge data in the Washington state department of health's comprehensive hospital abstract reporting system (CHARS), using an all-patient grouper.

(3) Establish relative weights from department of labor and industries' hospital admission data. If the department's data is not sufficient to calculate stable relative weights, the department may use hospital discharge data in the Washington state department of health's comprehensive hospital abstract reporting system (CHARS) or another appropriate data source.

(4) Exclude the following types of cases from DRG relative weight calculations: Transfers, statistical outliers, length of stay equal to zero, psychiatric, substance abuse and rehabilitation DRGs, out-of-state hospitals, other hospitals and services designated as exempt from DRG payment rates.

See WAC 296-23A-0470 and 296-23A-0480 for exclusions and exceptions to DRG payments for hospital services.

(5) Test each DRG statistically for adequacy of sample size to ensure that relative weights meet acceptable reliability and validity standards.

(6) Replace unstable department relative weights with stable CHARS derived relative weights.

(7) Standardize department and CHARS relative weights to a state-wide case-mix index of 1.0.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0410, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0420 How does the department determine the base price for hospital services paid using per case rates? The department determines the base price for hospital services paid using per case rates according to the following table:

<i>Type of Hospital</i>	<i>Base Price</i>
Major Teaching Hospital: Harborview Medical Center or University of Washington	Hospital-specific case-mix adjusted average cost per case
Other DRG Hospital	Weighted median case-mix adjusted average cost per case for DRG hospitals, except major teaching hospitals

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0420, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0430 How does the department calculate a hospital specific case-mix adjusted average cost per case? The department determines the case-mix adjusted average cost per case for each hospital by:

(1) Allocating costs for hospital services at a detailed revenue code level using Medicare cost report data and Medicare definitions for allowable costs. The department will allow costs for graduate medical education and charity care. Allowable costs for charity care shall not exceed a maximum of two percent of the facility's total allowable costs;

(2) Totaling the costs of all DRG cases;

(3) Dividing the total by the number of cases; and

(4) Then dividing that number by the hospital's case-mix index.

(5) Per case costs are indexed to the payment period for inflation and other factors.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0430, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0440 How does the department calculate the base price for DRG hospitals, except major teaching hospitals? The department calculates the base price for DRG hospitals, except major teaching hospitals by:

(1) Calculating each hospital's case-mix adjusted average cost per case;

(2) Weighting each hospital's case-mix adjusted average cost per case by the number of cases at that hospital;

(3) Determining the median (fiftieth percentile) of the list of case-mix adjusted average costs per case.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0440, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0450 What cases does the department exclude from base price calculations? The department excludes the following types of cases from base price calculations:

- Transfers;
- Statistical outliers;
- Length of stay equal to zero;
- Psychiatric, substance abuse and rehabilitation DRGs;
- Out-of-state hospitals; and
- Other hospitals and services designated as exempt from DRG payment rates.

See WAC 296-23A-0470 and 296-23A-0480 for exclusions and exceptions to DRG payments for hospital services.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0450, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0460 How does the department calculate the diagnosis-related-group (DRG) per case payment rate for a particular hospital? The DRG per case rate for a particular hospital is calculated by multiplying the assigned DRG relative weight for that admission by the applicable base price.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0460, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0470 Which exclusions and exceptions apply to diagnosis-related-group (DRG) payments for hospital services? The following exclusions and exceptions apply to DRG payments for hospital services:

- Psychiatric, rehabilitation, and chemical dependency (substance abuse) services will be excluded from payment by DRG rates. These services will be paid using per diem payment rates.
- Ambulance and air transportation services are excluded from DRG payments.
- Bills assigned to a DRG that is defined as ungroupable will be denied.
- Bills where the principal diagnosis is invalid as a discharge diagnosis will be denied.
- Bills where the injured worker has been admitted and discharged in less than twenty-four hours will be reviewed by the department and may be paid as hospital outpatient services.
- The department may choose to exclude other DRGs from DRG payment rates due to concerns about access, case volume or other considerations. These services will be paid using the applicable percent of allowed charges (POAC) factor and per diem rates.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0470, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0480 Which hospitals does the department exclude from diagnosis-related-group (DRG) payments? The following hospitals are excluded from DRG payments:

- Military, Veterans Administration, state psychiatric facilities, health maintenance organizations (HMO), and children's hospitals will be paid their allowed charges.
- Department-approved chronic pain management programs will be paid according to department agreement or contract.
- Peer Group A hospitals, as defined by the department of health, will be paid using per diem rates.
- Hospitals located outside of Washington will be paid a percent of allowed charges (POAC).
- Other hospitals, as determined by the department, may be excluded from DRG reimbursement rates due to concerns about access, case volume or other considerations. These facilities will be paid using the applicable POAC factor and per diem rates.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0480, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0490 Which hospital services does the department include in diagnosis-related-group (DRG) rates? Unless otherwise specified, the department will include in the DRG rate all hospital services provided to an injured worker admitted to a hospital. Hospital services must be medically necessary for the treatment of the accepted occupational disease or injury.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0490, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0500 When does a case qualify for high outlier status? Outlier payments apply only to diagnosis-related-group (DRG) reimbursed cases with unusually high or low costs. Outlier status does not apply to cases paid using a percent of allowed charges (POAC) factor or per diem rates. To have a bill considered for outlier status, a hospital must enter "61" for the condition code, block 35 of the hospital billing form.

A case is considered a high cost outlier if the costs for the case exceed the outlier threshold for the assigned diagnosis-related-group. The costs for a case are determined by multiplying the allowed charges for the case by the hospital specific POAC factor. The threshold used to define a high outlier case is the greater of a dollar threshold of twelve thousand dollars or two standard deviations above the state-wide average cost for each DRG paid by the department.

The dollar threshold may be adjusted annually for inflation or other factors as determined by the department. The standard deviations for DRGs will be computed from all relevant cases in the historical data base, excluding statistical outliers.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0500, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0520 How does the department pay for high outlier cases? Cases defined as high cost outliers will be reimbursed at the diagnosis-related-group (DRG) payment rate plus one hundred percent of costs in excess of the threshold. Costs are determined by multiplying the allowed charges by the hospital specific percent of allowed charges (POAC) factor.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0520, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0530 How does a case qualify for low outlier status? To qualify as a low outlier, the allowed charges multiplied by that hospital's percent of allowed charges (POAC) factor must be less than ten percent of the state-wide diagnosis-related-group (DRG) rate or five hundred dollars whichever is greater. The standard deviations for DRGs will be computed from all relevant cases in the historical data base, excluding statistical outliers.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0530, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0540 How does the department pay for low outlier cases? Low outlier cases are paid by multiplying each hospital's specific percent of allowed charges (POAC) factor by the allowed charges for the case.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0540, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0550 Under what circumstances will the department pay for interim bills? The department will deny interim bills which are assigned to diagnosis-related-groups (DRGs) paid per case rates by the department.

If an interim bill is coded as a diagnosis-related-group (DRG) not paid per case rates by the department, then the bill will be paid using the applicable percent of allowed

charges (POAC) factor and per diem rates. If a subsequent bill coded as a DRG paid per case rates by the department, for the same injured worker, has a first date of service within seven days of the last date of service of the previous bill, then the bills will be subject to review and adjustment by the department.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0550, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0560 How does the department define and pay for hospital readmissions? The department will review hospital readmissions occurring within seven days of discharge and will determine whether the second admission resulted from premature discharge. Payment for services associated with readmission will depend upon the review. For example:

- If the second admission is determined unnecessary, reimbursement may be denied.
- If the admission was avoidable, the two admissions may be combined and a single diagnosis-related-group (DRG) payment made.
- If two different DRG assignments are involved, reimbursement for the appropriate DRG will be based upon review of the case.
- Readmissions involving different hospitals will be reviewed by the department and may be paid using the payment method for transfers.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0560, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0570 How does the department define a transfer case? A transfer case is defined as an injured worker's admission to another acute care hospital within seven days of that worker's previous discharge. All bills for transfer cases will be subject to review by the department and payment will be determined based on that analysis. The transferring hospital may qualify for high and low outlier status.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0570, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0575 How does the department pay a transferring hospital for a transfer case? When the stay at the transferring hospital is a diagnosis-related-group (DRG) paid by the department, and does not qualify as a low outlier, the transferring hospital is paid a graduated per diem rate for each day of care allowed by the department. If the case qualifies as a low cost outlier, the hospital will be paid the graduated per diem amount or low cost outlier payment amount, whichever is lower. The per diem rate is determined by dividing that hospital's rate for the appropriate DRG by that DRG's average length of stay as determined by the department. Payment for the first day of service will be two times the per diem rate. For subsequent allowed days, the basic per diem rate will be paid up to the full DRG payment amount. Unless the case qualifies as a high outlier, payment to the transferring hospital will not exceed the appropriate DRG rate that would have been paid had the injured worker not been transferred to another hospital.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0575, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0580 How does the department pay the receiving hospital for a transfer case? The hospital receiving a transfer will be paid according to the department's review of the case. If the receiving hospital's stay is a diagnosis-related-group (DRG) paid by the department, then the hospital will receive the appropriate per case and outlier payments. If the case is not a DRG paid by the department, then the hospital is paid using applicable percent of allowed charges (POAC) factor or per diem rates.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0580, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0600 How can a hospital request a rate adjustment? Hospitals may submit a request for adjustment to their rate if:

- The rate methodology or principles of reimbursement established in department publications were incorrectly applied, or
- Incorrect data or erroneous calculations were used in the establishment of the hospital's rate.

In all circumstances, requests for adjustments to rates must show how the rate adjustment was calculated and contain sufficient detail to permit an audit. Requests must specify the nature and the amount of the adjustment sought. The burden of proof is on the requesting hospital.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0600, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0610 Where must hospitals submit requests for rate adjustments? Hospitals must submit requests for rate adjustments in writing to:

Department of Labor and Industries
Health Services Analysis
Request for Hospital Rate Adjustment
P.O. Box 44322
Olympia, Washington 98504-4322.

Requests must be received within sixty days after the facility receives notice of its payment rates.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0610, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-0620 What action will the department take upon receipt of a request for a rate adjustment? Upon receipt of the request, the department shall determine the need for a conference with the hospital and will contact the facility to arrange a conference if needed. The conference, if needed, must be held within sixty days of the department's receipt of the request.

Within thirty calendar days of the receipt of the request for review or the date of the conference, the department shall notify the facility of the action to be taken by the department.

If the department's review of the material submitted by the hospital results in a favorable determination for the hospital, the department will modify the hospital's payment rate(s). The revised rate(s) will apply to all bills with a date of admission on or after a date chosen by the department.

The chosen date will be within one hundred twenty days of the department's and hospital's agreement to modify the rate(s).

If the department's review of the material submitted by the hospital results in an unfavorable determination for the hospital, the hospital may file an appeal with the board of industrial insurance appeals.

[Statutory Authority: RCW 51.04.020, 51.04.030 and 51.36.080. 97-06-066, § 296-23A-0620, filed 2/28/97, effective 4/1/97.]

WAC 296-23A-100 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-105 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-106 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-110 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-115 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-120 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-125 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-130 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-135 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-140 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-145 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-150 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-155 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-160 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-165 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-170 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-175 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-180 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-185 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-190 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-200 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-205 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-210 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-215 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-220 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-225 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-230 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-235 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-300 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-310 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-315 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-320 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-400 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-23A-430 Repealed. See Disposition Table at beginning of this chapter.

Chapter 296-24 WAC

GENERAL SAFETY AND HEALTH STANDARDS

WAC

296-24-07801	General.
296-24-084	Occupational head protection.
296-24-088	Occupational foot protection.
296-24-18005	Guarding of abrasive wheel machinery.
296-24-67501	Purpose.
296-24-67505	Selection of abrasives and equipment.
296-24-67507	Definitions.
296-24-67509	Dust hazards from abrasive blasting.
296-24-67511	Blast cleaning enclosures.
296-24-67513	Construction and maintenance of the exhaust ventilation systems.
296-24-67515	Personal protective equipment.
296-24-67517	Air supply and air compressors.
296-24-67519	Operational procedures and general safety.
296-24-67520	Ventilation.
296-24-67521	Appendix 1.
296-24-677	Repealed.
296-24-67701	Repealed.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

296-24-677	Ventilation. [Order 73-5, § 296-24-677, filed 5/9/73 and Order 73-4, § 296-24-677, filed 5/7/73.] Repealed by 98-02-006, filed 12/26/97, effective 3/1/98. Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060.
296-24-67701	Scope. [Order 73-5, § 296-24-67701, filed 5/9/73 and Order 73-4, § 296-24-67701, filed 5/7/73.] Repealed by 98-02-006, filed 12/26/97, effective 3/1/98. Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060.

WAC 296-24-07801 General. (1) The employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

(2) The employer shall ensure that each affected employee uses eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors (e.g., clip-on or slide-on side shields) meeting the pertinent requirements of this section are acceptable.

(3) The employer shall ensure that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards wears eye protection that incorporates the prescription in its design, or wears eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

(4) Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer.

(5) The employer shall ensure that each affected employee uses equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation. The following is a listing of appropriate shade numbers for various operations.

Filter Lenses for Protection Against Radiant Energy

Operations	Electrode Size 1/32 (inches)	Minimum* Protective Arc Current	Shade
Shielded metal arc welding	Less than 3	Less than 60	7
	3-5	60-160	8
	5-8	160-250	10
	More than 8	250-550	11
Gas metal arc welding and flux cored arc welding		Less than 60	7
		60-160	10
		160-250	10
		250-500	10
Gas Tungsten arc welding		Less than 50	8
		50-150	8
		150-500	10
Air carbon Arc cutting	(Light)	Less than 500	10
	(Heavy)	500-1000	11
Plasma arc welding		Less than 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc cutting	(Light)	Less than 300	8
	(Medium)**	300-400	9
	(Heavy)**	400-800	10
Torch brazing			3
Torch soldering			2
Carbon arc welding			14

Filter Lenses for Protection Against Radiant Energy

Operations	Plate thickness (inches)	Plate thickness (mm)	Minimum* Protective Shade
Gas welding:	Light	Under 1/8	4
	Medium	1/8 to 1/2	5
	Heavy	Over 1/2	6
Oxygen cutting:	Light	Under 1	3
	Medium	1 to 6	4
	Heavy	Over 6	5

* As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

** These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.

(6) Criteria for protective eye and face devices.

(a) Protective eye and face devices purchased after February 20, 1995, shall comply with ANSI Z87.1-1989, "American National Standard Practice for Occupational and Educational Eye and Face Protection," which is incorporated by reference, or shall be demonstrated by the employer to be equally effective.

(b) Eye and face protective devices purchased before February 20, 1995, shall comply with the ANSI standard "American National Standard Practice for Occupational and Educational Eye and Face Protection," ANSI Z87.1-1968 or

shall be demonstrated by the employer to be equally effective.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-11-055, § 296-24-07801, filed 5/20/97, effective 8/1/97. Statutory Authority: Chapter 49.17 RCW. 94-20-057 (Order 94-16), § 296-24-07801, filed 9/30/94, effective 11/20/94; Order 73-5, § 296-24-07801, filed 5/9/73 and Order 73-4, § 296-24-07801, filed 5/7/73.]

WAC 296-24-084 Occupational head protection. (1)

General requirements.

(a) The employer shall ensure that each affected employee wears a protective helmet when working in areas where there is a potential for injury to the head from falling or flying objects.

(b) The employer shall ensure that a protective helmet designed to reduce electrical shock hazard is worn by each such affected employee when near exposed electrical conductors which could contact the head.

(2) Criteria for protective helmets.

(a) Protective helmets purchased after February 20, 1995, shall comply with ANSI Z89.1-1986, "American National Standard for Personnel Protection—Protective Headwear for Industrial Workers—Requirements," which is incorporated by reference, or shall be demonstrated to be equally effective.

(b) Protective helmets purchased before February 20, 1995, shall comply with the ANSI standard "American National Standard Safety Requirements for Industrial Head Protection," ANSI Z89.1-1969, or shall be demonstrated by the employer to be equally effective.

(3) Persons working in the shops around machinery or in locations which present a hair catching or fire hazard shall wear caps or other type of head covering which completely covers the hair. Caps with metal buttons or metal visors shall not be worn around electrical hazards.

Note 1: The following will define hair lengths considered hazardous:

(a) When the length would exceed the circumference of exposed revolving shafts or tools in fixed machines by 200 percent.

(b) When the length would exceed the radius of pressure rolls with exposed in-running nip points.

(c) When the employee is exposed to an ignition source and the employee may, with hair aflame, run into an area containing class -1 flammable liquids or combustible atmospheres.

(d) When exposures require personal protective devices, such as mask-type respirators or ear-cup-type hearing protection devices, and hair, either facial or head, would interfere with a proper seal.

Note 2: When hair length is judged hazardous from a hair catching standpoint (instances (a) or (b) under interpretations in Note 1) minimal confinement shall be within netting which controls all loose ends.

Note 3: If hazardous from fire hazard aspects (instance (c) of Note 1) the hair must be confined within a solid-type material.

(4) Protective helmets shall be worn by employees who work around or under scaffolds or other overhead structures, or who are otherwise exposed to the hazards of falling materials and propelled objects.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-11-055, § 296-24-084, filed 5/20/97, effective 8/1/97. Statutory Authority: Chapter 49.17 RCW. 96-09-030, § 296-24-084, filed 4/10/96, effective 6/1/96; 94-20-057 (Order 94-16), § 296-24-084, filed 9/30/94, effective 11/20/94; 91-03-044 (Order 90-18), § 296-24-084, filed 1/10/91, effective 2/12/91; Order 74-27, § 296-24-084, filed 5/7/74; Order 73-5, § 296-24-084, filed 5/9/73 and Order 73-4, § 296-24-084, filed 5/7/73.]

WAC 296-24-088 Occupational foot protection. (1)

General requirements. The employer shall ensure that each affected employee wears protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards.

(2) Criteria for protective footwear.

(a) Protective footwear purchased after February 20, 1995, shall comply with ANSI Z41-1991, "American National Standard for Personal Protection—Protective Footwear," which is incorporated by reference, or shall be demonstrated by the employer to be equally effective.

(b) Protective footwear purchased before February 20, 1995, shall comply with the ANSI standard "USA Standard for Men's Safety-Toe Footwear," ANSI Z41.1-1967, which is incorporated by reference, or shall be demonstrated by the employer to be equally effective.

(3) Calks or other suitable footwear which will afford reasonable protection from slipping shall be worn while working on logs.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-11-055, § 296-24-088, filed 5/20/97, effective 8/1/97. Statutory Authority: Chapter 49.17 RCW. 94-20-057 (Order 94-16), § 296-24-088, filed 9/30/94, effective 11/20/94; 94-15-096 (Order 94-07), § 296-24-088, filed 7/20/94, effective 9/20/94; Order 73-5, § 296-24-088, filed 5/9/73 and Order 73-4, § 296-24-088, filed 5/7/73.]

WAC 296-24-18005 Guarding of abrasive wheel machinery. (1) Cup wheels. Cup wheels (types 6 and 11) shall be protected by:

(a) Safety guards as specified in (1) through (10) of this section.

(b) Band type guards as specified in (11) of this section; and

(c) Special "revolving cup guards" which mount behind the wheel and turn with it. They shall be made of steel or other material with adequate strength and shall enclose the wheel sides upward from the back for one-third of the wheel thickness. The mounting features shall conform with all requirements of this section. It is necessary to maintain clearance between the wheel side and the guard. This clearance shall not exceed one-sixteenth inch.

(2) Guard exposure angles. The maximum exposure angles specified in (3) through (8) of this section shall not be exceeded. Visors or other accessory equipment shall not be included as a part of the guard when measuring the guard opening, unless such equipment has strength equal to that of the guard.

(3) Bench and floor stands. The angular exposure of the grinding wheel periphery and sides for safety guards used on machines known as bench and floor stands should not exceed 90° or one-fourth of the periphery. This exposure shall begin at a point not more than 65° above the horizontal plane of the wheel spindle. (See Figures O-6 and O-7 and (9) of this section.)

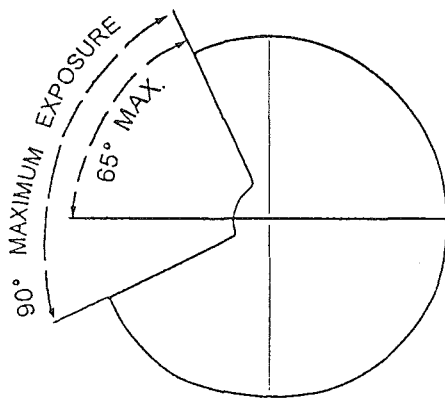


Figure No. O-6

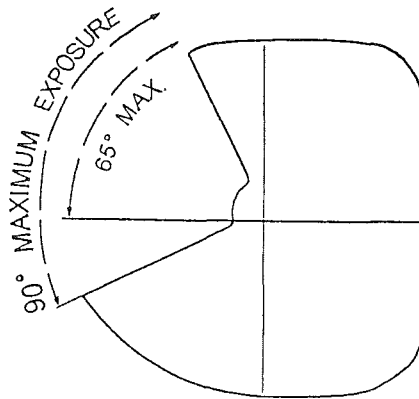


Figure No. O-7

Wherever the nature of the work requires contact with the wheel below the horizontal plane of the spindle, the exposure shall not exceed 125°. (See Figures O-8 and O-9.)

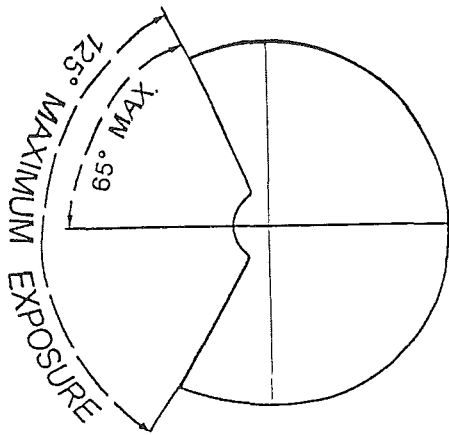


Figure No. O-8

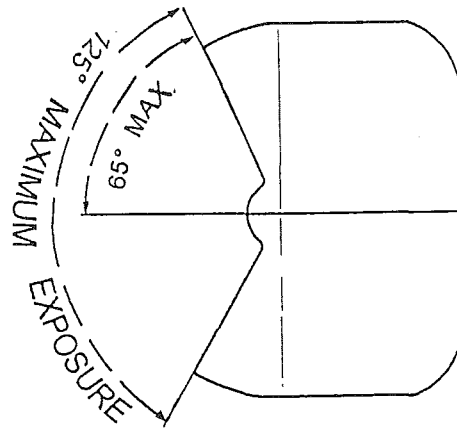


Figure No. O-9

(4) Cylindrical grinders. The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on cylindrical grinding machines shall not exceed 180°. This exposure shall begin at a point not more than 65° above the horizontal plane of the wheel spindle. (See Figures O-10 and O-11 and (9) of this section.)

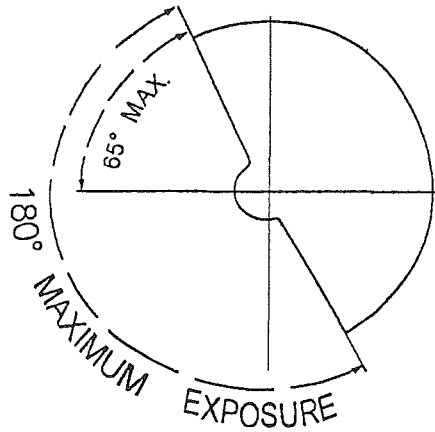


Figure No. O-10

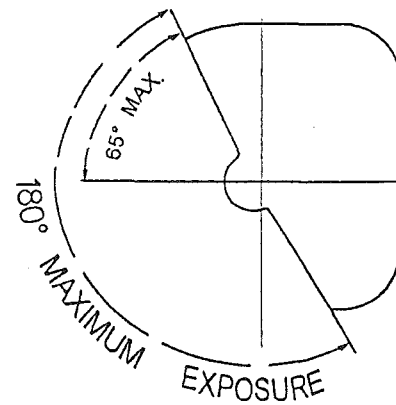


Figure No. O-11

(5) Surface grinders and cutting-off machines. The maximum angular exposure of the grinding wheels periphery and sides for safety guards used on cutting-off machines and on surface grinding machines which employ the wheel periphery shall not exceed 180°. This exposure shall begin at a point not less than 15° below the horizontal plane of the wheel spindle. (See Figures O-12 and O-13.)

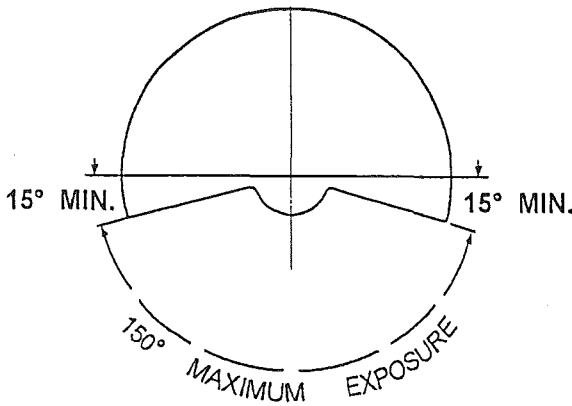


Figure No. O-12

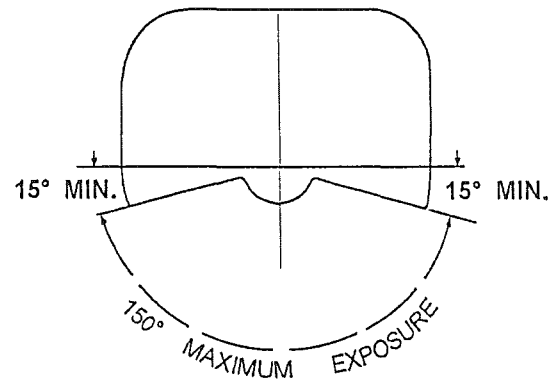


Figure No. O-13

(6) Swing frame grinders. The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on machines known as swing frame grinding machines shall not exceed 180° , and the top half of the wheel shall be enclosed at all times. (See Figures O-14 and O-15.)

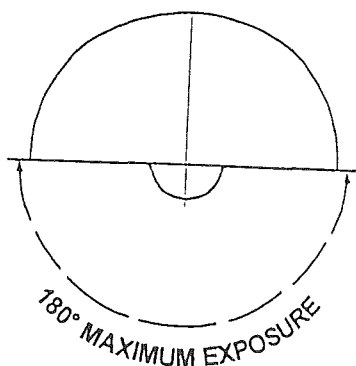


Figure No. O-14

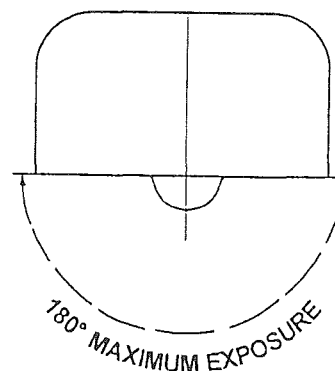


Figure No. O-15

(7) Automatic snagging machines. The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on grinders known as automatic snagging machines shall not exceed 180° and the top half of the wheel shall be enclosed at all times. (See Figures O-14 and O-15.)

(8) Top grinding. Where the work is applied to the wheel above the horizontal centerline, the exposure of the grinding wheel periphery shall be as small as possible and shall not exceed 60° . (See Figures O-16 and O-17.)

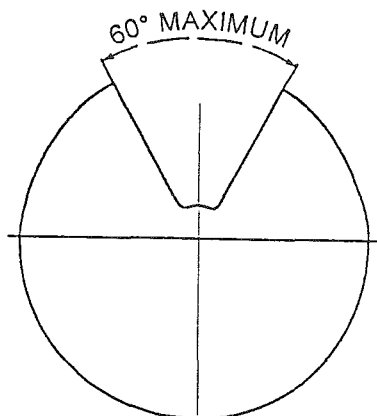


Figure No. O-16

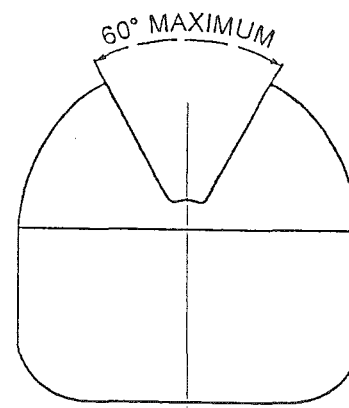


Figure No. O-17

(9) Exposure adjustment. Safety guards of the types described in (3) and (4) of this section, where the operator stands in front of the opening, shall be constructed so that the peripheral protecting member can be adjusted to the constantly decreasing diameter of the wheel. The maximum angular exposure above the horizontal plane of the wheel spindle as specified in (3) and (4) of this section shall never be exceeded, and the distance between the wheel periphery and the adjustable tongue or the end of the peripheral member at the top shall never exceed one-fourth inch. (See Figures O-18, O-19, O-20, O-21, O-22, and O-23.)

(10) Material requirements and minimum dimensions.
(a) See Figures O-36 and O-37 and Table O-9 for minimum basic thickness of peripheral and side members for various types of safety guards and classes of service.

(b) If operating speed does not exceed 8,000 surface feet per minute cast iron safety guards, malleable iron guards or other guards as described in item (10)(c) of this subsection.

(c) Cast steel, or structural steel, safety guards as specified in Figures O-36 and O-37 and Table O-9 shall be used where operating speeds of wheels are faster than 8,000 surface feet per minute up to a maximum of 16,000 surface feet per minute.

(d) For cutting-off wheels 16 inches diameter and smaller and where speed does not exceed 16,000 surface feet per minute, cast iron or malleable iron safety guards as specified in Figures O-36 and O-37 and in Table O-9 shall be used.

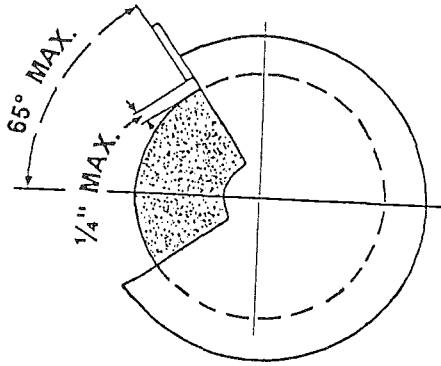


Figure No. O-18

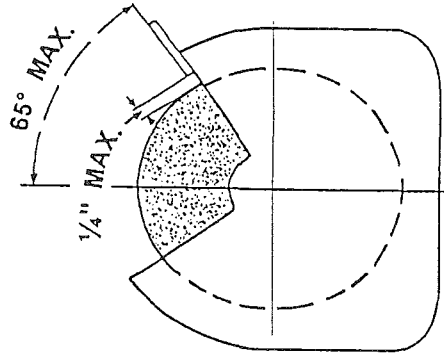


Figure No. O-19

CORRECT

Showing adjustable tongue giving required angular protection for all sizes of wheel used.

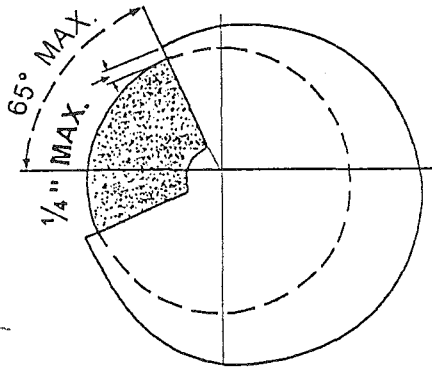


Figure No. O-20

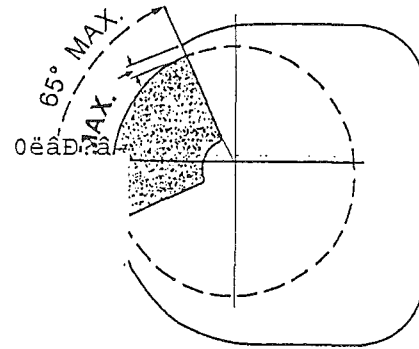


Figure No. O-21

CORRECT

Showing movable guard with opening small enough to give required protection for smallest size wheel used.

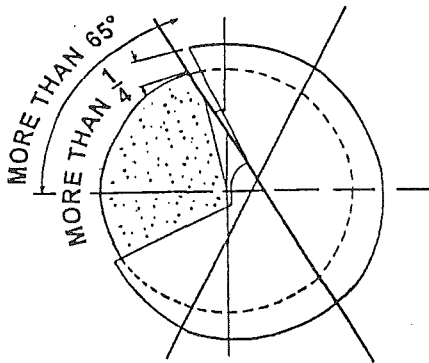


Figure No. O-22

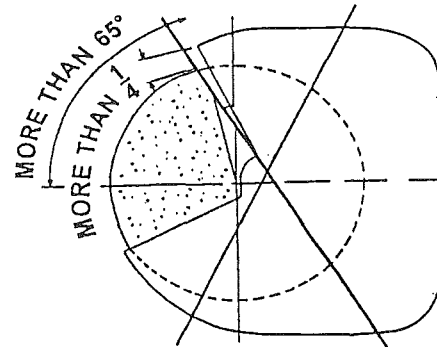


Figure No. O-23

INCORRECT

Showing movable guard with size of opening correct for full size wheel but too large for smaller wheels.

(e) For cutting-off wheels larger than 16 inches diameter and where speed does not exceed 14,200 surface feet per minute, safety guards as specified in Figures O-27 and O-28, and in Table O-1 shall be used.

(f) For thread grinding wheels not exceeding 1 inch in thickness cast iron or malleable iron safety guards as

specified in Figures O-36 and O-37, and in Table O-9 shall be used.

(11) Band type guards—General specifications. Band type guards shall conform to the following general specifications:

(a) The bands shall be of steel plate or other material of equal or greater strength. They shall be continuous, the ends being either riveted, bolted, or welded together in such a manner as to leave the inside free from projections.

(b) The inside diameter of the band shall not be more than 1 inch larger than the outside diameter of the wheel, and shall be mounted as nearly concentric with the wheel as practicable.

(c) The band shall be of sufficient width and its position kept so adjusted that at no time will the wheel protrude beyond the edge of the band a distance greater than that indicated in Figure O-29 and in Table O-2 or the wall thickness (W), whichever is smaller.

(12) Guard design specifications. Abrasive wheel machinery guards shall meet the design specifications of the American National Standard Safety Code for the Use, Care, and Protection of Abrasive Wheels, ANSI B7.1-1970. This requirement shall not apply to natural sandstone wheels or metal, wooden, cloth, or paper discs, having a layer of abrasive on the surface.

[Statutory Authority: RCW 49.17.010, [49.17].040 and [49.17].050. 98-02-028, § 296-24-18005, filed 12/31/97, effective 1/31/98; Order 76-6, § 296-24-18005, filed 3/1/76; Order 73-5, § 296-24-18005, filed 5/9/73 and Order 73-4, § 296-24-18005, filed 5/7/73.]

WAC 296-24-67501 Purpose. The safety and health standards of this section are intended to protect health and to prevent injury to personnel engaged in abrasive blasting operations and to others working in the vicinity by:

(1) Controlling dusts which are dispersed during abrasive blasting.

(2) Providing an adequate amount of clean air to personnel.

(3) Protecting personnel from injury from flying particles or from moving equipment.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67501, filed 12/26/97, effective 3/1/98; Order 73-5, § 296-24-67501, filed 5/9/73 and Order 73-4, § 296-24-67501, filed 5/7/73.]

WAC 296-24-67505 Selection of abrasives and equipment. Each type of abrasive and each type of equipment has its particular advantages in producing the quality of work desired, and the selection will depend on the specific requirements of the user. Therefore, no rule or suggestion is given in this standard for the selection of a particular abrasive or of particular equipment. With properly designed equipment and proper operation and maintenance all types of abrasives and equipment can be used safely. However, abrasives which create the minimum hazard should be used wherever feasible.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67505, filed 12/26/97, effective 3/1/98; Order 73-5, § 296-24-67505, filed 5/9/73 and Order 73-4, filed 5/7/73.]

WAC 296-24-67507 Definitions. (1) Abrasive. A solid granular substance used in an abrasive blasting operation.

(2) Abrasive blasting. The forcible application of an abrasive to a surface by pneumatic pressure, hydraulic pressure, or centrifugal force.

(3) Abrasive-blasting respirator. A continuous flow airline respirator or pressure-demand supplied-air respirator made so that it will cover the wearer's head, neck, and shoulders and provide protection from rebounding abrasive.

(4) Air-line respirator. A device consisting of a face-piece, helmet, or hood to which clean air is supplied to the wearer through a small-diameter hose from a compressed air source.

(5) Blast cleaning barrel. A complete enclosure which rotates on an axis, or which has an internal moving tread to tumble the parts, in order to expose various surfaces of the parts to the action of an automatic blast spray.

(6) Blast cleaning room. A complete enclosure in which blasting operations are performed and where the operator works inside of the room to operate the blasting nozzle and direct the flow of the abrasive material.

(7) Blasting cabinet. An enclosure where the operator stands outside and operates the blasting nozzle through an opening or openings in the enclosure.

(8) Clean air. Air of such purity that it will not cause harm or discomfort to an individual if it is inhaled for extended periods of time.

(9) Dust collector. A device or combination of devices for separating dust from the air handled by an exhaust ventilation system.

(10) Exhaust ventilation system. A system for removing contaminated air from a space, comprising two or more of the following elements; (a) enclosure or hood, (b) duct work, (c) dust collecting equipment, (d) exhauster, and (e) discharge stack.

(11) Particulate-filter respirator. An air purifying respirator, commonly referred to as a dust or a fume respirator, which removes most of the dust or fume from the air passing through the device.

(12) Respirable dust. Airborne dust in sizes capable of passing through the upper respiratory system to reach the lower lung passages.

(13) Rotary blast cleaning table. An enclosure where the pieces to be cleaned are positioned on a rotating table and are passed automatically through a series of blast sprays.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67507, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-24-67507, filed 7/20/94, effective 9/20/94; Order 73-5, § 296-24-67507, filed 5/9/73 and Order 73-4, § 296-24-67507, filed 5/7/73.]

WAC 296-24-67509 Dust hazards from abrasive blasting. (1) Dust sources. Abrasives and the surface coatings on the materials blasted are shattered and pulverized during blasting operations and the dust formed will contain particles of respirable size. The composition and toxicity of the dust from these sources must be considered in making an evaluation of the potential health hazards.

(2) Types of abrasives. A large variety of solid materials may be used as abrasives, with qualities varying from hard deep-cutting to soft polishing. These include; (a) mineral grains, either synthetic or natural such as silica or garnet, (b) metallic shot or grit, generally of steel or chilled cast iron, and (c) organic abrasives, such as ground corncobs or walnut shells.

Silica sand is the most hazardous mineral abrasive commonly used and its use should be limited wherever possible.

The potential hazard from steel or iron dust is considered to be minimal.

Readily combustible organic abrasives may be pulverized fine enough to be capable of forming explosive mixtures with air.

(3) Types of coatings. A surface coating formed during the fabrication of a part, or a protective coating applied after fabrication, will be removed and dispersed as a dust by abrasive blasting. The type of coating should be known to make a proper evaluation of the potential hazard.

(a) Silica sand is frequently imbedded in the surface of castings and may be pulverized by blast cleaning.

(b) Coatings containing toxic metals will add to the potential seriousness of the dust exposures. Examples of such coatings are anti-fouling paints containing mercury, lead paints on structural steel, cadmium plating, and lead deposits on pistons of internal combustion engines.

(c) Plastic or resin coatings may be decomposed by abrasive blasting and form irritating by-products.

(4) Wet abrasive blasting. Wet methods will tend to keep dust exposures minimal, but dispersed droplets and dried residues may become airborne and create potential exposures.

(5) Concentrations of contaminants. The concentration of respirable dust or fumes in the breathing zone of the abrasive-blasting operator or any other worker must be kept below the levels specified in WAC 296-62-075 through 296-62-07515.

(6) Use of combustible abrasives. Organic abrasives which are combustible must be used only in automatic systems because the fine dust produced presents a potential fire and explosion hazard.

(a) Where flammable or explosive dust mixtures may be present, the construction of the equipment, including the exhaust system and all electric wiring must conform to the requirements of American National Standard Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, Z 33.1-1961 (NFPA 91-1961), and chapter 296-24 WAC Part L, Electrical. The blast nozzle must be bonded and grounded to prevent the buildup of static charges.

(b) Where flammable or explosive dust mixtures may be present, the abrasive blasting enclosure, the ducts, and the dust collector must be constructed with loose panels or explosion venting areas, located on sides away from any occupied area, to provide for pressure relief in case of explosion, following the principles set forth in the National Fire Protection Association Explosion Venting Guide, NFPA 68-1954.

Note: See the latest versions of NFPA-91, NFPA-68 and ANSI Z33.1 for current information on the construction of abrasive blasting equipment and enclosures.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67509, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 91-24-017 (Order 91-07), § 296-24-67509, filed 11/22/91, effective 12/24/91; Order 73-5, § 296-24-67509, filed 5/9/73 and Order 73-4, § 296-24-67509, filed 5/7/73.]

WAC 296-24-67511 Blast cleaning enclosures. (1) Blast cleaning enclosures include rotary blast cleaning tables, blast cleaning barrels and drums, abrasive blasting cabinets, blast cleaning rooms, abrasive separators, and similar enclosures.

(2) Blast cleaning enclosures must be exhaust ventilated in such a way that a continuous inward flow of air will be maintained at all openings in the enclosure, during the blasting operation. (See WAC 296-24-67520 and Appendix 1.)

(3) All air inlets and access openings must be baffled or so arranged that by the combination of inward air flow and baffling the escape of abrasive or dust particles into an adjacent work area will be minimized, and visible spurts of dust will not be observed.

(4) The rate of exhaust must be sufficient to provide prompt clearance of the dust-laden air within the enclosure after blasting stops.

(5) Before the enclosure is opened, the blast must be turned off and the exhaust system must be run for a sufficient period of time to remove the airborne dust particles within the enclosure.

(6) Safety glass protected by screening must be used in observation windows, where hard deep-cutting abrasives are used.

(7) Slit abrasive-resistant baffles must be installed in multiple sets at all small access openings where dust might escape, and must be inspected regularly and replaced when needed.

(8) Doors must be flanged and tight when closed.

(9) Doors on blast-cleaning rooms must be operable from both inside and outside, except where there is a small operator access door, the large work access door may be closed or opened from the outside only.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67511, filed 12/26/97, effective 3/1/98; Order 73-5, § 296-24-67511, filed 5/9/73 and Order 73-4, § 296-24-67511, filed 5/7/73.]

WAC 296-24-67513 Construction and maintenance of the exhaust ventilation systems. (1) The construction, installation, inspection, and maintenance of exhaust systems must conform to the principles and requirements set forth in American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, 29.2-1960 and ANSI Z33.1-1961.

Note: See the latest versions of ANSI Z9.2 and ANSI Z33.1 for current information on the installation, inspection and maintenance of exhaust systems.

(2) When dust leaks are noted, repairs must be made.

(3) The static pressure drop at the exhaust ducts leading from the equipment must be checked when the installation is completed and periodically thereafter to assure continued satisfactory operation.

(4) Whenever an appreciable change in the pressure drop indicates a partial blockage, the system must be cleaned and returned to normal operating conditions.

(5) In installations where the abrasive is recirculated, an abrasive separator must be provided to remove fines from the spent abrasives.

(6) The air exhausted from blast cleaning equipment must be discharged through dust collecting equipment.

(7) Dust collectors must be set up so that the accumulated dust can be emptied and removed without contaminating other working areas.

Note: Disposal of waste. The fine dust from dry collectors should be emptied into and transported in enclosed containers to prevent dispersal of the fines, or discharged into a sluice with some method to assure wetting of the dust.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67513, filed 12/26/97, effective 3/1/98; Order 73-5, § 296-24-67513, filed 5/9/73 and Order 73-4, § 296-24-67513, filed 5/7/73.]

WAC 296-24-67515 Personal protective equipment.

(1) Respiratory protective equipment approved by the National Institute for Occupational Safety and Health (NIOSH) must be used for protection of personnel against dusts produced during abrasive-blasting operations.

(2) Abrasive-blasting respirators. Abrasive-blasting respirators must be worn by all abrasive-blasting operators in the following situations: (a) When working inside of blast cleaning rooms, or (b) when using silica sand in manual blasting operations except where the nozzle and blast are physically separated from the operator in an exhaust ventilated enclosure, or (c) where concentrations of toxic dusts dispersed by the abrasive blasting may exceed the limits set in WAC 296-62-075 through 296-62-07515 except where the nozzle and blast are physically separated from the operator in an exhaust-ventilated enclosure.

(3) Particulate-filter respirators.

(a) Particulate or dust-filter respirators may be used for short, intermittent, or occasional dust exposures such as clean-up, dumping of dust collectors, or unloading shipments of sand at a receiving point, when it is not feasible to control the dust by enclosure, exhaust ventilation, or other means.

(b) Dust-filter respirators may also be used to protect the operator of outside (outdoor) abrasive-blasting operations where nonsilica abrasives are used on materials having low toxicity.

Note: The selection of a dust-filter respirator depends on the amount of dust in the breathing zone of the user. See WAC 296-62-07113 - Table 5.

(c) Dust-filter respirators used must be NIOSH-approved for protection against the specific type of dust encountered.

(d) Dust-filter respirators must be properly fitted as required in WAC 296-62-071.

(e) Dust-filter respirators must not be used for continuous protection where silica sand is used as the blasting abrasive, or when toxic materials are blasted.

(4) A respiratory protection program as required in WAC 296-62-071 must be established wherever it is necessary to use respirators.

(5) Personal protective clothing.

(a) Operators must be equipped with heavy canvas or leather gloves and aprons or equivalent protection to protect them from the impact of abrasives.

(b) Safety shoes must be worn where there is a hazard of foot injury.

(c) Equipment for protection of the eyes and face must be supplied to the operator and to other personnel working near abrasive blasting operations when the respirator design does not provide such protection.

(6) Personal protective clothing, equipment and their use must comply with WAC 296-24-075 (Part A2).

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67515, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-24-67515, filed 7/20/94, effective 9/20/94; Order 73-5, § 296-24-67515, filed 5/9/73 and Order 73-4, § 296-24-67515, filed 5/7/73.]

WAC 296-24-67517 Air supply and air compressors. (1) Clean air supply. The air for abrasive-blasting respirators must be free of harmful quantities of dusts, mists, or noxious gases, and shall meet the requirements for air purity set forth in American National Standard Z 86.1-1973.

Note: It is preferable to provide air for an abrasive-blasting respirator with low pressure blowers or compressors which need no internal organic lubricants and are used solely for that purpose, as long as they provide sufficient air flow to each user as specified in Table 3 of the respirator standard, WAC 296-62-071.

(2) When air from the regular compressed air line of the plant is used for the abrasive-blasting respirator the following are required:

(a) A trap and carbon filter must be installed and regularly maintained, to remove oil, water, scale, and odor;

(b) A pressure reducing diaphragm or valve must be installed to reduce the pressure down to requirements of the particular type of abrasive-blasting respirator;

(c) An automatic control must be provided to either sound an alarm or shut down the compressor in case of overheating.

Note: See also WAC 296-62-07111.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67517, filed 12/26/97, effective 3/1/98; Order 73-5, § 296-24-67517, filed 5/9/73 and Order 73-4, § 296-24-67517, filed 5/7/73.]

WAC 296-24-67519 Operational procedures and general safety. (1) Dusts must not be permitted to accumulate on the floor or on ledges outside of an abrasive blasting enclosure, and dust spills must be cleaned up promptly, preferable by vacuum cleaning.

Note: Removal of dust accumulations from ledges and other dust catching surfaces should be done with a vacuum cleaner during a time when the plant is not in operation. The cleaning operator should wear a respirator approved for the existing conditions.

(2) Aisles and walkways must be kept clear of steel shot or similar abrasive which may create a slipping hazard.

Note: Pressurized tanks for abrasive supply. If a pressurized tank is used for an abrasive supply, it should be tied in with the manual control of the nozzle mentioned in WAC 296-24-65719(2) and the relief valve or opening on the tank should be located so as to be safely vented.

(3) Blast cleaning nozzle must be equipped with an operating valve which must be held open manually.

(4) A support must be provided on which the nozzle may be mounted when it is not in use.

Note: If taken directly from the outside of the building, the air entering a blast cleaning room through the air supply inlets should be tempered during cold weather.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67519, filed 12/26/97, effective 3/1/98; Order 73-5, § 296-24-67519, filed 5/9/73 and Order 73-4, § 296-24-67519, filed 5/7/73.]

WAC 296-24-67520 Ventilation. (1) The applicable minimum requirements as specified in WAC 296-62-11003 through 296-62-11013 relating to ventilation must be followed.

(2) Blast cleaning enclosures. Blast cleaning enclosures must be exhaust-ventilated so that a continuous inward flow of air is maintained at all openings in the enclosure during blasting.

(3) Air velocities. Although the performance of the equipment will be the final criterion, the exhaust ventilation must:

(a) Keep the escape of dust from the enclosure to a minimum;

(b) Maintain a reasonable visibility in blast cleaning rooms and cabinets; and

(c) Provide for rapid clearance of the dust laden air within the enclosure to permit the enclosure to be opened.

See Appendix 1 for recommendation air velocities at blast enclosure openings.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67520, filed 12/26/97, effective 3/1/98.]

WAC 296-24-67521 Appendix 1.

Appendix 1 (Non-Mandatory) Recommended Blast Enclosure Air Velocities

Because of the wide variety of conditions, it is not possible to set rigid standards for rates of exhaust or for control velocities that will be suited to all types of enclosures and all types of work. In general, the use of free silica abrasives and the generation of toxic dusts in abrasive blasting require higher control velocities. With well designed equipment and excellent labyrinth baffling at openings it is possible to prevent the escape of abrasives and dust with lower control velocities.

Experience has indicated that optimum air velocities into blasting enclosures are needed to minimize the escape of dust from these enclosures. These recommended air velocities are as follows:

(1) Blast cleaning cabinet. The recommended inward air velocity at the hand openings is a minimum of 500 feet per minute (fpm) calculated on the free opening without the curtains. This high control velocity is needed because the operator's working position is close to the openings.

(2) Rotary blast cleaning tables. The access openings should be baffled with multiple slit-baffle curtains. The recommended inward air velocity at the access opening is 200 to 250 fpm calculated on the free opening without the curtains.

(3) Blast cleaning rooms. In blast cleaning rooms, the air inlets should be well baffled to prevent the escape of abrasive and the recommended inward air velocity at the air inlets is a minimum of 300 fpm.

(4) Abrasive separators, bucket elevators, and other accessory abrasive handling systems. The recommended inward air velocity at all openings is 200 to 250 fpm.

Note: For further information see the following references: *Recommended Industrial Ventilation Guidelines* - NIOSH 1976
Industrial Ventilation A Manual of Recommendation Practices - ACGIH latest edition.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-24-67521, filed 12/26/97, effective 3/1/98.]

WAC 296-24-677 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-24-67701 Repealed. See Disposition Table at beginning of this chapter.

Chapter 296-27 WAC

RECORDKEEPING AND REPORTING

WAC

296-27-15503 Special exemptions for confidential reports within the department's files.

WAC 296-27-15503 Special exemptions for confidential reports within the department's files. Whenever a departmental file contains an investigative report or information from a source who furnished such information under an express promise that the identity of such source would be held in confidence, such investigative report or information shall be exempt from disclosure to the extent that disclosure would reveal the identity of the source. If an investigative report can be disclosed in such a way as to conceal its source, the contents of such report may be withheld only to the extent necessary to do so. When such information is withheld, the records officer shall give a general characterization of the information withheld but not the identity of the information's source.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 97-11-054, § 296-27-15503, filed 5/20/97, effective 6/20/97. Statutory Authority: Chapter 49.17 RCW. 96-17-056, § 296-27-15503, filed 8/20/96, effective 10/15/96; 94-15-096 (Order 94-07), § 296-27-15503, filed 7/20/94, effective 9/20/94. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-03-064 (Order 86-02), § 296-27-15503, filed 1/17/86.]

Chapter 296-46 WAC

SAFETY STANDARDS—INSTALLING ELECTRIC WIRES AND EQUIPMENT—ADMINISTRATIVE RULES

WAC

296-46-090	Foreword.
296-46-130	Classification or definition of occupancies.
296-46-140	Plan review for educational, institutional or health care facilities and other buildings.
296-46-150	Repealed.
296-46-21008	Branch circuits.
296-46-21052	Receptacles in dwelling units.
296-46-225	Outside branch circuits and feeders.
296-46-23028	Service or other masts.
296-46-23062	Service equipment.
296-46-30001	Support of raceways and cables in suspended ceilings.
296-46-360	Amusement rides or structures, carnivals, circuses, and similar traveling shows.
296-46-370	(Reserved.)
296-46-514	Gasoline dispensing and service stations.
296-46-553	Boat moorages, floating buildings, and similar installations.
296-46-700	Emergency systems.
296-46-725	Class 2 and Class 3 cables.
296-46-910	Inspection fees.
296-46-915	Electrical contractor license, administrator certificate and examination, and copy fees.

296-46-920	Civil penalty.
296-46-930	Electrical contractor license and administrator certificate designation.
296-46-950	Administrators certificate.
296-46-960	Revocation or suspension of a contractor license or administrator certificate.

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-46-090, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-090, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 93-06-072, § 296-46-090, filed 3/2/93, effective 4/2/93; 90-19-015, § 296-46-090, filed 9/10/90, effective 10/11/90.]

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

296-46-150	Wiring methods for designated building occupancies. [Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 93-06-072, § 296-46-150, filed 3/2/93, effective 4/2/93; 90-19-015, § 296-46-150, filed 9/10/90, effective 10/11/90. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 87-10-030 (Order 87-07), § 296-46-150, filed 5/1/87. Statutory Authority: RCW 19.28.010 and 19.28.060. 84-15-051 (Order 84-10), § 296-46-150, filed 7/17/84. Statutory Authority: RCW 19.28.060. 81-06-037 (Order 81-5), § 296-46-150, filed 2/27/81, effective 4/1/81; 78-02-098 (Order 77-31), § 296-46-150, filed 1/31/78; Order 75-25, § 296-46-150, filed 8/4/75; Order 74-43, § 296-46-150, filed 12/19/74; Order 72-7, § 296-46-150, filed 6/7/72; Order 69-2, § 296-46-150, filed 2/28/69, effective 4/1/69.] Repealed by 97-12-016, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600.
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WAC 296-46-090 Foreword. The 1996 edition of the National Electrical Code (NFPA 70 - 1996) including Appendixes A, B, and C, the 1993 edition of Centrifugal Fire Pumps (NFPA 20 - 1993) and the 1993 edition of Emergency and Standby Power Systems (NFPA 110 - 1993) are hereby adopted by reference as part of this chapter. Other codes, manuals, and reference works referred to in this chapter are available for inspection and review in the Olympia office of the electrical section of the department during business hours. Where there is any conflict between this chapter and the National Electrical Code (NFPA 70), Centrifugal Fire Pumps (NFPA 20) or Emergency and Standby Power Systems (NFPA 110), the requirements of this chapter shall be observed. Where there is any conflict between Centrifugal Fire Pumps (NFPA 20) or Emergency and Standby Power Systems (NFPA 110) and the National Electrical Code (NFPA 70), the National Electrical Code shall be followed.

Electrical inspectors will give information as to the meaning or application of the National Electrical Code, the standard on Centrifugal Fire Pumps and the standard on Emergency and Standby Power Systems and this chapter, but will not lay out work or act as consultants for contractors, owners, or users.

The department is authorized to enforce city electrical ordinances where those governmental agencies do not make electrical inspections under an established program.

At the time of inspection, electrical wiring or equipment subject to this chapter must be sufficiently accessible to permit the inspector to visually inspect the installation to verify conformance with the National Electrical Code and any other electrical requirements of chapter 296-46 WAC. Visual inspection of cables or raceways shall not be required where cables or raceways are fished according to the National Electrical Code. Wires pulled into raceway shall not be considered concealed.

WAC 296-46-130 Classification or definition of occupancies. Occupancies shall be classified and defined by the agency that registers or licenses their operation, as follows:

(1) Educational facility refers to a building or portion of a building used primarily for educational purposes and shall include buildings used for the gathering of groups of six or more persons for purposes of instruction. Educational occupancy includes, but is not restricted to: Schools, colleges, academies, and universities.

(2) Institutional facility refers to a building or portion of a building used primarily for detention and correctional occupancies where some degree of restraint or security is required. Such occupancies shall include, but are not restricted to: Penal institutions, reformatories, jails, detention centers, correctional centers, and residential-restrained care.

(3) Health or personal care facility. Health or personal care facility refers to buildings or parts of buildings that contain but are not limited to facilities such as a hospital, nursing home, alcoholism hospital, psychiatric hospital, boarding home, alcoholism treatment facility, maternity home, birth center or childbirth center, residential treatment facility for psychiatrically impaired children and youths, and renal hemodialysis clinics that are licensed by the department of social and health services; and medical, dental or chiropractic offices or clinics, outpatient or ambulatory surgical clinics, and such other health care occupancies where patients who may be unable to provide for their own needs and safety without the assistance of another person are treated.

(a) "Hospital" means any institution, place, building, or agency providing accommodations, facilities and services over a continuous period of twenty-four hours or more, for observation, diagnosis, or care of two or more individuals not related to the operator who are suffering from illness, injury, deformity, or abnormality, or from any other condition for which obstetrical, medical, or surgical services would be appropriate for care or diagnosis.

(b) "Nursing home unit" or "long-term care unit" means a group of beds for the accommodation of patients who, because of chronic illness or physical infirmities require skilled nursing care and related medical services but are not acutely ill and not in need of the highly technical or specialized services ordinarily a part of hospital care.

(c) "Boarding home" means any home or other institution, however named, which is advertised, announced, or maintained for the express or implied purpose of providing board and domiciliary care to three or more aged persons not related by blood or marriage to the operator. It shall not include any home, institution, or section thereof which is otherwise licensed and regulated under the provisions of state law providing specifically for the licensing and regulation of such home, institution, or section thereof.

(d) "Private alcoholism hospital" means an institution, facility, building, or equivalent designed, organized, maintained, and operated to provide diagnosis, treatment, and care of individuals demonstrating signs or symptoms of alcoholism, including the complications of associated substance use and other medical diseases that can be appropriately treated and cared for in the facility and providing accommodations, medical services, and other necessary services over a continuous period of twenty-four hours or more for two or more individuals unrelated to the operator, provided that this chapter shall not apply to any facility, agency, or other entity which shall be both owned and operated by a public or governmental body.

(e) "Alcoholism treatment facility" means a private place or establishment, other than a licensed hospital, operated primarily for the treatment of alcoholism.

(f) "Private psychiatric hospital" means an institution, facility, building, or agency specializing in the diagnosis, care, and treatment of individuals demonstrating signs and/or symptoms of mental disorder as defined in RCW 71.05.020(2), and providing accommodations and other necessary services over a continuous period of twenty-four hours or more for two or more individuals not related to the operator, provided that this chapter shall not apply to any facility, agency, or other entity which shall be both owned and operated by a public or governmental body.

(g) "Maternity home" means any home, place, hospital, or institution in which facilities are maintained for the care of four or more women, not related by blood or marriage to the operator, during pregnancy or during or within ten days after delivery: *Provided, however,* That this definition shall not apply to any hospital approved by the American College of Surgeons, American Osteopathic Association or its successor.

(h) "Birth center" or "childbirth center" means a type of maternity home which is a house, building, or equivalent organized to provide facilities and staff to support a birth service, provided that the birth service is limited to low-risk maternal clients during the intrapartum period.

(i) "Ambulatory surgical facility" means a facility, not a part of a hospital, providing surgical treatment to patients not requiring inpatient care in a hospital. This term does not include a facility in the offices of private physicians or dentists, whether for individual or group practice, if the privilege of using such facility is not extended to physicians or dentists outside the individual or group practice. (NEC; Ambulatory Health Care Center.)

(j) "Hospice care center" means any building, facility, place, or equivalent, organized, maintained, and operated specifically to provide beds, accommodations, facilities, and services over a continuous period of twenty-four hours or more for palliative care of two or more individuals, not related to the operator, who are diagnosed as being in the latter stages of an advanced disease which is expected to lead to death.

(k) "Renal hemodialysis clinic" is a facility in a building or part of a building which is approved to furnish the full spectrum of diagnostic, therapeutic, and rehabilitative services required for the care of renal dialysis patients (including inpatient dialysis furnished directly or under arrangement). (NEC; Ambulatory Health Care Center.)

(l) "Medical, dental, and chiropractic clinic" means any clinic or physicians office where patients are not regularly kept as bed patients for twenty-four hours or more. **Electrical plan review not required.**

(m) "Residential treatment facility for psychiatrically impaired children and youth" means a residence, place, or facility designed and organized to provide twenty-four hour residential care and long-term individualized, active treatment for clients who have been diagnosed or evaluated as psychiatrically impaired.

(n) "Adult residential rehabilitation center" means a residence, place, or facility designed and organized primarily to provide twenty-four hour residential care, crisis and short-term care and/or long-term individualized active treatment and rehabilitation for clients diagnosed or evaluated as psychiatrically impaired or chronically mentally ill as defined herein or in chapter 71.24. RCW.

(o) "Group care facility" means a facility other than a foster-family home maintained and operated for the care of a group of children on a twenty-four-hour basis.

(4) Licensed day care centers.

(a) "Child day care center" means a facility providing regularly scheduled care for a group of children one month of age through twelve years of age for periods less than twenty-four hours; except, a program meeting the definition of a family child care home shall not be licensed as a day care center without meeting the requirements of WAC 388-150-020 (5)(a).

(b) "School-age child care center" means a program operating in a facility other than a private residence accountable for school-age children when school is not in session. It shall meet department licensing requirements, provide adult supervised care, and a variety of developmentally appropriate activities.

(c) "Family child day care home" means the same as "family child care home" and "a child day care facility" licensed by the state, located in the family abode of the person or persons under whose direct care and supervision the child is placed, for the care of twelve or fewer children, including children who reside at the home. **Electrical plan review not required.**

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-130, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 90-19-015, § 296-46-130, filed 9/10/90, effective 10/11/90. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 87-10-030 (Order 87-07), § 296-46-130, filed 5/1/87. Statutory Authority: RCW 19.28.010 and 19.28.060. 84-15-051 (Order 84-10), § 296-46-130, filed 7/17/84. Statutory Authority: RCW 19.28.060. 81-06-037 (Order 81-5), § 296-46-130, filed 2/27/81, effective 4/1/81; Order 72-7, § 296-46-130, filed 6/7/72; Order 69-2, § 296-46-130, filed 2/28/69, effective 4/1/69.]

WAC 296-46-140 Plan review for educational, institutional or health care facilities and other buildings.

(1) All electrical plans for new or altered electrical installations in educational, institutional, and health or personal care occupancies classified or defined in WAC 296-46-130 shall be reviewed and approved by the department before the electrical installation or alteration is begun. Plans for these electrical installations within cities that perform electrical inspections within their jurisdiction, and provide an electrical plan review program that equals or exceeds the department's program in plans examiner minimum qualifications, policies

and procedures, may be submitted to that city for review rather than to the department. Approved plans shall be available on the job site for use during the electrical installation or alteration and for use by the electrical inspector. Refer plans for department review to the Electrical Inspection Section, Department of Labor and Industries, P.O. Box 44460, Olympia, Washington 98504-4460. Please refer to WAC 296-46-910 for required fees for plan review.

(2) Plans to be reviewed by the department must be legible, identify the name and classification of the facility, clearly indicate the scope and nature of the installation and the person or firm responsible for the electrical plans. The plans shall clearly show the electrical installation or alteration in floor plan view, include switchboard and/or panelboard schedules and when a service or feeder is to be installed or altered, shall include a riser diagram, load calculation, fault current calculation and interrupting rating of equipment. Where existing electrical systems are to supply additional loads, the plans shall include documentation that proves adequate capacity and ratings.

(3) Plan review for new or altered electrical installations of other types of construction may be voluntarily requested by the owner or other interested parties.

(4) For existing structures where additions or alterations to feeders and services are proposed, NEC Article 220 shall govern, except that, in addition to the provisions of Paragraph 220-35 (1) Exception, the following is required:

(a) The date of the measurements.

(b) A diagram of the electrical system identifying the point(s) of measurement.

(c) Building demand measured continuously on the highest-loaded phase of the feeder or service over a thirty-day period, with demand peak clearly identified. (Peak demand shall be defined as the maximum average demand over a fifteen-minute interval.)

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-140, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 93-06-072, § 296-46-140, filed 3/2/93, effective 4/2/93; 90-19-015, § 296-46-140, filed 9/10/90, effective 10/11/90. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 87-10-030 (Order 87-07), § 296-46-140, filed 5/1/87. Statutory Authority: RCW 19.28.010 and 19.28.060. 84-15-051 (Order 84-10), § 296-46-140, filed 7/17/84. Statutory Authority: RCW 19.28.060. 81-06-037 (Order 81-5), § 296-46-140, filed 2/27/81, effective 4/1/81; 78-02-098 (Order 77-31), § 296-46-140, filed 1/31/78; Order 74-43, § 296-46-140, filed 12/19/74; Order 72-7, § 296-46-140, filed 6/7/72; Order 69-2, § 296-46-140, filed 2/28/69, effective 4/1/69.]

WAC 296-46-150 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-46-21008 Branch circuits. (Reserved.)

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-21008, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 93-06-072, § 296-46-21008, filed 3/2/93, effective 4/2/93; 90-19-015, § 296-46-21008, filed 9/10/90, effective 10/11/90.]

WAC 296-46-21052 Receptacles in dwelling units.

For floor receptacle outlets located out of traffic areas, formed or welded metal boxes that are mounted in a substantial manner such as directly to a framing member shall be permitted. An approved metal cover plate that provides

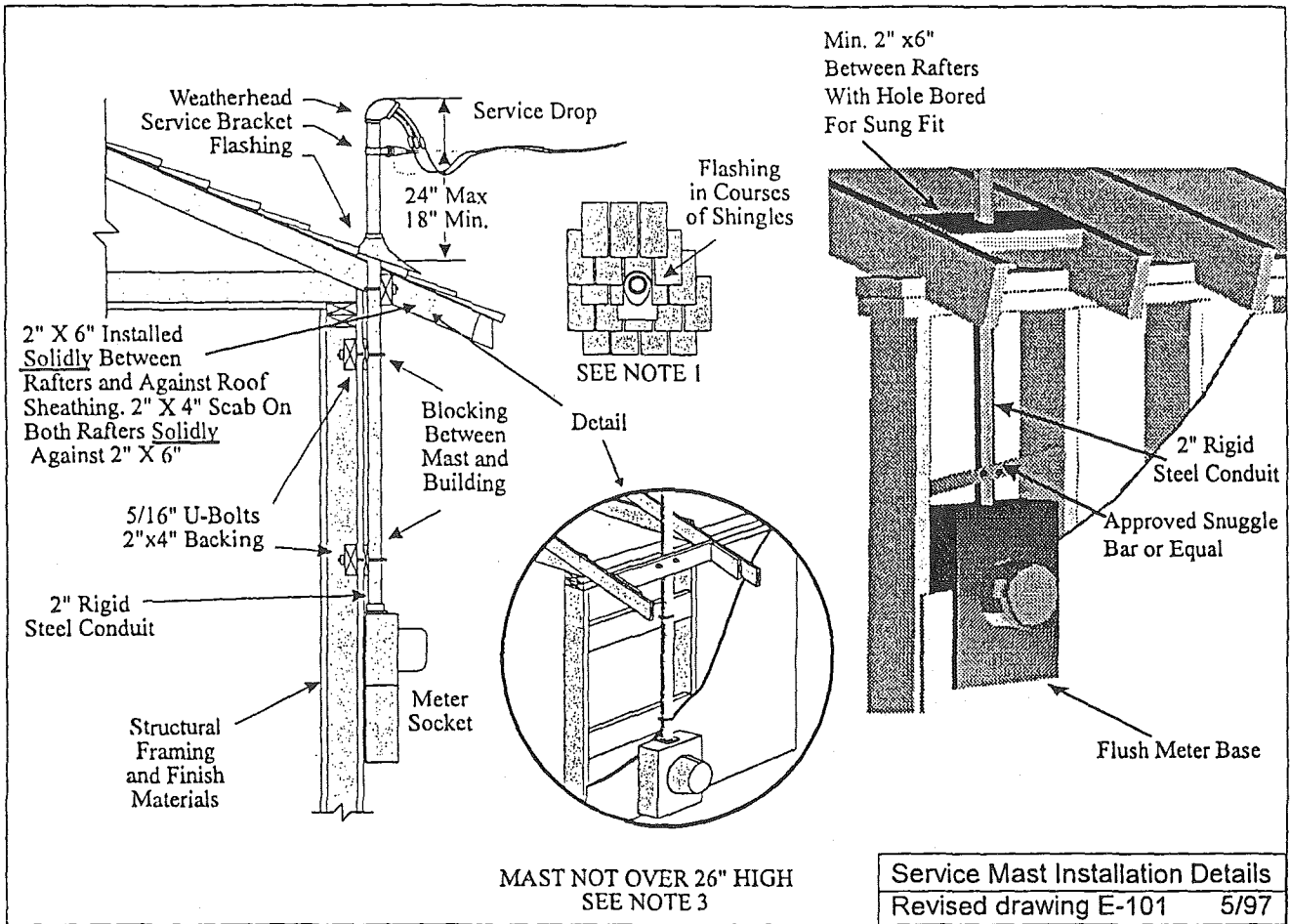
protection from debris entering the device shall be used. Tamper resistant receptacles are required in licensed day care facilities and pediatric or psychiatric patient care areas for 15 or 20 ampere, 125 volt receptacles. Tamper resistant receptacles shall, by construction, limit improper access to energized contacts.

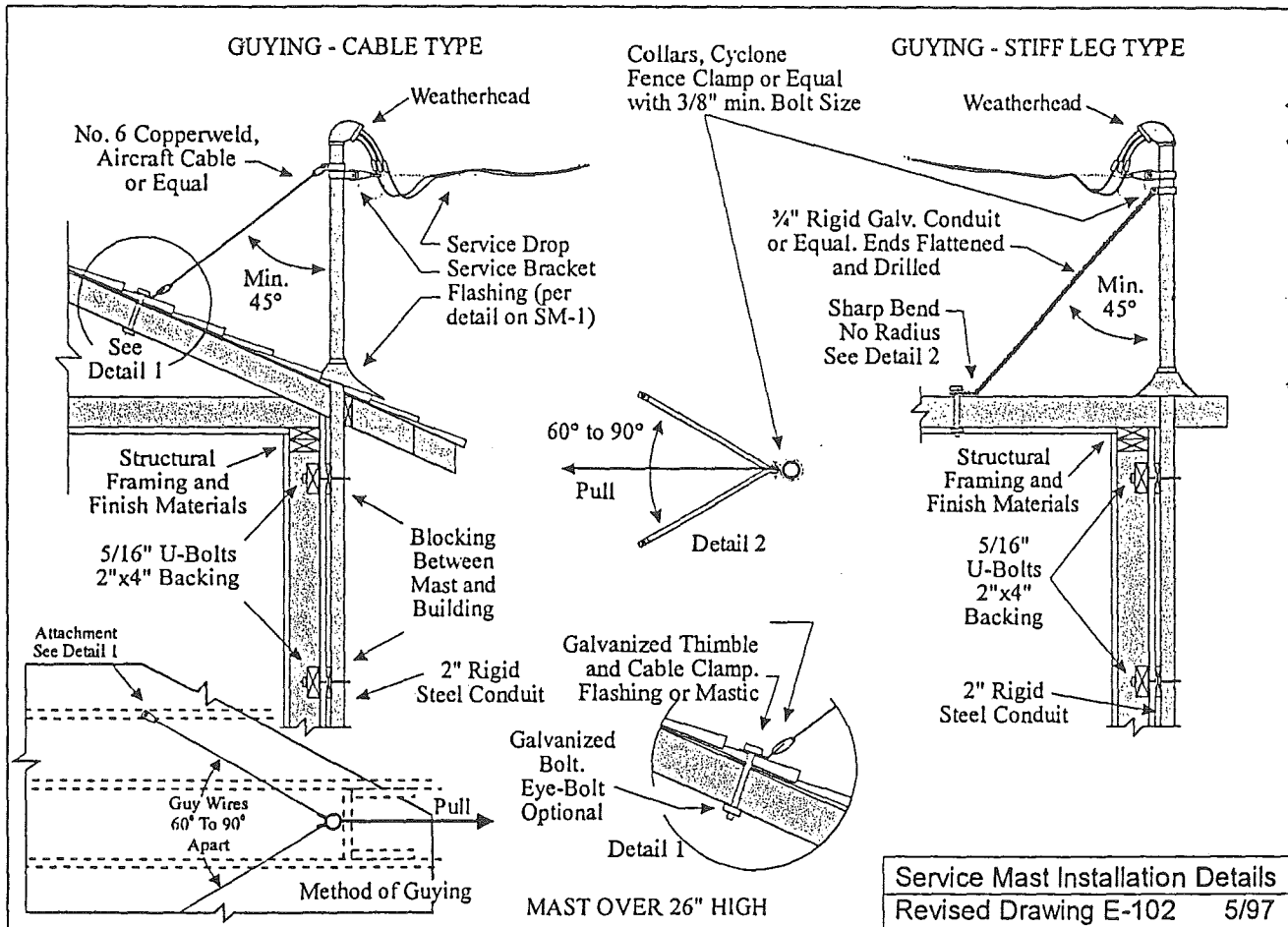
[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-46-21052, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-21052, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 93-06-072, § 296-46-21052, filed 3/2/93, effective 4/2/93; 90-19-015, § 296-46-21052, filed 9/10/90, effective 10/11/90.]

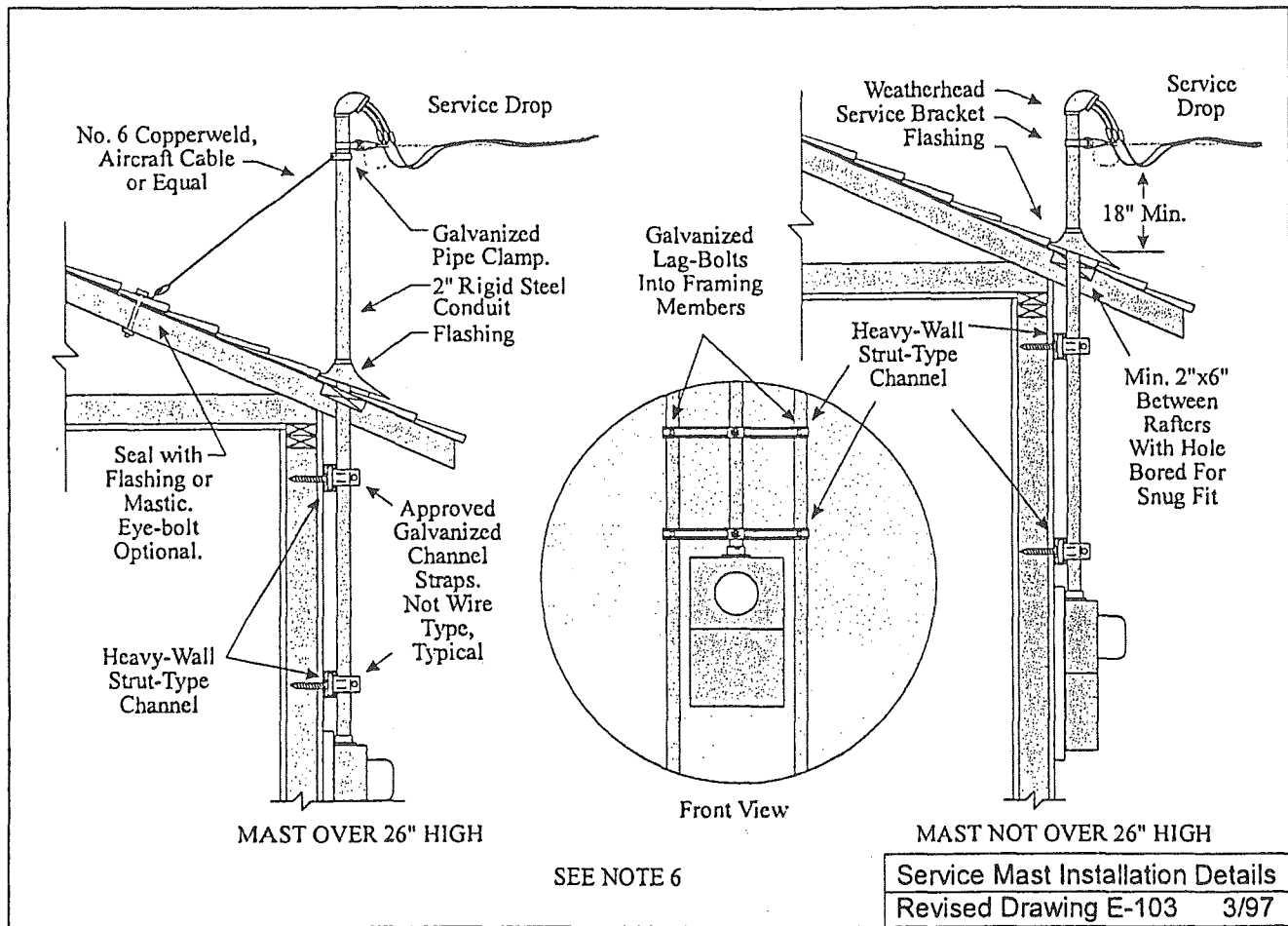
WAC 296-46-225 Outside branch circuits and feeders. For the purpose of Article 225-8 (b) of the National Electrical Code, the branch circuit or feeder raceway or cable shall extend no more than 15 feet inside a building or structure.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-225, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 93-06-072, § 296-46-225, filed 3/2/93, effective 4/2/93.]

WAC 296-46-23028 Service or other masts. Conduit extended through the roof to provide means of attaching the service drop or other conductors shall be no smaller than 2-inch rigid steel galvanized conduit, shall provide a structurally sound attachment for the conductors and shall be equipped with a properly installed flashing at the roof line. The installation shall comply with drawings E-101 and/or E-102, or shall provide equivalent strength by other approved means. Masts for altered or relocated installations shall be permitted to comply with drawing E-103.







Notes to drawings E-101, E-102, and E-103.

1. An approved roof flashing shall be installed on each mast where it passes through a roof. Plastic, nonhardening mastic shall be placed between lead-type flashings and the conduit. Neoprene type flashings shall also be permitted to be used.
2. Masts shall be braced, secured, and supported in such a manner that no pressure from the attached conductors will be exerted on a roof flashing, meter base, or other enclosures.
3. Utilization of couplings for a mast are permitted only below the point the mast is braced, secured, or supported.
4. Except as otherwise required by the serving utility, service mast support guys shall be installed if the service drop attaches to the mast more than 24 inches above the roof line or if the service drop is greater than 100 feet in length from the pole or support. Masts for support of other than service drops shall comply with this requirement as well.
5. Intermediate support masts shall be installed in an approved manner with methods identical or equal to those required for service masts.
6. For altered services, where it is impractical to install U bolt mast supports due to interior walls remaining closed, it shall be permissible to use other alternate mast support methods such as heavy gauge, galvanized, electrical channel material that is secured to two or more wooden studs with 5/16 inch diameter or larger galvanized lag bolts.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-23028, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 90-19-015, § 296-46-23028, filed 9/10/90, effective 10/11/90.]

WAC 296-46-23062 Service equipment. (1) Service equipment, sub-panels, and similar electrical equipment shall be installed so that they are readily accessible and shall not be installed in bathrooms, clothes closets, shower rooms, cupboards, or attics, or above washers, clothes dryers, or plumbed-in fixtures. All indoor service equipment and sub-panel equipment shall be adequately illuminated.

(2) Temporary construction service equipment shall not be used for other than construction purposes and shall be disconnected when the permanent service is connected unless an extension for a definite period of time is granted by the department.

(3) Equipment ground fault protection systems required by the National Electrical Code shall be tested prior to being placed into service to verify proper installation and operation of the system as determined by the manufacturer's published instructions. The test shall be performed by a firm that has qualified personnel and proper equipment to perform the tests required. A copy of the manufacturer's performance testing instructions and a signed, written performance test record must be provided for the inspectors records.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-23062, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 93-06-072, § 296-46-23062, filed 3/2/93, effective 4/2/93; 90-19-015, § 296-46-23062, filed 9/10/90, effective 10/11/90.]

WAC 296-46-30001 Support of raceways and cables in suspended ceilings. Raceways, cables, and boxes shall be permitted to be supported from Number 9 and larger wires under the following conditions:

- (1) Raceways and cables are not larger than 3/4 inch trade size.
- (2) No more than two raceways or cables are supported by a support wire.
- (3) Raceways and cables are secured to the support wires by fittings designed and manufactured for the purpose.
- (4) The support wires are securely fastened to the structural ceiling and to the ceiling grid system.
- (5) The raceways or cables serve equipment that is located within the ceiling cavity or is mounted on or supported by the ceiling grid system.
- (6) Where not prohibited by the building code official.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-30001, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 90-19-015, § 296-46-30001, filed 9/10/90, effective 10/11/90.]

WAC 296-46-360 Amusement rides or structures, carnivals, circuses, and similar traveling shows. (1) Electrical installations. Service equipment, separately derived systems, feeders and circuits for each amusement ride, structure or concession and the interconnection of each ride, structure or concession, shall comply with Article 525 of the National Electrical Code and this chapter.

(2) Flexible multiconductor cords shall be connected to equipment by approved connectors designed for the purpose or by listed cord caps. Individual conductors of multiconductor cords in sizes #2 AWG and larger shall be permitted to be connected by listed and labeled connection systems in accordance with Article 520-53(K) of the National Electrical Code. Where conductors are connected individually by such connection systems, the outer jacket of multiconductor cord shall be secured to the electrical equipment independent from the receptacles and plugs by approved cable grips that are installed in a manner to prevent pressure from being applied to the receptacles and plugs.

(3) Individual, single conductor, insulated, portable power cable, in addition to complying with Section 525-13 of the National Electrical Code, shall comply with the following:

(a) All conductors of the feeder or circuit including the equipment grounding conductor originate in the same electrical equipment and terminate in the same equipment.

(b) All conductors of the feeder or circuit including the ungrounded, grounded, and equipment grounding conductors are run together, except for portions installed within approved cable protection systems.

(c) The cables are secured to the electrical equipment independent from the cable receptacles and plugs by approved cable grips that prevent pressure from being applied to the connectors.

(d) The cables are connected to electrical equipment by approved listed and labeled connection systems in compliance with Section 520-53(K) of the National Electrical Code.

(4) Disconnecting means. A separate, enclosed, externally operable fused switch or circuit breaker, shall be installed on each amusement ride, structure or concession to

disconnect all electrical equipment. The disconnecting means shall be readily accessible and identified as the disconnecting means. Where more than one power supply is employed, the disconnecting means shall be grouped.

(5) Rotating equipment. Components of amusement rides or structures that rotate more than three hundred sixty degrees and which have electrically operated equipment, shall be supplied by approved collector rings that shall be totally enclosed or located so they are accessible to authorized personnel only. The collector rings shall be factory produced with an equipment grounding segment having a voltage and current rating that equals or exceeds the rating of the current carrying segments. Collector rings shall have an ampacity not less than one hundred twenty-five percent of the full-load current of the largest device served plus the full-load current of all other devices served. Collector rings for control and signal purposes shall have an ampacity not less than one hundred twenty-five percent of the full-load current of the largest device served plus the full-load current of all other devices served.

(6) Equipment grounding. All noncurrent carrying metal parts of amusement rides and structures shall be grounded by an equipment grounding conductor routed with the feeder or circuit conductors in accordance with the National Electrical Code and these rules. The metallic structure shall not be used as a current carrying conductor.

Exception: The metallic structure shall be permitted to be used as the return path for low voltage systems that do not exceed thirty volts, provided that the ungrounded conductors are protected by an overcurrent device in accordance with the National Electrical Code and the system is factory built for such use.

(7) Existing amusement rides, concessions or games electrical systems shall comply with the National Electrical Code and shall be maintained in full compliance. Where new amusement rides, concessions or games are purchased, manufactured or constructed, or where existing rides, concessions or games have major modification, the electrical system shall comply with this chapter and the edition of the National Electrical Code in effect at that time. All rides, concessions, and games shall be identified in or on the disconnecting means as well as by make, model and serial number in records furnished to the department with the edition of the National Electrical Code the electrical system is intended to comply with.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-360, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 93-06-072, § 296-46-360, filed 3/2/93, effective 4/2/93; 90-19-015, § 296-46-360, filed 9/10/90, effective 10/11/90. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-46-360, filed 8/29/86. Statutory Authority: RCW 19.28.010 and 19.28.060. 84-15-051 (Order 84-10), § 296-46-360, filed 7/17/84; Order 69-2, § 296-46-360, filed 2/28/69, effective 4/1/69.]

WAC 296-46-370 (Reserved.)

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-370, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 87-10-030 (Order 87-07), § 296-46-370, filed 5/1/87. Statutory Authority: RCW 19.28.010 and 19.28.060. 84-15-051 (Order 84-10), § 296-46-370, filed 7/17/84; Order 75-25, § 296-46-370, filed 8/4/75; Order 72-7, § 296-46-370, filed 6/7/72; Order 69-2, § 296-46-370, filed 2/28/69, effective 4/1/69.]

WAC 296-46-514 Gasoline dispensing and service stations. The gasoline pump disconnecting means or operator shall be substantially red in color and identified with a sign as the emergency disconnecting means. The disconnecting means or operator shall be readily accessible and shall be located outdoors and within sight of the gasoline pump or dispenser it controls. For multicircuit installations an electrically held contactor shall be permitted to be used.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-514, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 93-06-072, § 296-46-514, filed 3/2/93, effective 4/2/93; 90-19-015, § 296-46-514, filed 9/10/90, effective 10/11/90. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 87-10-030 (Order 87-07), § 296-46-514, filed 5/1/87.]

WAC 296-46-553 Boat moorages, floating buildings, and similar installations. Docks, wharves, boat moorage's, floating buildings, and similar facilities in addition to complying with the appropriate sections of Article 553 or Article 555 of the National Electrical Code shall have a service rated disconnect located on the shoreline. Extra-hard usage portable power cable may only be used when extending a feeder between the structures indicated above where flexibility is required and must be connected to an approved wiring method within the first 15 feet of the end where flexibility is required.

Where shore power is provided, each floating building or boat moorage berth shall have a disconnecting means located within sight of and not more than fifty feet from each floating building or berth. The disconnecting means shall be installed adjacent to but not in or on the floating building. Conductors operating in excess of 600 volts, nominal shall not be installed on floating portions of marinas, docks, or wharves. Refer to the Fire Protection Standard for Marinas and Boatyards, NFPA 303 for additional information.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-553, filed 5/28/97, effective 6/30/97.]

WAC 296-46-700 Emergency systems. (1) Exit and emergency lights shall be installed in accordance with the National Electrical Code, Article 700, and currently adopted edition of the Uniform Building Code in all health or personal care facilities defined in WAC 296-46-130, educational facilities, institutional facilities, hotels, motels, and places of assembly for one hundred or more persons. Installation shall be made in strict accordance with the National Electrical Code, Article 700.

(2) Junction boxes for fire alarm systems other than the surface raceway type, shall be substantially red in color. Power-limited fire protective signalling circuit conductors shall be durably and plainly marked in or on junction boxes or other enclosures to indicate that it is a power-limited fire protective signalling circuit. Conductors for light, heat, or power shall not be installed in any enclosure, raceway, cable, compartment, outlet box, or similar fitting containing fire alarm conductors.

(3) All boxes and enclosures, including transfer switches, generators, and power panels for emergency systems and circuits shall be permanently marked with an adhesive label

or decal or similar approved means that is suitable for the environment and is substantially red in color.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-700, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 93-06-072, § 296-46-700, filed 3/2/93, effective 4/2/93; 90-19-015, § 296-46-700, filed 9/10/90, effective 10/11/90.]

WAC 296-46-725 Class 2 and Class 3 cables. Class 2 and Class 3 cables shall be secured in compliance with Section 336-18 of the National Electrical Code and shall be secured to boxes in compliance with Section 370-17 of the National Electrical Code. Raceways for Class 2 and Class 3 conductors shall be installed in compliance with Chapter 3 of the National Electrical Code.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-725, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1) and 19.28.600. 90-19-015, § 296-46-725, filed 9/10/90, effective 10/11/90.]

WAC 296-46-910 Inspection fees. To calculate the inspection fees, the amperage is based on the conductor ampacity or the overcurrent device rating.

- (1) RESIDENTIAL
 - (a) Single and two family residential (new construction)
 - (i) First 1300 sq. ft. or less \$62
 - Each additional 500 sq. ft. or portion of \$20
 - (ii) Each outbuilding or detached garage inspected with the service \$26
 - (iii) Each outbuilding or detached garage inspected separately \$41

(b) Multifamily residential (new construction)

Each service and or feeder

Service Ampacity	Service	Feeder
0 to 200	67	\$ 20
201 to 400	83	41
401 to 600	114	57
601 to 800	146	78
801 and over	208	156

- (c) Single family or multifamily altered services including circuits
 - (i)

Service Ampacity	Service or Feeder
0 to 200	\$ 57
201 to 600	83
over 600	125
 - (ii) Maintenance or repair of meter or mast (no alterations to service or feeder) \$31
 - (d) Single or multi-family residential circuits only (no service inspection)
 - (i) 1 to 4 circuits (see note) \$41

Except: Water heater load control devices installed in residences as part of an energy conservation program 25

The \$25 permit fee for water heater load control devices will expire on December 31, 2001.

- (ii) Each additional circuit 5

Note: Total fee per panel not to exceed (c)(i) of this subsection Service/Feeder

- (e) Mobile homes; mobile home parks; and RV parks
(i) Mobile home service or feeder only \$41
(ii) Mobile home service and feeder 67
(iii) Mobile home park sites and RV park sites
(A) First service or feeder 41
(B) Each additional service; or a feeder inspected at same time as service 26

Note: For master service installations, see subsection (2).

(2) COMMERCIAL/INDUSTRIAL

- (a) Service/feeder; and feeders inspected at the same time as service (circuits included)

Table with 3 columns: Service/Feeder Ampacity, Service/Feeder, Additional Feeder inspected at the same time. Rows include 0 to 100, 101 to 200, 201 to 400, 401 to 600, 601 to 800, 801 to 1000, Over 1000.

- (ii) Over 600 volts surcharge \$52

- (b) Altered services or feeders (no circuits)

Table with 2 columns: Service Ampacity, Service/Feeder. Rows include 0 to 200, 201 to 600, 601 to 1000, Over 1000.

- (ii) Over 600 volts surcharge \$52

- (iii) Maintenance or repair of meter or mast (no alteration of service equipment) 57

- (c) Circuits only

- (i) First five circuits per branch circuit panel \$52
(ii) Each additional circuit per branch circuit panel 5

Note: Total fee per panel not to exceed (a)(i) of this subsection service/feeder

(3) TEMPORARY SERVICES

- (a) Residential \$36
(b) Commercial/industrial

Service or Feeder Ampacity

Table with 2 columns: Ampacity, Price. Rows include 0 to 100, 101 to 200, 201 to 400, 401 to 600, Over 600.

Each additional feeder inspected at the same time as service or first feeder add 50% of the fee above.

(4) IRRIGATION MACHINES, PUMPS AND EQUIPMENT Irrigation machines

- (a) Each tower when inspected at same time as service and feeder \$5
(b) When not inspected at same time as service and feeders - first 6 62

Each additional tower per (a) of this subsection 5

(5) MISCELLANEOUS - commercial/industrial and residential

- (a) Thermostats
(i) First thermostat \$31
(ii) Each additional thermostat inspected at the same time as first thermostat 10

Note: Thermostat is defined as:

- (A) A device that interrupts electrical current while performing its function of controlling building, zonal, or room environmental air temperature; or
(B) In the case of environmental air temperature control by the use of sensors which do not interrupt current but rather transmit data to a zonal or central processing unit, "Thermostat" shall be considered to be the circuit extending from the central processing unit to the local controller. At times this local unit could control several zones or rooms individually or in concert.
(b) Low voltage fire alarm and burglar alarm
(i) First 2500 sq. ft. or less. Includes nurse call intercom, security systems and similar low energy circuits and equipment \$36
(ii) Each additional 500 sq. ft. or portion thereof 10

Exception: Low voltage fire alarm and burglar alarm for commercial and industrial

Each control panel and up to four circuits or zones \$29
Each additional circuit or zone 7

- (c) Signs and outline lighting
(i) First sign (no service) \$31
(ii) Each additional sign inspected at the same time on the same bldg. or structure 15

(d) Berth at a marina or dock \$41
Each additional berth inspected at the same time 26

(e) Yard pole meter loops only \$41
Meters installed remote from service equipment: Inspected at same time as service, temporary service or other installations 10

(f) Emergency inspections requested outside normal work hours. Regular fee plus surcharge of \$78

- (g) Generators, refer to appropriate service/feeder section
- (h) Annual permit fee for plant location employing regular electrical maintenance staff - Each inspection two hour maximum.

	Fee	Inspections
1 to 3 plant electricians	\$1,493	12
4 to 6 plant electricians	2,987	24
7 to 12 plant electricians	4,480	36
13 to 25 plant electricians	5,974	52
more than 25 plant electricians	7,468	52

- (i) Carnival inspections
 - (i) First field inspection each year
 - (A) Each ride and generator truck \$15
 - (B) Each remote distribution equipment, concession or gaming show 5
 - (C) Minimum fee 78
 - (ii) Subsequent inspections
 - (A) First 10 rides, concessions, generators, remote distribution equipment or gaming show \$78
 - (B) Each additional ride, concession, generator, remote distribution equipment or gaming show 5
 - (j) Trip fees
 - (i) Requests to inspect existing installations \$62
 - (ii) Submitter notifies the department that work is ready for inspection when it is not 31
 - (iii) Additional inspection required because submitter has provided wrong address 31
 - (iv) More than one additional inspection required to inspect corrections; or for repeated neglect, carelessness, or improperly installed electrical work 31
 - (v) Each trip necessary to remove a noncompliance notice 31
 - (vi) Corrections have not been made in the prescribed time, unless an exception has been requested and granted 31
 - (vii) Installations that are covered or concealed before inspection. 31
 - (k) Progress inspections
 - On partial or progress inspections, each one-half hour \$31
 - (l) Plan review fee
 - (i) Fee is thirty-five percent of the electrical work permit fee as determined by WAC 296-46-495, plus a plan submission fee of \$52
 - (ii) Supplemental submissions of plans per hour or fraction of an hour \$62
 - (m) Other inspections
 - Inspections not covered by above inspection fees shall be charged portal to portal per hour \$62

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-46-910, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-910, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1), 19.28.600 and 19.28.210(6). 92-08-102, § 296-46-910, filed 4/1/92, effective 5/2/92. Statutory Authority: RCW 19.28.060 and 19.28.210(6). 90-17-041, § 296-46-910, filed 8/10/90, effective 9/10/90. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 87-10-030 (Order 87-07), § 296-46-910, filed 5/1/87. Statutory Authority: RCW 19.28.060 and 19.28.210. 85-20-065 (Order 85-16), § 296-46-910, filed 9/27/85. Statutory Authority: RCW 19.28.210. 83-16-058 (Order 83-20), § 296-46-910, filed 8/2/83. Statutory Authority: RCW 19.28.060 and 19.28.210. 82-18-036 (Order 82-29), § 296-46-910, filed 8/26/82. Statutory Authority: RCW 19.28.060. 81-06-037 (Order 81-5), § 296-46-910, filed 2/27/81, effective 4/1/81; 78-02-098 (Order 77-31), § 296-46-910, filed 1/31/78.]

WAC 296-46-915 Electrical contractor license, administrator certificate and examination, and copy fees.

- (1) General or specialty contractor license (per twenty-four month period) \$208
- (2) Administrator certificate examination application (nonrefundable) \$ 26
- (3) Administrator original certificate (submitted with application) \$ 62
- (4) Administrator certificate renewal (per twenty-four month period) \$ 78
- (5) Late renewal of administrator certificate (per twenty-four month period) \$156
- (6) Transfer of administrator designation \$ 31
- (7) Certified copy of each document (maximum \$44 per file)
 - \$20 first document
 - \$2 each additional document
- (8) Reinstatement of a general or specialty contractor's license after a suspension \$ 42
- (9) Reinstatement of an administrator's certificate after a suspension \$ 42

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-46-915, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-915, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.010(1), 19.28.600, 19.28.120(2) and 19.28.510(2). 92-08-102, § 296-46-915, filed 4/1/92, effective 5/2/92. Statutory Authority: RCW 19.28.060, 19.28.120(2) and 19.28.510(2). 90-17-041, § 296-46-915, filed 8/10/90, effective 9/10/90. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-46-915, filed 8/29/86.]

WAC 296-46-920 Civil penalty. A person, firm, partnership, corporation or other entity that violates a provision of chapter 19.28 RCW, chapter 296-46 or 296-401 WAC is liable for a civil penalty based upon the following schedule.

(1) Offering to perform, submitting a bid for, installing or maintaining conductors or equipment that convey or utilize electrical current without having an unexpired, unrevoked and unsuspended electrical contractor license.	First offense: \$ 500
	Second offense: \$ 1,000
	Third offense: \$ 3,000
	Each offense thereafter: \$ 5,000

(2) Employing an individual for the purposes of RCW 19.28.510 through 19.28.620 who does not possess a valid certificate of competency or training certificate.	First offense: \$ 50 Second offense: \$ 100 Each offense thereafter: \$ 250
(3) Working as an electrician or electrical trainee in the electrical construction trade without having a valid certificate of competency or electrical training certificate.	First offense: \$ 50 Second offense: \$ 100 Each offense thereafter: \$ 250
(4) Employing electricians and trainees in an improper ratio.	First offense: \$ 50 Second offense: \$ 100 Each additional offense: \$ 250
(5) Failing to provide supervision to an electrical trainee as required by RCW 19.28.510.	First offense: \$ 50 Second offense: \$ 100 Each additional offense: \$ 250
(6) Working as an electrical trainee without proper supervision as required by RCW 19.28.510.	First offense: \$ 50 Second offense: \$ 100 Each additional offense: \$ 250
(7) Performing electrical installations, alterations or maintenance outside the scope of the firm's specialty electrical contractors license.	First offense: \$ 250 Second offense: \$ 500 Each additional offense: \$ 1,000
(8) Selling or exchanging electrical equipment associated with spas, hot tubs, swimming pools or hydromassage bathtubs which is not listed and labeled by an approved electrical testing laboratory.	First offense: \$ 500 Second offense: \$ 1,000 Each additional offense: \$ 2,000
Definition: The sale or exchange of electrical components associated with hot tubs, spas, swimming pools or hydromassage bathtubs means: "Sell, offer for sale, advertise, display for sale, dispose of by way of gift, loan, rental, lease, premium, barter or exchange."	
(9) Covering or concealing installations prior to inspection.	First offense: \$ 500 Second offense: \$ 1,000 Each additional offense: \$ 2,000
(10) Failing to make corrections within fifteen days of notification by the department. Exception: Where an extension has been requested and granted, this penalty applies to corrections not completed within the extended time period.	First offense: \$ 250 Second offense: \$ 500 Each additional offense: \$ 1,000
(11) Failing to obtain an electrical work permit prior to beginning the installation or alteration. Exception: In cases of emergency repairs to existing electrical systems, this penalty will not be charged if the permit is obtained no later than the business day following completion of the emergency repair.	First offense: \$ 250 Homeowner: \$ 50 Second offense: \$ 500 Each additional offense: \$ 1,000
(12) Violating any of the provisions of chapter 19.28 RCW or chapters 296-46 or 296-401 WAC which are not identified in subsections (1) through (11) of this section.	First offense: \$ 50 Second offense: \$ 100 Each additional offense: \$ 250

(13) Each day that a violation occurs will be a separate offense. A violation will be a "second" or "additional" offense only if it occurs within one year from the first violation.

(14) In case of continued, repeated or gross violation of the provisions of chapter 19.28 RCW, chapter 296-46 or 296-401 WAC or if property damage or bodily injury occurs as a result of the failure of a person, firm, partnership, corporation, or other entity to comply with chapter 19.28 RCW, the department may double the penalty amounts shown in subsections (1) through (12) of this section.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-46-920, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 87-10-030 (Order 87-07), § 296-46-920, filed 5/1/87; 86-18-041 (Order 86-23), § 296-46-920, filed 8/29/86.]

WAC 296-46-930 Electrical contractor license and administrator certificate designation. See RCW 19.28.-120.

(1) General electrical license and/or administrator's certificate encompasses all phases and all types of electrical installations.

(2) Specialty (limited) electrical licenses and/or administrator's certificates are as follows:

(a) Residential (02): Limited to the wiring of one and two family dwellings, or multifamily dwellings not exceeding three floors above grade. All wiring to be in nonmetallic sheathed cable, except service and/or feeders. This specialty does not include wiring commercial occupancies such as motels, hotels, offices, or stores.

(b)(i) Pump and irrigation (03): Limited to the electrical connection of domestic and irrigation water pumps, circular irrigating systems and related pumps and pump houses. This specialty license includes circuits, feeders, controls, and services to supply said pumps.

(ii) Domestic well (03A): Limited to the extension of a branch circuit, which is supplied and installed by others, to pump controllers; pressure switches; alarm sensors; and water pumps which do not exceed 7 1/2 horsepower at 230 volts AC single phase.

(c) Signs (04): Limited to placement and connection of signs and outline lighting, the electrical supply, related controls and associated circuit extensions thereto; and the installation of a maximum 60 ampere, 120/240 volt single phase service to supply power to a remote sign only.

(d) Domestic appliances (05): Limited to the electrical connection of household appliances and the wiring thereto; such as hot water heaters, ranges, dishwashers, clothes dryers, oil and gas furnaces, and similar appliances. This specialty license includes circuits to the appliances; however, it does not include the installation of service and/or feeders or circuits to electric furnaces and heat pump equipment.

(e) Limited energy system (06): Limited to the installation of signaling and power limited circuits and related equipment. Such license includes the installation of fire protection signaling systems, intrusion alarms, nonutility owned communications systems, and such similar low energy circuits and equipment.

(f) Nonresidential maintenance (07): Limited to maintenance, repair and replacement of electrical equipment and conductors on industrial or commercial premises. This specialty certificate of license does not include maintenance activities in hotel, motel, or dwelling units.

(3) Combination specialty electrical contractor license. The department may issue a combination specialty electrical

contractor license to a firm which qualifies for more than one specialty electrical contractor license. The license shall plainly indicate the specialty licenses which are included in the combination electrical contractor license.

(4) Combination specialty electrical administrator certificate. The department may issue a combination specialty administrator certificate to an individual who qualifies for more than one specialty administrators' certificate. The combination specialty administrators' certificate shall plainly indicate the specialty administrators' certificate the holder has qualified for.

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-46-930, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-46-930, filed 8/29/86.]

WAC 296-46-950 Administrators certificate. (1)

The department shall issue an administrator certificate to a person who qualifies for a certificate in accordance with RCW 19.28.125. The first certificate issued shall expire on the person's birthdate at least one year and not more than three years from the date of issue. If a person was born in an even numbered year, the certificate shall expire on the holder's even numbered birthdate. If the person was born in an odd numbered year, the certificate shall expire on the holder's odd numbered birthdate. The department shall prorate the administrators certificate fee according to the number of months or major portions of months in a certificate period. All subsequent certificates shall be issued for a twenty-four month period. The signature of a person who desires to renew their certificate shall be notarized.

(2) Effective July 1, 1987, an administrator designated on the electrical contractor license shall be a member of the firm who shall fulfill the duties of a full-time supervisory employee, or be a full-time supervisory employee. In determining whether the person is a member of the firm, the department shall require that the person is named as the sole proprietor, a partner or an officer in a corporation as shown on the electrical contractor license application on file with the department. In determining whether a person is a full-time supervisory employee, the department shall consider whether the person is on the electrical contractor's full-time payroll; receives a regular salary or wage similar to other employees; has supervisory responsibility for work performed by the electrical contractor and carries out the duties shown in RCW 19.28.125(2).

(3) The department may deny an application for an administrator's certificate for up to two years if the applicant's previous administrator's certificate has been revoked for a serious violation and all appeals concerning the revocation have been exhausted.

A serious violation is a violation of chapter 19.28 RCW, chapter 296-46 or 296-401 WAC that creates a hazard of fire or a danger to life safety. A serious violation is also a violation that presents imminent danger to the public. Imminent danger to the public is present when installations of wire and equipment that convey electric current have been installed in such a condition that a fire-hazard or a life-safety hazard is present. Imminent danger to the public is also present when unqualified, uncertified, or fraudulently certified electricians or administrators; or unlicensed or fraudulently licensed contractors are continuously or repeatedly

performing or supervising the performance of electrical work covered under chapter 19.28 RCW. A certified electrician is considered qualified, provided the electrician is working within his or her certification.

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-46-950, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-46-950, filed 8/29/86.]

WAC 296-46-960 Revocation or suspension of a contractor license or administrator certificate. The department has the power, in the case of one or more acts of serious noncompliance with the provisions of this chapter, to revoke or suspend for such a period as it determines, any electrical contractor license or electrical administrator certificate issued under chapter 19.28 RCW.

Serious noncompliance: Serious noncompliance with the provisions of chapter 19.28 RCW, includes but is not limited to the following:

(1) Failure to correct a serious violation that presents imminent danger as defined in WAC 296-46-950(3); or

(2) Submitting a fraudulent document to the department; or

(3) Continuous noncompliance with the provisions of chapter 19.28 RCW, chapter 296-46 or 296-401 WAC. For the purposes of this section, continuous noncompliance shall be defined as three or more citations demonstrating a reckless disregard of the electrical law, rules, or regulations within a period of six months; or where it can be otherwise demonstrated that the contractor or administrator has continuously failed to comply with the applicable electrical standards; or

(4) Failure to make any books or records, or certified copies thereof, available to the department for an audit to verify the hours of experience submitted by an electrical trainee.

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-46-960, filed 11/25/97, effective 12/29/97.]

Chapter 296-49 WAC

GOVERNOR'S MOBILE HOME AND RECREATIONAL VEHICLE ADVISORY BOARD

WAC

296-49-005 through 296-49-065 Repealed.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

296-49-005 Foreword. [Order 70-3, § 296-49-005, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.

296-49-010 Definitions. [Order 70-3, § 296-49-010, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.

296-49-015 Officers. [Order 70-3, § 296-49-015, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.

296-49-020 Internal management. [Order 70-3, § 296-49-020, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.

- 296-49-025 Duties. [Order 70-3, § 296-49-025, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.
- 296-49-030 Hearings. [Order 70-3, § 296-49-030, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.
- 296-49-035 Appearance and practice before board. [Order 70-3, § 296-49-035, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.
- 296-49-040 Solicitation of business unethical. [Order 70-3, § 296-49-040, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.
- 296-49-045 Standards of ethical conduct. [Order 70-3, § 296-49-045, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.
- 296-49-050 Appearance by former employee. [Order 70-3, § 296-49-050, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.
- 296-49-055 Former employee as expert witness. [Order 70-3, § 296-49-055, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.
- 296-49-060 Computation of time. [Order 70-3, § 296-49-060, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.
- 296-49-065 Administrative Procedure Act. [Order 70-3, § 296-49-065, filed 4/29/70.] Repealed by 97-16-043, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340 and 43.22.420.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-010, filed 7/31/97, effective 12/1/97.]

WAC 296-49A-020 What is the purpose of these rules? The primary purpose of these rules is to establish a uniform means of communication between the department and persons, firms or corporations engaged in the manufacture of factory assembled structures. Generally, this communication will involve either proposed WAC rule revisions or the operation of the section.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-020, filed 7/31/97, effective 12/1/97.]

WAC 296-49A-030 What is the purpose of the board? The purpose of the board, as authorized by RCW 43.22.420, is to advise the director on all matters pertaining to the enforcement of chapter 43.22 RCW including but not limited to standards of body and frame design, construction and plumbing, heating and electrical installations, minimum inspection procedures and the adoption of rules and regulations pertaining to the manufacture of factory assembled structures, manufactured (mobile) homes, commercial coaches, recreational vehicles, and recreational park trailers.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-030, filed 7/31/97, effective 12/1/97.]

WAC 296-49A-040 Who are the members and officers of the board? The board has nine members. Each is appointed by the director to a four-year term. The members must represent consumer interests, regulated industries and allied professionals. Consequently, the composition of the board will be:

- Two members representing consumers;
- Two members representing manufactured housing;
- Two members representing factory built structures;
- One member representing recreational vehicles and recreational park trailers;
- One member representing building officials; and
- One member who will either be an architect or an engineer.

The board will elect a chairperson and vice-chairperson. The department's chief prefab building specialist shall serve as secretary of the board.

According to RCW 43.03.050 and 43.03.060, each board member shall be paid travel expenses. Those expenses will be paid out of department appropriations upon the presentation of a voucher approved by the director or the director's designee.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-040, filed 7/31/97, effective 12/1/97.]

WAC 296-49A-050 When does the board meet? The board holds regular quarterly meetings on the third Thursday of February, May, August and November. If needed, the director may call special meetings. Regular and special meetings are open to the public.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-050, filed 7/31/97, effective 12/1/97.]

WAC 296-49-005 through 296-49-065 Repealed.
See Disposition Table at beginning of this chapter.

**Chapter 296-49A WAC
DIRECTOR'S FACTORY ASSEMBLED
STRUCTURES ADVISORY BOARD**

WAC

- 296-49A-010 What definitions apply to this chapter?
- 296-49A-020 What is the purpose of these rules?
- 296-49A-030 What is the purpose of the board?
- 296-49A-040 Who are the members and officers of the board?
- 296-49A-050 When does the board meet?
- 296-49A-060 How are board meetings conducted?
- 296-49A-070 What are the duties of the board?
- 296-49A-080 Who can speak at board meetings?
- 296-49A-090 Can a person appearing before the board solicit business?
- 296-49A-100 What standards of ethical conduct are expected of board members and persons appearing before the board?
- 296-49A-110 What statute governs the adoption of FAS rules and regulations?

WAC 296-49A-010 What definitions apply to this chapter? "Board" is the director's factory assembled structures advisory board.

"Department" is the Washington state department of labor and industries.

"Director" is the director of the department of labor and industries.

"Section" is the factory assembled structures (FAS) section of the department.

WAC 296-49A-060 How are board meetings conducted? The board must adopt written rules of procedure governing its internal management. These rules must include *Roberts' Rules of Order, Revised*. Upon written request, copies of these rules of procedure must be provided to all interested persons.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-060, filed 7/31/97, effective 12/1/97.]

WAC 296-49A-070 What are the duties of the board? (1) Every three years the board must review existing FAS rules and recommend revisions if needed. Also, the board must review any new rules and regulations proposed by the director and make recommendations regarding their adoption.

(2) The board may periodically develop administrative procedures, organizational plans and rules for improving the operation of the section and submit them to the director for consideration.

(3) Upon the request of the director, the board will assist in the administrative interpretation of national codes and Washington state rules and regulations regarding all matters pertaining to the enforcement of chapter 43.22 RCW and the manufacture of factory assembled structures, manufactured (mobile) homes, commercial coaches, recreational vehicles, and recreational park trailers. This interpretative assistance will include but will not be limited to standards of body and frame design, construction and plumbing, heating and electrical installations, and minimum inspection procedures.

However, the board will neither function as a board of appeals nor will it render decisions regarding the application or interpretation of any adopted rule or regulation to any person, firm or corporation engaged in the business of manufacturing factory assembled structures.

(4) At any board meeting, the board must consider any written proposals made by any person, firm or corporation regarding new rules and regulations or changes in administrative procedures related to the section.

However, these written proposals must be submitted to the board's secretary at least fifteen days prior to the meeting so that they can be included on the meeting agenda and in the meeting packet distributed to board members. If the parties submitting these proposals wish to address them at that meeting, their proposals must be accompanied by a written request to address the board.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-070, filed 7/31/97, effective 12/1/97.]

WAC 296-49A-080 Who can speak at board meetings? Any person, firm or corporation can speak at board meetings. **However**, those persons, firms and corporations wishing to formally address the board regarding specific proposals relating to any FAS rule adoptions, amendments or repeals or changes in the section's administrative procedures must be in good ethical standing with the board. (See WAC 296-49A-100.)

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-080, filed 7/31/97, effective 12/1/97.]

WAC 296-49A-090 Can a person appearing before the board solicit business? The board considers it unethical for anyone appearing before the board to use any kind of solicitor to solicit business or to solicit business through circulars, advertisements or by personal communications or interviews unwarranted by personal relations. It is permissible to publish or circulate business cards.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-090, filed 7/31/97, effective 12/1/97.]

WAC 296-49A-100 What standards of ethical conduct are expected of board members and persons appearing before the board? Anyone serving on the board or appearing before it must adhere to the standards described in *"Ethics and the Appearance of Fairness," State of Washington Boards and Commissions Membership Handbook*. Failure to conform to these standards may result in forfeiting the opportunity to either appear before the board or serve as a member.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-100, filed 7/31/97, effective 12/1/97.]

WAC 296-49A-110 What statute governs the adoption of FAS rules and regulations? All FAS rules and regulations will be adopted according to chapter 34.05 RCW, the Administrative Procedure Act.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-49A-110, filed 7/31/97, effective 12/1/97.]

Chapter 296-62 WAC

OCCUPATIONAL HEALTH STANDARDS—SAFETY STANDARDS FOR CARCINOGENS

WAC

296-62-05413	Material safety data sheets.
296-62-07113	Selection of respirators.
296-62-07347	Inorganic arsenic.
296-62-07354	Appendices—Inorganic arsenic.
296-62-07460	Butadiene.
296-62-07470	Methylene chloride.
296-62-07473	Appendix A.
296-62-07475	Appendix B.
296-62-07477	Appendix C.
296-62-075	Air contaminants.
296-62-07501	Airborne contaminants.
296-62-07510	Total particulate.
296-62-07515	Control of chemical agents.
296-62-07711	Regulated areas.
296-62-07712	Requirements for asbestos activities in construction and shipyard work.
296-62-07715	Respiratory protection.
296-62-07717	Protective work clothing and equipment.
296-62-07721	Communication of hazards to employees.
296-62-07725	Medical surveillance.
296-62-07728	Competent person.
296-62-07761	Repealed.
296-62-11015	Abrasive blasting.
296-62-20017	Medical surveillance.
296-62-20027	Appendix A—Coke oven emissions substance information sheet.
296-62-20029	Appendix B—Industrial hygiene and medical surveillance guidelines.

DISPOSITION OF SECTIONS FORMERLY
CODIFIED IN THIS CHAPTER

296-62-07761 Nonasbestiform tremolite, anthophyllite, and actinolite. [Statutory Authority: Chapter 49.17 RCW. 87-24-051 (Order 87-24), § 296-62-07761, filed 11/30/87.] Repealed by 97-19-014, filed 9/5/97, effective 11/5/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060.

WAC 296-62-05413 Material safety data sheets. (1) Chemical manufacturers and importers shall obtain or develop a material safety data sheet (MSDS) for each hazardous chemical they produce or import. Employers shall have a material safety data sheet in the workplace for each hazardous chemical which they use.

(2) Each material safety data sheet shall be in English (although the employer may maintain copies in other languages) and shall contain at least the following information:

(a) The identity used on the label, and, except as provided for in WAC 296-62-05417 on trade secrets:

(i) If the hazardous chemical is a single substance, its chemical and common name(s);

(ii) If the hazardous chemical is a mixture which has been tested as a whole to determine its hazards, the chemical and common name(s) of the ingredients which contribute to these known hazards, and the common name(s) of the mixture itself; or

(iii) If the hazardous chemical is a mixture which has not been tested as a whole:

(A) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise 1% or greater of the composition, except that chemicals identified as carcinogens under WAC 296-62-05407(4) shall be listed if the concentrations are 0.1% or greater; and

(B) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise less than one percent (0.1% for carcinogens) of the mixture, if there is evidence that the ingredient(s) could be released from the mixture in concentrations which would exceed an established WISHA or OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health risk to employees; and

(C) The chemical and common name(s) of all ingredients which have been determined to present a physical hazard when present in the mixture;

(b) Physical and chemical characteristics of the hazardous chemical (such as vapor pressure, flash point);

(c) The physical hazards of the hazardous chemical, including the potential for fire, explosion, and reactivity;

(d) The acute and chronic health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical;

(e) The primary route(s) of entry;

(f) The WISHA or OSHA permissible exposure limit, ACGIH threshold limit value, and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the material safety data sheet (the PELs and TLVs include the 8-hour TWA, STEL, ceiling value and skin notation defined in WAC 296-62-05405), where available;

(g) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Annual Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions), or by WISHA or OSHA;

(h) Any generally applicable precautions for safe handling and use which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks;

(i) Any generally applicable control measures which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, such as appropriate engineering controls, work practices, or personal protective equipment;

(j) Emergency and first aid procedures;

(k) The date of preparation of the material safety data sheet or the last change to it; and

(l) The name, address and telephone number of the chemical manufacturer, importer, employer or other responsible party preparing or distributing the material safety data sheet, who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

(3) If no relevant information is found for any given category on the material safety data sheet, the chemical manufacturer, importer or employer preparing the material safety data sheet shall mark it to indicate that no applicable information was found.

(4) Where complex mixtures have similar hazards and contents (i.e. the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer or employer may prepare one material safety data sheet to apply to all of these similar mixtures.

(5) The chemical manufacturer, importer or employer preparing the material safety data sheet shall ensure that the information recorded accurately reflects the scientific evidence used in making the hazard determination. If the chemical manufacturer, importer or employer preparing the material safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the material safety data sheet within three months. If the chemical is not currently being produced or imported the chemical manufacturer or importer shall add the information to the material safety data sheet before the chemical is introduced into the workplace again.

(6)(a) Chemical manufacturers or importers shall ensure that distributors and employers are provided an appropriate material safety data sheet with their initial shipment, and with the first shipment after a material safety data sheet is updated;

(b) The chemical manufacturer or importer shall either provide material safety data sheets with the shipped containers or send them to the distributor or employer prior to or at the time of the shipment;

(c) If the material safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical,

the distributor or employer shall obtain one from the chemical manufacturer or importer as soon as possible; and

(d) The chemical manufacturer or importer shall also provide distributors or employers with a material safety data sheet upon request.

(7)(a) Distributors shall ensure that material safety data sheets, and updated information, are provided to other distributors and employers with their initial shipment and with the first shipment after a material safety data sheet is updated;

(b) The distributor shall either provide material safety data sheets with the shipped containers, or send them to the other distributor or employer prior to or at the time of the shipment;

(c) Retail distributors selling hazardous chemicals to employers having a commercial account shall provide a material safety data sheet to such employers upon request, and shall post a sign or otherwise inform them that a material safety data sheet is available;

(d) Wholesale distributors selling hazardous chemicals to employers over-the-counter may also provide material safety data sheets upon request of the employer at the time of the over-the-counter purchase, and shall post a sign or otherwise inform such employers that a material safety data sheet is available;

(e) If an employer without a commercial account purchases a hazardous chemical from a retail distributor not required to have material safety data sheets on file (i.e., the retail distributor does not have a commercial account and does not use the materials), the retail distributor shall provide the employer, upon request, with the name, address, and telephone number of the chemical manufacturer, importer, or distributor from which a material safety data sheet can be obtained;

(f) Wholesale distributors shall also provide material safety data sheets to employers or other distributors upon request; and

(g) Chemical manufacturers, importers, and distributors need not provide material safety data sheets to retail distributors that have informed them that the retail distributor does not sell the product to commercial accounts or open the sealed container to use it in their own workplaces.

(8) The employer shall maintain in the workplace copies of the required material safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access, microfiche, and other alternatives to maintaining paper copies of the material safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)

(9) Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the material safety data sheets may be kept at a central location at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.

(10) Material safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of

a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work area(s).

(11) Material safety data sheets shall also be made readily available, upon request, to designated representatives and to the director or his/her designee in accordance with the requirements of WAC 296-62-05209. NIOSH shall also be given access to material safety data sheets in the same manner.

(12) If a purchaser has not received a material safety data sheet within thirty calendar days after making a written request to the chemical manufacturer, importer, or distributor in accordance with WAC 296-62-05413(6), he/she may make a written request for assistance to the Department of Labor and Industries, Right-to-Know Program, P.O. Box 44610, Olympia, Washington 98504-4610. Such written request shall include:

(a) A copy of the purchaser's written request to the chemical manufacturer, importer, or distributor;

(b) The name of the product suspected of containing a hazardous chemical;

(c) The identification number of the product if available;

(d) A copy of the product label if available; and

(e) The name and address of the chemical manufacturer, importer, or distributor from whom the product was obtained.

Upon receipt of a written request for material safety data sheet, the department shall attempt to procure the material safety data sheet from the chemical manufacturer, importer or distributor and upon procurement, shall forward a copy of the material safety data sheet at no cost to the purchaser. In providing this service priority will be given to small employers.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-11-055, § 296-62-05413, filed 5/20/97, effective 8/1/97. Statutory Authority: RCW 49.17.010, [49.17.]050 and [49.17.]060. 95-22-015, § 296-62-05413, filed 10/20/95, effective 1/16/96. Statutory Authority: Chapter 49.17 RCW. 94-16-145, § 296-62-05413, filed 8/3/94, effective 9/12/94; 88-14-108 (Order 88-11), § 296-62-05413, filed 7/6/88. Statutory Authority: RCW 49.17.230, 49.70.180, 49.17.040, 49.17.050 and 49.17.240. 86-12-004 (Order 86-22), § 296-62-05413, filed 5/22/86. Statutory Authority: RCW 49.17.040 and 49.17.050. 85-10-004 (Order 85-09), § 296-62-05413, filed 4/19/85; 84-22-012 (Order 84-22), § 296-62-05413, filed 10/30/84; 84-13-001 (Order 84-14), § 296-62-05413, filed 6/7/84.]

WAC 296-62-07113 Selection of respirators. (1)

General considerations. Proper selection of respirators shall be made in accordance with the classification, capabilities, and limitations listed in tables I through IV of this section. Additional guidance may be obtained by referring to American National Standard Practices for Respiratory Protection Z88.2 - 1980.

(2) Respirator protection factor (PF). Respirators shall be selected according to the characteristics of the hazards involved, the capabilities and limitations of the respirators, and the ability of each respirator wearer to obtain a satisfactory fit with a respirator. Taking into account the capabilities and limitations of respirators and the results of respirator-fitting tests, a table of respirator protection factors has been prepared (see Table V). A respirator protection factor is a measure of the degree of protection provided by a

respirator to a wearer. Multiplying either (a) the permissible time-weighted average concentration or the permissible ceiling concentration, whichever is applicable, for a toxic substance, or (b) the maximum permissible airborne concentration for a radionuclide by a protection factor assigned to a respirator gives the maximum concentration of the hazardous substance in which the respirator can be used. Limitations of filters, cartridges, and canisters also shall be considered (see Table V).

(3) Respirator-fitting tests. A qualitative or quantitative respirator-fitting test shall be used to determine the ability of each individual respirator wearer to obtain a satisfactory fit with a negative-pressure respirator. The results of qualitative or quantitative respirator fitting-tests shall be used to select specific types, makes, and models of negative-pressure respirators for use by individual respirator wearers. A respirator-fitting test shall be carried out for each wearer of a negative-pressure respirator equipped with a facepiece. Respirator-fitting tests shall not be required for positive-pressure respirators or for mouthpiece respirators.

(a) Qualitative respirator-fitting test - A person wearing a respirator is exposed to an irritant smoke, an odorous vapor, or other suitable test agent. An air-purifying respirator must be equipped with an air-purifying element(s) which effectively removes the test agent from inspired air. If the respirator wearer is unable to detect penetration of the test agent into the respirator, the respirator wearer has achieved a satisfactory fit with the respirator.

(b) Quantitative respirator-fitting test - A person wears a respirator in a test atmosphere containing a test agent in the form of an aerosol, vapor, or gas. Instrumentation, which samples the test atmosphere and the air inside the respiratory-inlet covering of the respirator, is used to measure quantitatively the penetration of the test agent into the respiratory-inlet covering.

(c) When carrying out a qualitative or quantitative respirator-fitting test, the respirator wearer shall carry out a series of exercises which simulate work movements.

(d) When carrying out respirator-fitting tests, it shall be an acceptable procedure to make the following modifications to respirators provided that such modifications do not affect the seal of the respirators to wearers.

(i) When carrying out a qualitative or quantitative respirator-fitting test which uses an aerosol as the test agent, it shall be acceptable procedure to equip an air-purifying respirator with a high-efficiency filter.

(ii) When carrying out a qualitative or quantitative respirator-fitting test which uses a vapor or gas as the test agent, it shall be acceptable procedure to equip an air-purifying respirator with an appropriate cartridge or canister which removes the vapor or gas from air.

(iii) When carrying out a quantitative respirator-fitting test, it shall be acceptable procedure to attach a sampling probe to the respirator which is connected by flexible tubing to an instrument which measures the penetration of the test agent into the respirator.

(e) If a qualitative respirator-fitting test has been used in respirator selection, a person shall be allowed to use only the specific make(s) and model(s) of respirator(s) for which the person obtained a satisfactory fit, and the respirator protection factor listed under "qualitative test" in Table V shall apply. Under no circumstances shall a person be allowed to use any respirator for which the results of the qualitative respirator fitting test indicate that the person is unable to obtain a satisfactory fit.

(f) If a quantitative respirator-fitting test has been used in selecting a respirator, the test results shall be used to assign a respirator protection factor to each person for each specific make and model of respirator tested. The assigned respirator protection factor shall be applied when the person wears the specific respirator in a hazardous atmosphere, but it shall not exceed the respirator protection factor listed under "quantitative test" in table V for the particular type of respirator.

(4) Respirator-fitting test records. Records of respirator-fitting tests shall be kept for at least the duration of employment. These records shall include the following information:

(a) Type of respirator-fitting test used;

(b) Specific make and model of respirator tested;

(c) Name of person tested;

(d) Name of test operator;

(e) Date of test;

(f) Results of respirator-fitting tests;

(i) Success or failure of person to obtain satisfactory fit if a qualitative respirator-fitting test was carried out.

(ii) Respirator protection factor based upon test results if a quantitative respirator-fitting test was carried out.

(5) Face dimensions and facepiece sizes. The wide range of face dimensions may require more than a single size of respirator facepiece to provide a proper fit to all respirator users. Therefore, respirator facepieces of more than one size should be available in any respirator-selection program involving respirators equipped with facepieces.

Table 1
Classification of Respiratory Hazards According to Their Biological Effect

Oxygen Deficiency	Gas and Vapor Contaminants	Particulate Contaminants (Dust, fog, fume, mist, smoke, and spray)
Minimum legal requirements: 19.5% by volume for respirable air at-sea-level conditions. (See Note 1.)	Asphyxiants: Interfere with utilization of oxygen in the body.	Relatively inert: May cause discomfort and minor irritation, but generally without injury at reasonable concentrations (for example: marble, gypsum).
Occurrence: Confined or unventilated cellars, wells, mines, ship holds, tanks, burning buildings, and enclosures containing inert atmospheres.	Simple asphyxiants: Physiologically inert substances that dilute oxygen in the air (for example: nitrogen, hydrogen, helium, methane). See Oxygen Deficiency, Column 1.	Pulmonary-fibrosis-producing: produce nodulation and fibrosis in the lung, possibly leading to complications (for example: quartz, asbestos).
Atmospheric oxygen content (percent by volume)		

versus expected conditions:

20.9%: Oxygen content of normal air at sea-level conditions.

Oxygen
Volume
Percent
at Sea
Level Physiological Effects

16%-12% Loss of peripheral vision, increased breathing volume, accelerated heartbeat, impaired attention and thinking, impaired coordination.

12%-10% Very faulty judgment, very poor muscular coordination, muscular exertion causes fatigue that may cause permanent heart damage, intermittent respiration.

10%-6% Nausea, vomiting, inability to perform vigorous movement, unconsciousness followed by death.

Less
than 6% Spasmodic breathing, convulsive movements, death in minutes.

Chemical asphyxiants: Low concentrations interfere with supply or utilization of oxygen in the body (for example: carbon monoxide, hydrogen cyanide, cyanogen, and nitriles).

Irritants: Corrosive in action. May cause irritation and inflammation of parts of the respiratory system (also skin and eyes) and pulmonary edema (for example: ammonia hydrogen chloride, formaldehyde, sulfur dioxide, chlorine, ozone, nitrogen dioxide, phosgene, and arsenic trichloride).

Anesthetics: Causes loss of feeling and sensation with unconsciousness and death possible (for example: nitrous oxide, hydrocarbons and ethers). Some anesthetics injure body organs (for example: carbon tetrachloride (liver and kidneys), chloroform (liver and heart), benzene (bone marrow), and carbon disulfide (nervous system)).

Sensitizers: Cause increased probability of physiological reactions (for example: isocyanates, epoxy resin systems).

Systemic poisons: Damage organs and systems in the body (for example: mercury (nervous system and various organs), phosphorus (bone), hydrogen sulfide (respiratory paralysis), and arsine (red blood cells and liver)).

Carcinogens: produce cancer in some individuals after a latent period (for example: vinyl chloride, benzene).

Carcinogens: Produce cancer in some individuals after latent period (for example: asbestos, chromates, radioactive particulates).

Chemical irritants: Produce irritation, inflammation, and ulceration in the upper respiratory tract (for example: acidic mists, alkalis).

Systemic poisons: Produce pathologic reactions in various systems of the body (for example: lead, manganese, cadmium).

Allergy-producing: Produce reactions such as itching, sneezing, and asthmas (for example: pollens, spices, and animal fur).

Febrile-reaction-producing: Produce chills followed by fever (for example: fumes of zinc and copper).

Combination of Gas, Vapor, and Particulate Contaminants

Combinations of contaminants may occur simultaneously in the atmosphere. Contaminants may be entirely different substances (dusts and gases from blasting) or the particulate and vapor forms of the same substance. Synergistic effects (joint action of two or more agents that results in an effect which is greater than the sum of their individual effects) may occur. Such effects may require extraordinary protective measures.

NOTE 1: See definition in WAC 296-62-07105 for "oxygen deficiency - not immediately dangerous to life or health" and "oxygen deficiency - immediately dangerous to life or health."

Table 2
Classification of Respiratory Hazards According to Their Properties Which Influence Respirator Selection

Gas and Vapor Contaminants	Particulate Contaminants
<p>Inert: Substances that do not react with other substances under most conditions, but create a respiratory hazard by displacing air and producing oxygen deficiency (for example: helium, neon, argon).</p>	<p>Particles are produced by mechanical means by disintegration processes such as grinding, crushing, drilling, blasting, and spraying; or by physio-chemical reactions such as combustion, vaporization, distillation, sublimation, calcination, and condensation. Particles are classified as follows:</p>
<p>Acidic: Substances that are acids or that react with water to produce an acid. In water, they produce positively charged hydrogen ions (H⁺) and a pH of less than 7. They taste sour, and many are corrosive to tissues (for example: hydrogen chloride, sulfur dioxide, fluorine, nitrogen dioxide, acetic acid, carbon dioxide, hydrogen sulfide, and hydrogen cyanide).</p>	<p>Dust: A solid, mechanically produced particle with sizes varying from submicroscopic to visible or macroscopic. Spray: A liquid, mechanically produced particle with sizes generally in the visible or macroscopic range.</p>
<p>Alkaline: Substances that are alkalis or that react with water to produce an alkali. In water, they result in the production of negatively charged hydroxyl ions (OH⁻) and a pH greater than 7. They taste bitter, and many are corrosive to tissues (for example: ammonia, amines, phosphine, arsine, and stibine).</p>	<p>Fume: A solid condensation particle of extremely small particle size, generally less than one micrometer in diameter. Mist: A liquid condensation particle with sizes ranging from submicroscopic to visible or macroscopic.</p>
<p>Organic: The components of carbon. Examples are saturated hydrocarbons (methane, ethane, butane) unsaturated hydrocarbons (ethylene,</p>	<p>Fog: A mist of sufficient concentration to perceptibly obscure vision.</p>

acetylene) alcohols (methyl ether, ethyl ether) aldehydes (formaldehyde), ketones (methyl ketone), organic acids (formic acid, acetic acid), halides (chloroform, carbon tetrachloride), amides (formamide, acetamide), nitriles (acetonitrile), isocyanates (toluene diisocyanate), amines (methylamine), epoxies (epoxyethane, propylene oxide), and aromatics (benzene, toluene, xylene).

Organometallic: Compounds in which metals are chemically bonded to organic groups (for example: ethyl silicate, tetraethyl lead, and organic phosphate).

Hydrides: Compounds in which hydrogen is chemically bonded to metals and certain other elements (for example: diborane and tetraborane).

Smoke: A system which includes the products of combustion, pyrolysis, or chemical reaction of substances in the form of visible and invisible solid and liquid particles and gaseous products in air. Smoke is usually of sufficient concentration to perceptibly obscure vision.

Table 3
Classification and Description of Respirators by Mode of Operation

Atmosphere-Supplying Respirators		Air-Purifying Respirators	
A respirable atmosphere independent of the ambient air is supplied to the wearer.		Ambient air, prior to being inhaled, is passed through a filter, cartridge, or canister which removes particles, vapors, gases, or a combination of these contaminants. The breathing action of the wearer operates the nonpowered type of respirator. The powered type contains a blower-stationary or carried by the wearer - which passes ambient air through an air-purifying component and then supplies purified air to the respirator-inlet covering. The nonpowered type is equipped with a facepiece or mouth-piece and nose clamp. The powered type is equipped with a facepiece, helmet, hood, or suit.	
Self-Contained Breathing Apparatus (SCBA)	Supplied-Air Respirators	Vapor-and-Gas-Removing Respirators	Particulate-Removing Respirators
A supply of air, oxygen, or oxygen-generated material is carried by the wearer. Normally equipped with full facepiece, but may be equipped with a quarter-mask facepiece, half-mask facepiece, helmet, hood or mouthpiece and nose clamp.	(1) Hose Mask Equipped with a facepiece, breathing tube, rugged safety harness, and large-diameter heavy-duty non-kinking air-supply hose. The breathing tube and air-supply hose are securely attached to the harness. The facepiece is equipped with an exhalation valve. The harness has provision for attaching a safety line.	Equipped with cartridge(s) or canister(s) to remove a single vapor or gas (for example: chlorine gas), a single class of vapors or gases (for example: organic vapors), or a combination of two or more classes of vapors or gases (for example: organic vapors and acidic gases) from air.	Equipped with filter(s) to remove a single type of particulate matter (for example: dust) or a combination of two or more types of particulate matter (for example: dust and fume) from air. Filter may be a replaceable part or a permanent part of the respirator. Filter may be of the single-use or the reusable type.
(1) Closed-Circuit SCBA (oxygen only, negative pressure ^a or positive pressure ^b).	(a) Hose mask with blower. Air is supplied by a motor-driven or hand-operated blower. The wearer can continue to inhale through the hose if the blower fails. Up to 300 feet (91 meters) of hose length is permissible.	Combination Particulate-and Vapor-and Gas-Removing Respirators	
(a) Compressed liquid oxygen type. Equipped with a facepiece or mouth-piece and nose clamp. High-pressure oxygen from a gas cylinder passes through a high-pressure reducing valve, and in some designs, through a low-pressure admission valve to a breathing bag or container. Liquid oxygen is converted to low-pressure gaseous oxygen and delivered to the breathing bag. The wearer inhales from the bag through a corrugated tube connected to a mouthpiece or facepiece and a one-way check valve. Exhaled air passes through another check valve and tube into a container of carbon-dioxide removing chemical and reenters the breathing bag. Make-up oxygen enters the bag continuously or as the bag deflates sufficiently to actuate an admission valve. A pressure-relief system is provided, and a manual bypass and saliva trap may be provided depending upon the design.	(b) Hose mask without blower. The wearer provides motivating force to pull air through the hose. The hose inlet is anchored and fitted with a funnel or like object covered with a fine mesh screen to prevent entrance of coarse particulate matter. Up to 75 feet (23 meters) of hose length is permissible.	Equipped with cartridge(s) or canister(s) to remove particulate matter, vapors and gases from air. The filter may be a permanent part or a replaceable part of a cartridge or canister.	
(b) Oxygen-generating type. Equipped with a facepiece or mouth-piece and nose clamp. Water vapor in the exhaled breath reacts with chemical in the canister to release oxygen to the breathing bag. The wearer inhales from the bag through a corrugated tube and one-way check valve at the	(2) Air-Line Respirator Respirable air is supplied through a small-diameter hose from a compressor or compressed-air cylinder(s). The hose is attached to the wearer by a belt or other suitable means and can be detached rapidly in an emergency. A flow-control valve or orifice is provided to govern the rate of air flow to the wearer. Exhaled air passes to the ambient atmosphere through a valve(s)		

facepiece.

Exhaled air passes through a second check valve/breathing tube assembly into the canister. The oxygen-release rate is governed by the volume of exhaled air. Carbon dioxide in the exhaled breath is removed by the canister fill.

(2) Open-Circuit (SCBA) (compressed air, compressed oxygen, liquid air, liquid oxygen). A bypass system is provided in case of regulator failure except on escape-type units.

(a) Demand-type.^c Equipped with a facepiece or mouthpiece and nose clamp. The demand valve permits oxygen or air flow only during inhalation. Exhaled breath passes to ambient atmosphere through a valve(s) in the facepiece.

(b) Pressure-demand type.^d Equipped with a facepiece only. Positive pressure is maintained in the facepiece. The apparatus may have provision for the wearer to select the demand or pressure-demand mode of operation, in which case the demand mode should be used only when donning or removing the apparatus.

or opening(s) in the enclosure (facepiece, helmet, hood, or suit). Up to 300 feet (91 meters) of hose length is permissible.

(a) Continuous-flow class. Equipped with a facepiece, hood, helmet, or suit. At least 115 liters (four cubic feet) of air per minute to tight-fitting facepieces and 170 liters (six cubic feet) of air per minute to loose fitting helmets, hoods and suits is required. Air is supplied to a suit through a system of internal tubes to the head, trunk and extremities through valves located in appropriate parts of the suit.

(b) Demand type.^c Equipped with a facepiece only. The demand valve permits flow of air only during inhalation.

(c) Pressure-demand type.^d Equipped with a facepiece only. A positive pressure is maintained in the facepiece.

Combination Air-Line Respirators with Auxiliary Self-Contained Air Supply

Includes an air-line respirator with an auxiliary self-contained air supply. To escape from a hazardous atmosphere in the event the primary air supply falls to operate, the wearer switches to the auxiliary self-contained air supply. Devices approved for both entry into and escape from dangerous atmospheres have a low-pressure warning alarm and contain at least a 15-minute self-contained air supply.

Combination Atmosphere-Supplying and Air-Purifying Respirators

Provide the wearer with the option of using either of two different modes of operation: (1) an atmosphere-supplying respirator with an auxiliary air-purifying attachment which provides protection in the event the air supply fails or (2) an air-purifying respirator with an auxiliary self-contained air supply which is used when the atmosphere may exceed safe conditions for use of an air-purifying respirator.

- a Device produces negative pressure in respiratory-inlet covering during inhalation.
- b Device produces positive pressure in respiratory-inlet covering during both inhalation and exhalation.
- c Equipped with a demand valve that is activated on initiation of inhalation and permits the flow of breathing atmosphere to the facepiece. On exhalation, pressure in the facepiece becomes positive and the demand valve is deactivated.
- d A positive pressure is maintained in the facepiece by a spring-loaded or balanced regulator and exhalation valve.

Table 4
Capabilities and Limitations of Respirators

Atmosphere-Supplying Respirators	Air-Purifying Respirators
<p>(See WAC 296-62-07111 for specifications on respirable atmospheres.)</p> <p>Atmosphere-supplying respirators provide protection against oxygen deficiency and toxic atmospheres. The breathing atmosphere is independent of ambient atmospheric conditions.</p> <p>General limitations: Except for some air-line suits, no protection is provided against skin irritation by materials such as ammonia and hydrogen chloride, or against sorption of materials such as hydrogen cyanide, tritium, or organic phosphate pesticides through the skin. Facepieces present special problems to individuals required to wear prescription lenses. Use of atmosphere-</p>	<p>General limitations: Air-purifying respirators do not protect against oxygen-deficient atmospheres nor against skin irritation by, or sorption through the skin of airborne contaminants.</p> <p>The maximum contaminant concentration against which an air-purifying respirator will protect is determined by the design efficiency and capacity of the cartridge, canister, or filter and the facepiece-to-face seal on the user. For gases and vapors, the maximum concentration for which the air-purifying element is designed is specified by the manufacturer or is</p>

supplying respirators in atmospheres immediately dangerous to life or health is limited to specific devices under specified conditions (see Table 5.)

Self-Contained Breathing Apparatus (SCBA)

The wearer carries his own breathing atmosphere.

Limitations: The period over which the device will provide protection is limited by the amount of air or oxygen in the apparatus, the ambient atmospheric pressure (service life of open-circuit devices is cut in half by a doubling of the atmospheric pressure), and the type of work being performed. Some SCBA devices have a short service life (less than 15 minutes) and are suitable only for escape (self-rescue) from an irreparable atmosphere.

Chief limitations of SCBA devices are their weight or bulk, or both, limited service life, and the training requirements for their maintenance and safe use.

(1) Closed-Circuit SCBA
The closed-circuit operation conserves oxygen and permits longer service life at reduced weight.

The negative-pressure type produces a negative pressure in the respiratory-inlet covering during inhalation, and this may permit inward leakage of contaminants; whereas the positive-pressure type always maintains a positive pressure in the respiratory-inlet covering and is less apt to permit inward leakage of contaminants.

(2) Open Circuit SCBA.

The demand type produces a negative pressure in the respiratory-inlet covering during inhalation, whereas the pressure-demand type maintains a positive pressure in the respiratory-inlet covering during inhalation and is less apt to permit inward leakage of contaminants.

Supplied-Air Respirators

The respirable air supply is not limited to the quantity the individual can carry, and the devices are lightweight and simple.

Limitations: Limited to use in atmospheres from which the wearer can escape unharmed without the aid of the respirator.

The wearer is restricted in movement by the hose and must return to a respirable atmosphere by retracing his route of entry. The hose is subject to being served or pinched off.

(1) Hose Mask.

The hose inlet or blower must be located and secured in a respirable atmosphere.

(a) Hose mask with blower.

If the blower fails, the unit still provides protection, although a negative pressure exists in the facepiece during inhalation.

(b) Hose mask without blower.

Maximum hose length may restrict application of device.

(2) Air-Line Respirator (Continuous Flow, Demand and Pressure-Demand Types).

The demand type produces a negative pressure in the facepiece on inhalation, whereas continuous-flow and pressure-demand types maintain a positive-pressure in the respirator-inlet covering and are less apt to permit inward leakage of contaminants.

Air-line suits may protect against atmospheres that irritate the skin or that may be absorbed through the unbroken skin.

Limitations: Air-line respirators provide no protection if the air supply fails. Some contaminants, such as tritium, may penetrate the material of an air-line suit and limit its effectiveness.

Other contaminants, such as fluorine, may react chemically with the material of an air-line suit and damage it.

Combination Airline Respirators with Auxiliary SCBA Air Supply

The auxiliary self-contained air supply on this type of device allows the wearer to escape from a dangerous atmosphere. This device with auxiliary self-contained air supply is approved for escape and may be used for entry when it contains at least 15-minute auxiliary self-contained air supply. (See Table 5).

listed on labels of cartridges and canisters.

Nonpowered air-purifying respirators will not provide the maximum design protection specified unless the facepiece or mouthpiece/nose clamp is carefully fitted to the wearer's face to prevent inward leakage (WAC 296-62-07115(4)). The time period over which protection is provided is dependent on canister, cartridge, or filter type; concentration of contaminant; humidity levels in the ambient atmosphere; and the wearer's respiratory rate.

The proper type of canister, cartridge, or filter must be selected for the particular atmosphere and conditions. Nonpowered air-purifying respirators may cause discomfort due to a noticeable resistance to inhalation. This problem is minimized in powered respirators. Respirator facepieces present special problems to individuals required to wear prescription lenses. These devices do have the advantage of being small, light, and simple in operation.

Use of air-purifying respirators in atmospheres immediately dangerous to life or health is limited to specific devices under specified conditions (See Table 5).

Vapor and Gas-Removing Respirators

Limitations: No protection is provided against particulate contaminants. A rise in canister or cartridge temperature indicates that a gas or vapor is being removed from the inspired air.

An uncomfortably high temperature indicates a high concentration of gas or vapor and requires an immediate return to fresh air.

Use should be avoided in atmospheres where the contaminant(s) lack sufficient warning properties (that is: odor, taste, or irritation at a concentration in air at or above the permissible exposure limit). Vapor- and gas-removing respirators are not approved for contaminants that lack adequate warning properties.

Not for use in atmospheres immediately dangerous to life or health unless the device is a powered-type respirator with escape provisions (see Table 5).

(1) Full Facepiece Respirator.

Provides protection against eye irritation in addition to respiratory protection.

(2) Quarter-Mask and Half-Mask Facepiece Respirator. A fabric covering (facelet) available from some manufacturers shall not be used.

(3) Mouthpiece Respirator. Shall be used only for escape application. Mouth breathing prevents detection of contaminant by odor. ¹Nose clamp must be securely in place to prevent nasal breathing.

A small lightweight device that can be donned quickly.

Particulate-Removing Respirators

Limitations: Protection against non-volatile particles only. No protection against gases and vapors.

Not for use in atmospheres immediately dangerous to life or health unless the device is a powered-type respirator with escape provisions (see Table 5).

(1) Full Facepiece Respirator.

Provides protection against eye irritation in addition to respiratory protection.

(2) Quarter-Mask and Half-Mask Facepiece Respirator. A fabric covering (facelet) available from some manufacturers shall not be used unless approved for use with respirator.

(3) Mouthpiece Respirator.

Shall be used only for escape applications. Mouth breathing prevents detection of contaminant by odor. Nose clamp must be securely in place to prevent nasal breathing.

A small, lightweight device that can be donned quickly.

Combination Particulate-and-Vapor-and Gas-Removing Respirators

The advantages and disadvantages of the component sections of the combination respirator as described above apply.

Combination Atmosphere-Supplying and Air-Purifying Respirators

The advantages and disadvantages, expressed above, of the mode of operation being used will govern. The mode with the greater limitations (air-purifying mode) will mainly determine the overall capabilities and limitations of the respirator, since the wearer may for some reason fail to change the mode of operation even though conditions would require such a change.

Table 5
Respirator Protection Factors^a

Type of Respirator	Permitted for Use in Oxygen-Deficient Atmosphere	Permitted for Use in Immediately-Dangerous-to-Life-or-Health Atmosphere ^f	Qualitative Test	Quantitative Test
Particulate-filter quarter-mask or half-mask facepiece ^{b,c}	No	No	10	As measured on each person with maximum of 100.
Vapor- or gas-removing, quarter-mask or half-mask facepiece ^c	No	No	10, or maximum use limit of cartridge or canister for vapor or gas, whichever is less	As measured on each person with maximum of 100, or maximum use limit of cartridge or canister for vapor or gas ^{i,j} , whichever is less.
Combination particulate-filter and vapor- or gas-removing, quarter-mask or half-mask facepiece ^{b,c}	No	No	10, or maximum use limit of cartridge or canister for vapor or gas, whichever is less	As measured on each person with maximum of 100, or maximum use limit of cartridge or canister for vapor or gas ^{i,j} , whichever is less.
Particulate-filter, full facepiece ^b	No	No	100	As measured on each person with maximum of 100 if dust, fume, or mist filter is used or maximum of 1,000 if high-efficiency filter is used.
Vapor- or gas-removing, full facepiece	No	No	100, or maximum use limit of cartridge or canister for vapor or gas, whichever is less	As measured on each person with maximum of 1000, or maximum use limit of cartridge or canister for vapor or gas ^{i,j} , whichever is less.
Combination particulate-filter and vapor- or gas-removing, full facepiece ^b	No	No	100, or maximum use limit of cartridge or canister for vapor or gas, whichever is less	As measured on each person with maximum of 100 if dust, fume, or mist filter is used and maximum of 1,000 if high-efficiency filter is used, or maximum use limit of cartridge or canister for vapor or gas ^{i,j} , whichever is less.
Powered particulate-filter, any respiratory-inlet covering ^{b,c,d}	No	No (yes, if escape provisions are provided ^d)	NA No tests are required due to positive-pressure operation of respirator. The maximum protection factor is 100 if dust, fume, or mist filter is used and 3,000 if high-efficiency filter is used.	NA
Powered vapor- or gas-removing, any respiratory-inlet covering ^{c,d}	No	No (yes, if escape provisions are provided ^d)	NA No tests are required due to positive-pressure operation of respirator. The maximum protection factor is 3,000 or maximum use limit of cartridge or canister for vapor of gas ^{i,j} , whichever is less.	NA
Powered combination particulate-filter and vapor- or gas-removing, any respirator-inlet covering ^{b,c,d}	No	No (yes, if escape provisions are provided ^d)	NA No tests are required due to positive-pressure operation of respirator. The maximum protection factor is 100 if dust, fume, or mist filter is used and 3,000 if high-efficiency filter is used, or maximum use limit of cartridge or canister for vapor of gas ^{i,j} , whichever is less.	NA
Air-line, demand, quarter-mask or half-mask facepiece, with or without escape provisions ^{c,e}	Yes ^f	No	10	As measured on each person, but limited to the use of the respirator in concentrations of contaminants below the immediately-dangerous-to-life-or-health (IDLH) values.
Air-line, demand, full facepiece, with or without escape provisions ^e	Yes ^f	No	100	As measured on each person but limited to the use of the respirators in concentrations of contaminants below the immediately-dangerous-to-life-or-health (IDLH) values.
Air-line, continuous-flow	Yes ^f	No	NA	NA

or pressure-demand type, any facepiece without escape provisions ^c				No tests are required due to positive-pressure operation of respirator. The protection factor provided by the respirator is limited to the use of the respirator in concentrations of contaminants below the immediately-dangerous-to-life-or-health (IDLH) values.
Air-line, continuous-flow or pressure-demand type, any facepiece with escape provisions ^{c,e}	Yes ^g	Yes	NA	NA No tests are required due to positive-pressure operation of respirator. The maximum protection factor is 10,000 plus ^h .
Air-line, continuous flow, helmet, hood, or suit, without escape provisions	Yes ^f	No	NA	NA No tests are required due to positive-pressure operation of respirator. The protection factor provided by the respirator is limited to the use of the respirator in concentrations of contaminants below the immediately-dangerous-to-life-or-health (IDLH) values.
Air-line, continuous flow, helmet, hood, or suit, with escape provisions ^e	Yes ^g	No	NA	NA No tests are required due to positive-pressure operation of respirator. The maximum protection factor is 10,000 plus ^h .
Hose mask, with or without blower, full facepiece	Yes ^f	No	10	As measured on each person, but limited to the use of the respirators in concentrations of contaminants below the immediately-dangerous-to-life-or-health (IDLH) values.
Self-contained breathing apparatus, demand-type open-circuit, or negative-pressure-type closed-circuit quarter-mask or half-mask facepiece ^c	Yes ^f	No	10	As measured on each person, but limited to the use of the respirators in concentrations of contaminants below the immediately-dangerous-to-life-or-health (IDLH) values.
Self-contained breathing apparatus, demand-type open-circuit, or negative-pressure-type closed-circuit, full facepiece or mouthpiece/nose clamp ^c	Yes ^f (Yes ^g , if respirator is used for mine rescue and mine recovery operations.)	No (Yes if respirator is used for mine rescue and mine recovery operations.)	100	As measured on each person, but limited to the use of the respirators in concentrations of contaminants below the immediately-dangerous-to-life-or-health (IDLH) values, except when the respirator is used for mine rescue and mine recovery operations.
Self-contained breathing apparatus, pressure-demand type open-circuit, or positive-pressure-type closed-circuit quarter-mask or half-mask facepiece or mouthpiece/nose clamp ^c	Yes ^g	Yes	NA	NA No tests are required due to positive-pressure operation of respirator. The maximum protection factor is 10,000 plus ^h .

Combination respirators. The type and mode of operation having the lowest respirator protection factor shall be applied to the Combination Respirator not listed.

N/A means not applicable since a respirator-fitting test is not carried out.

- a A respirator protection factor is a measure of the degree of protection provided by a respirator to a respirator wearer. Multiplying the permissible time-weighted average concentration or the permissible ceiling concentration, whichever is applicable, for a toxic substance, or the maximum permissible airborne concentration for a radionuclide, by a protection factor assigned to a respirator gives the maximum concentration of the hazardous substance for which the respirator can be used. Limitations of filters, cartridges, and canisters used in air-purifying respirators shall be considered in determining protection factors.
- b When the respirator is used for protection against airborne particulate matter having a permissible time-weighted average concentration less than 0.05 milligram particulate matter per cubic meter of air or less than 2 million particles per cubic foot of air, or for protection against airborne radionuclide particulate matter, the respirator shall be equipped with a high-efficiency filter(s).
- c If the air contaminant causes eye irritation, the wearer of a respirator equipped with a quarter-mask or half-mask facepiece or mouthpiece and nose clamp shall be permitted to use a protective goggle or to use a respirator equipped with a full facepiece. Mouthpiece and nose clamp respirators are approved by NIOSH only for escape from IDLH atmospheres.
- d If the powered air-purifying respirator is equipped with a facepiece, the escape provision means that the wearer is able to breathe through the filter, cartridge, or canister and through the pump. If the powered air-purifying respirator is equipped with a helmet, hood, or suit, the escape provision shall be an auxiliary self-contained supply of respirable air.
- e The escape provision shall be an auxiliary self-contained supply of respirable air.
- f For definition of "oxygen deficiency-not immediately dangerous to life or health" see WAC 296-62-07105.
- g For definition of "oxygen deficiency-immediately dangerous to life or health" see WAC 296-62-07105.
- h The protection factor measurement exceeds the limit of sensitivity of the test apparatus. Therefore, the respirator has been classified for use in atmospheres having unknown concentrations of contaminants.

- i The service life of a vapor-or-gas removing cartridge canister depends on the specific vapor or gas, the concentration of the vapor or gas in air, the temperature and humidity of the air, the type and quantity of the sorbent in the cartridge or canister, and the activity of the respirator wearer. Cartridges and canisters may provide only very short service lives for certain vapors and gases. Vapor/gas service life testing is recommended to ensure that cartridges and canisters provide adequate service lines. Reference should be made to published reports which give vapor/gas life data for cartridges and canisters.
- j Vapor-and-gas removing respirators are not approved for contaminants that lack adequate warning properties of odor, irritation, or taste at concentrations in air at or above the permissible exposure limits.

Note: Respirator protection factors for air-purifying-type respirators equipped with a mouthpiece/nose clamp form of respirator-inlet covering are not given, since such respirators are approved only for escape purposes.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07113, filed 9/5/97, effective 11/5/97. Statutory Authority: Chapter 49.17 RCW. 91-24-017 (Order 91-07), § 296-62-07113, filed 11/22/91, effective 12/24/91; 88-14-108 (Order 88-11), § 296-62-07113, filed 7/6/88. Statutory Authority: RCW 49.17.040, 49.17.050 and 49.17.240. 81-16-016 (Order 81-19), § 296-62-07113, filed 7/27/81.]

WAC 296-62-07347 Inorganic arsenic. (1) Scope and application. This section applies to all occupational exposures to inorganic arsenic except that this section does not apply to employee exposures in agriculture or resulting from pesticide application, the treatment of wood with preservatives or the utilization of arsenically preserved wood.

(2) Definitions.

(a) "Action level" - a concentration of inorganic arsenic of 5 micrograms per cubic meter of air ($5 \mu\text{g}/\text{m}^3$) averaged over any eight-hour period.

(b) "Authorized person" - any person specifically authorized by the employer whose duties require the person to enter a regulated area, or any person entering such an area as a designated representative of employees for the purpose of exercising the right to observe monitoring and measuring procedures under subsection (5) of this section.

(c) "Director" - the director of the department of labor and industries, or his/her designated representative.

(d) "Inorganic arsenic" - copper aceto-arsenite and all inorganic compounds containing arsenic except arsine, measured as arsenic (As).

(3) Permissible exposure limit. The employer shall assure that no employee is exposed to inorganic arsenic at concentrations greater than 10 micrograms per cubic meter of air ($10 \mu\text{g}/\text{m}^3$), averaged over any eight-hour period.

(4) Notification of use.

(a) By October 1, 1978, or within sixty days after the introduction of inorganic arsenic into the workplace, every employer who is required to establish a regulated area in his/her workplaces shall report in writing to the department of labor and industries for each such workplace:

(i) The address of each such workplace;

(ii) The approximate number of employees who will be working in regulated areas; and

(iii) A brief summary of the operations creating the exposure and the actions which the employer intends to take to reduce exposures.

(b) Whenever there has been a significant change in the information required by subsection (4)(a) of this section, the employer shall report the changes in writing within sixty days to the department of labor and industries.

(5) Exposure monitoring.

(a) General.

(i) Determinations of airborne exposure levels shall be made from air samples that are representative of each employee's exposure to inorganic arsenic over an eight-hour period.

(ii) For the purposes of this section, employee exposure is that exposure which would occur if the employee were not using a respirator.

(iii) The employer shall collect full shift (for at least seven continuous hours) personal samples including at least one sample for each shift for each job classification in each work area.

(b) Initial monitoring. Each employer who has a workplace or work operation covered by this standard shall monitor each such workplace and work operation to accurately determine the airborne concentration of inorganic arsenic to which employees may be exposed.

(c) Frequency.

(i) If the initial monitoring reveals employee exposure to be below the action level the measurements need not be repeated except as otherwise provided in subsection (5)(d) of this section.

(ii) If the initial monitoring, required by this section, or subsequent monitoring reveals employee exposure to be above the permissible exposure limit, the employer shall repeat monitoring at least quarterly.

(iii) If the initial monitoring, required by this section, or subsequent monitoring reveals employee exposure to be above the action level and below the permissible exposure limit the employee shall repeat monitoring at least every six months.

(iv) The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are below the action level at which time the employer may discontinue monitoring for that employee until such time as any of the events in subsection (5)(d) of this section occur.

(d) Additional monitoring. Whenever there has been a production, process, control or personal change which may result in new or additional exposure to inorganic arsenic, or whenever the employer has any other reason to suspect a change which may result in new or additional exposures to inorganic arsenic, additional monitoring which complies with subsection (5) of this section shall be conducted.

(e) Employee notification.

(i) Within five working days after the receipt of monitoring results, the employer shall notify each employee in writing of the results which represent that employee's exposures.

(ii) Whenever the results indicate that the representative employee exposure exceeds the permissible exposure limit,

the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure to or below the permissible exposure limit.

(f) Accuracy of measurement.

(i) The employer shall use a method of monitoring and measurement which has an accuracy (with a confidence level of 95 percent) of not less than plus or minus 25 percent for concentrations of inorganic arsenic greater than or equal to 10 $\mu\text{g}/\text{m}^3$.

(ii) The employer shall use a method of monitoring and measurement which has an accuracy (with confidence level of 95 percent) of not less than plus or minus 35 percent for concentrations of inorganic arsenic greater than 5 $\mu\text{g}/\text{m}^3$ but less than 10 $\mu\text{g}/\text{m}^3$.

(6) Regulated area.

(a) Establishment. The employer shall establish regulated areas where worker exposures to inorganic arsenic, without regard to the use of respirators, are in excess of the permissible limit.

(b) Demarcation. Regulated areas shall be demarcated and segregated from the rest of the workplace in any manner that minimizes the number of persons who will be exposed to inorganic arsenic.

(c) Access. Access to regulated areas shall be limited to authorized persons or to persons otherwise authorized by the Act or regulations issued pursuant thereto to enter such areas.

(d) Provision of respirators. All persons entering a regulated area shall be supplied with a respirator, selected in accordance with subsection (8)(b) of this section.

(e) Prohibited activities. The employer shall assure that in regulated areas, food or beverages are not consumed, smoking products, chewing tobacco and gum are not used and cosmetics are not applied, except that these activities may be conducted in the lunchrooms, change rooms and showers required under subsection (12) of this section. Drinking water may be consumed in the regulated area.

(7) Methods of compliance.

(a) Controls.

(i) The employer shall institute at the earliest possible time but not later than December 31, 1979, engineering and work practice controls to reduce exposures to or below the permissible exposure limit, except to the extent that the employer can establish that such controls are not feasible.

(ii) Where engineering and work practice controls are not sufficient to reduce exposures to or below the permissible exposure limit, they shall nonetheless be used to reduce exposures to the lowest levels achievable by these controls and shall be supplemented by the use of respirators in accordance with subsection (8) of this section and other necessary personal protective equipment. Employee rotation is not required as a control strategy before respiratory protection is instituted.

(b) Compliance program.

(i) The employer shall establish and implement a written program to reduce exposures to or below the permissible exposure limit by means of engineering and work practice controls.

(ii) Written plans for these compliance programs shall include at least the following:

(A) A description of each operation in which inorganic arsenic is emitted; e.g., machinery used, material processed, controls in place, crew size, operating procedures and maintenance practices;

(B) Engineering plans and studies used to determine methods selected for controlling exposure to inorganic arsenic;

(C) A report of the technology considered in meeting the permissible exposure limit;

(D) Monitoring data;

(E) A detailed schedule for implementation of the engineering controls and work practices that cannot be implemented immediately and for the adaptation and implementation of any additional engineering and work practices necessary to meet the permissible exposure limit;

(F) Whenever the employer will not achieve the permissible exposure limit with engineering controls and work practices by December 31, 1979, the employer shall include in the compliance plan an analysis of the effectiveness of the various controls, shall install engineering controls and institute work practices on the quickest schedule feasible, and shall include in the compliance plan and implement a program to minimize the discomfort and maximize the effectiveness of respirator use; and

(G) Other relevant information.

(iii) Written plans for such a program shall be submitted upon request to the director, and shall be available at the worksite for examination and copying by the director, any affected employee or authorized employee representatives.

(iv) The plans required by this subsection shall be revised and updated at least every six months to reflect the current status of the program.

(8) Respiratory protection.

(a) General. The employer shall assure that respirators are used where required under this section to reduce employee exposures to below the permissible exposure limit and in emergencies. Respirators shall be used in the following circumstances:

(i) During the time period necessary to install or implement feasible engineering or work practice controls;

(ii) In work operations such as maintenance and repair activities in which the employer establishes that engineering and work practice controls are not feasible;

(iii) In work situations in which engineering controls and supplemental work practice controls are not yet sufficient to reduce exposures to or below the permissible exposure limit; or

(iv) In emergencies.

(b) Respirator selection.

(i) Where respirators are required under this section the employer shall select, provide at no cost to the employee and assure the use of the appropriate respirator or combination of respirators from Table I for inorganic arsenic compounds without significant vapor pressure, or Table II for inorganic arsenic compounds which have significant vapor pressure.

(ii) Where employee exposures exceed the permissible exposure limit for inorganic arsenic and also exceed the relevant limit for particular gasses such as sulfur dioxide, any air purifying respirator supplied to the employee as permitted by this standard must have a combination high

efficiency filter with an appropriate gas sorbent. (See footnote in Table I)

TABLE I

RESPIRATORY PROTECTION FOR INORGANIC ARSENIC PARTICULATE EXCEPT FOR THOSE WITH SIGNIFICANT VAPOR PRESSURE

Concentration of Inorganic Arsenic (as As) or Condition of Use	Required Respirator
(i) Unknown or greater or lesser than 20,000 $\mu\text{g}/\text{m}^3$ (20 mg/m^3) firefighting.	(A) Any full facepiece self-contained or breathing apparatus operated in positive pressure mode.
(ii) Not greater than 20,000 $\mu\text{g}/\text{m}^3$ (20 mg/m^3)	(A) Supplied air respirator with full facepiece, hood, or helmet or suit and operated in positive pressure mode.
(iii) Not greater than 10,000 $\mu\text{g}/\text{m}^3$ (10 mg/m^3)	(A) Powered air-purifying respirators in all inlet face coverings with high-efficiency filters. ¹ (B) Half-mask supplied air respirators operated in positive pressure mode.
(iv) Not greater than 500 $\mu\text{g}/\text{m}^3$	(A) Full facepiece air-purifying respirator equipped with high-efficiency filter. ¹ (B) Any full facepiece supplied air respirator. (C) Any full facepiece self-contained breathing apparatus.
(v) Not greater than 100 $\mu\text{g}/\text{m}^3$	(A) Half-mask air-purifying respirator equipped with high-efficiency filter. ¹ (B) Any half-mask supplied air respirator.

¹ High-efficiency filter-99.97 pct efficiency against 0.3 micrometer monodisperse diethyl-hexyl phthalate (DOP) particles.

TABLE II

RESPIRATORY PROTECTION FOR INORGANIC ARSENICALS (SUCH AS ARSENIC TRICHLORIDE² AND ARSENIC PHOSPHIDE) WITH SIGNIFICANT VAPOR PRESSURE

Concentration of Inorganic Arsenic (as As) or Condition of Use	Required Respirator
(i) Unknown or greater or lesser than 20,000 $\mu\text{g}/\text{m}^3$ (20 mg/m^3) or firefighting.	(A) Any full facepiece contained breathing apparatus operated in positive pressure mode.
(ii) Not greater than 20,000 $\mu\text{g}/\text{m}^3$ (20 mg/m^3)	(A) Supplied air respirator with full facepiece hood, or helmet or suit and operated in positive pressure mode.
(iii) Not greater than 10,000 $\mu\text{g}/\text{m}^3$ (10 mg/m^3)	(A) Half-mask ² supplied air respirator operated in positive pressure mode.
(iv) Not greater than 500 $\mu\text{g}/\text{m}^3$	(A) Front or back mounted gas mask equipped with high-efficiency filter ¹ and acid gas canister. (B) Any full facepiece supplied air respirator. (C) Any full facepiece self-contained breathing apparatus.
(v) Not greater than 100 $\mu\text{g}/\text{m}^3$	(A) Half-mask ² air-purifying respirator equipped with high-efficiency filter ¹ and acid gas cartridge. (B) Any half-mask supplied air respirator.

¹ High efficiency filter-99.97 pct efficiency against 0.3 micrometer monodisperse diethyl-hexyl phthalate (DOP) particles.

² Half-mask respirators shall not be used for protection against arsenic trichloride, as it is rapidly absorbed through the skin.

(iii) The employer shall select respirators from among those approved for protection against dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

(c) Respirator usage.

(i) The employer shall assure that the respirator issued to the employee exhibits minimum facepiece leakage and that the respirator is fitted properly.

(ii) The employer shall perform qualitative fit tests at the time of initial fitting and at least semi-annually thereafter for each employee wearing respirators, where quantitative fit tests are not required.

(iii) Employers with more than twenty employees wearing respirators shall perform a quantitative face fit test

at the time of initial fitting and at least semi-annually thereafter for each employee wearing negative pressure respirators. The test shall be used to select facepieces that provide the required protection as prescribed in Table I or II.

(iv) If an employee has demonstrated difficulty in breathing during the fitting test or during use, he or she shall be examined by a physician trained in pulmonary medicine to determine whether the employee can wear a respirator while performing the required duty.

(d) Respirator program.

(i) The employer shall institute a respiratory protection program in accordance with WAC 296-62-071.

(ii) The employer shall permit each employee who uses a filter respirator to change the filter elements whenever an increase in breathing resistance is detected and shall maintain an adequate supply of filter elements for this purpose.

(iii) Employees who wear respirators shall be permitted to leave work areas to wash their face and respirator facepiece to prevent skin irritation associated with respirator use.

(e) Commencement of respirator use.

(i) The employer's obligation to provide respirators commences on August 1, 1978, for employees exposed over $500 \mu\text{g}/\text{m}^3$ of inorganic arsenic, as soon as possible but not later than October 1, 1978, for employees exposed to over $50 \mu\text{g}/\text{m}^3$ of inorganic arsenic, and as soon as possible but not later than December 1, 1978, for employees exposed between 10 and $50 \mu\text{g}/\text{m}^3$ of inorganic arsenic.

(ii) Employees with exposures below $50 \mu\text{g}/\text{m}^3$ of inorganic arsenic may choose not to wear respirators until December 31, 1979.

(iii) After December 1, 1978, any employee required to wear air purifying respirators may choose, and if so chosen the employer must provide, if it will give proper protection, a powered air purifying respirator and in addition if necessary a combination dust and acid gas respirator for times where exposures to gases are over the relevant exposure limits.

(9) **Reserved.**

(10) Protective work clothing and equipment.

(a) Provision and use. Where the possibility of skin or eye irritation from inorganic arsenic exists, and for all workers working in regulated areas, the employer shall provide at no cost to the employee and assure that employees use appropriate and clean protective work clothing and equipment such as, but not limited to:

(i) Coveralls or similar full-body work clothing;

(ii) Gloves, and shoes or coverlets;

(iii) Face shields or vented goggles when necessary to prevent eye irritation, which comply with the requirements of WAC 296-24-07801 (1) - (6).

(iv) Impervious clothing for employees subject to exposure to arsenic trichloride.

(b) Cleaning and replacement.

(i) The employer shall provide the protective clothing required in subsection (10)(a) of this section in a freshly laundered and dry condition at least weekly, and daily if the employee works in areas where exposures are over $100 \mu\text{g}/\text{m}^3$ of inorganic arsenic or in areas where more frequent washing is needed to prevent skin irritation.

(ii) The employer shall clean, launder, or dispose of protective clothing required by subsection (10)(a) of this section.

(iii) The employer shall repair or replace the protective clothing and equipment as needed to maintain their effectiveness.

(iv) The employer shall assure that all protective clothing is removed at the completion of a work shift only in change rooms prescribed in subsection (13)(a) of this section.

(v) The employer shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change-room which prevents dispersion of inorganic arsenic outside the container.

(vi) The employer shall inform in writing any person who cleans or launders clothing required by this section, of the potentially harmful affects including the carcinogenic effects of exposure to inorganic arsenic.

(vii) The employer shall assure that the containers of contaminated protective clothing and equipment in the workplace or which are to be removed from the workplace are labeled as follows:

Caution: Clothing contaminated with inorganic arsenic; do not remove dust by blowing or shaking. Dispose of inorganic arsenic contaminated wash water in accordance with applicable local, state, or federal regulations.

(viii) The employer shall prohibit the removal of inorganic arsenic from protective clothing or equipment by blowing or shaking.

(11) Housekeeping.

(a) Surfaces. All surfaces shall be maintained as free as practicable of accumulations of inorganic arsenic.

(b) Cleaning floors. Floors and other accessible surfaces contaminated with inorganic arsenic may not be cleaned by the use of compressed air, and shoveling and brushing may be used only where vacuuming or other relevant methods have been tried and found not to be effective.

(c) Vacuuming. Where vacuuming methods are selected, the vacuums shall be used and emptied in a manner to minimize the reentry of inorganic arsenic into the workplace.

(d) Housekeeping plan. A written housekeeping and maintenance plan shall be kept which shall list appropriate frequencies for carrying out housekeeping operations, and for cleaning and maintaining dust collection equipment. The plan shall be available for inspection by the director.

(e) Maintenance of equipment. Periodic cleaning of dust collection and ventilation equipment and checks of their effectiveness shall be carried out to maintain the effectiveness of the system and a notation kept of the last check of effectiveness and cleaning or maintenance.

(12) **Reserved.**

(13) Hygiene facilities and practices.

(a) Change rooms. The employer shall provide for employees working in regulated areas or subject to the possibility of skin or eye irritation from inorganic arsenic, clean change rooms equipped with storage facilities for street clothes and separate storage facilities for protective clothing and equipment in accordance with WAC 296-24-12011.

(b) Showers.

(i) The employer shall assure that employees working in regulated areas or subject to the possibility of skin or eye irritation from inorganic arsenic shower at the end of the work shift.

(ii) The employer shall provide shower facilities in accordance with WAC 296-24-12009(3).

(c) Lunchrooms.

(i) The employer shall provide for employees working in regulated areas, lunchroom facilities which have a temperature controlled, positive pressure, filtered air supply, and which are readily accessible to employees working in regulated areas.

(ii) The employer shall assure that employees working in the regulated area or subject to the possibility of skin or eye irritation from exposure to inorganic arsenic wash their hands and face prior to eating.

(d) Lavatories. The employer shall provide lavatory facilities which comply with WAC 296-24-12009 (1) and (2).

(e) Vacuuming clothes. The employer shall provide facilities for employees working in areas where exposure, without regard to the use of respirators, exceeds $100 \mu\text{g}/\text{m}^3$ to vacuum their protective clothing and clean or change shoes worn in such areas before entering change rooms, lunchrooms or shower rooms required by subsection (10) of this section and shall assure that such employees use such facilities.

(f) Avoidance of skin irritation. The employer shall assure that no employee is exposed to skin or eye contact with arsenic trichloride, or to skin or eye contact with liquid or particulate inorganic arsenic which is likely to cause skin or eye irritation.

(14) Medical surveillance.

(a) General.

(i) Employees covered. The employer shall institute a medical surveillance program for the following employees:

(A) All employees who are or will be exposed above the action level, without regard to the use of respirators, at least thirty days per year; and

(B) All employees who have been exposed above the action level, without regard to respirator use, for thirty days or more per year for a total of ten years or more of combined employment with the employer or predecessor employers prior to or after the effective date of this standard. The determination of exposures prior to the effective date of this standard shall be based upon prior exposure records, comparison with the first measurements taken after the effective date of this standard, or comparison with records of exposures in areas with similar processes, extent of engineering controls utilized and materials used by that employer.

(ii) Examination by physician. The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee, without loss of pay and at a reasonable time and place.

(b) Initial examinations. By December 1, 1978, for employees initially covered by the medical provisions of this section, or thereafter at the time of initial assignment to an area where the employee is likely to be exposed over the action level at least thirty days per year, the employer shall provide each affected employee an opportunity for a medical examination, including at least the following elements:

(i) A work history and a medical history which shall include a smoking history and the presence and degree of respiratory symptoms such as breathlessness, cough, sputum production and wheezing.

(ii) A medical examination which shall include at least the following:

(A) A 14" by 17" posterior-anterior chest x-ray and International Labor Office UICC/Cincinnati (ILO U/C) rating;

(B) A nasal and skin examination; and

(C) Other examinations which the physician believes appropriate because of the employees exposure to inorganic arsenic or because of required respirator use.

(c) Periodic examinations.

(i) The employer shall provide the examinations specified in subsections (14)(b)(i) and (14)(b)(ii)(A), (B) and (C) of this section at least annually for covered employees who are under forty-five years of age with fewer than ten years of exposure over the action level without regard to respirator use.

(ii) The employer shall provide the examinations specified in subsections (14)(b)(i) and (ii)(B) and (C) of this section at least semi-annually for other covered employees.

(iii) Whenever a covered employee has not taken the examinations specified in subsection (14)(b)(i) and (ii)(B) and (C) of this section within six months preceding the termination of employment, the employer shall provide such examinations to the employee upon termination of employment.

(d) Additional examinations. If the employee for any reason develops signs or symptoms commonly associated with exposure to inorganic arsenic the employer shall provide an appropriate examination and emergency medical treatment.

(e) Information provided to the physician. The employer shall provide the following information to the examining physician:

(i) A copy of this standard and its appendices;

(ii) A description of the affected employee's duties as they relate to the employee's exposure;

(iii) The employee's representative exposure level or anticipated exposure level;

(iv) A description of any personal protective equipment used or to be used; and

(v) Information from previous medical examinations of the affected employee which is not readily available to the examining physician.

(f) Physician's written opinion.

(i) The employer shall obtain a written opinion from the examining physician which shall include:

(A) The results of the medical examination and tests performed;

(B) The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure to inorganic arsenic;

(C) Any recommended limitations upon the employee's exposure to inorganic arsenic or upon the use of protective clothing or equipment such as respirators; and

(D) A statement that the employee has been informed by the physician of the results of the medical examination

and any medical conditions which require further examination or treatment.

(ii) The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure.

(iii) The employer shall provide a copy of the written opinion to the affected employee.

(15) Employee information and training.

(a) Training program.

(i) The employer shall institute a training program for all employees who are subject to exposure to inorganic arsenic above the action level without regard to respirator use, or for whom there is the possibility of skin or eye irritation from inorganic arsenic. The employer shall assure that those employees participate in the training program.

(ii) The training program shall be provided by October 1, 1978 for employees covered by this provision, at the time of initial assignment for those subsequently covered by this provision, and shall be repeated at least quarterly for employees who have optional use of respirators and at least annually for other covered employees thereafter, and the employer shall assure that each employee is informed of the following:

(A) The information contained in Appendix A;

(B) The quantity, location, manner of use, storage, sources of exposure, and the specific nature of operations which could result in exposure to inorganic arsenic as well as any necessary protective steps;

(C) The purpose, proper use, and limitation of respirators;

(D) The purpose and a description of medical surveillance program as required by subsection (14) of this section;

(E) The engineering controls and work practices associated with the employee's job assignment; and

(F) A review of this standard.

(b) Access to training materials.

(i) The employer shall make readily available to all affected employees a copy of this standard and its appendices.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the director.

(16) Signs and labels.

(a) General.

(i) The employer may use labels or signs required by other statutes, regulations, or ordinances in addition to, or in combination with, signs and labels required by this subsection.

(ii) The employer shall assure that no statement appears on or near any sign or label required by this subsection which contradicts or detracts from the meaning of the required sign or label.

(b) Signs.

(i) The employer shall post signs demarcating regulated areas bearing the legend:

DANGER

INORGANIC ARSENIC

CANCER HAZARD

AUTHORIZED PERSONNEL ONLY

NO SMOKING OR EATING

RESPIRATOR REQUIRED

(ii) The employer shall assure that signs required by this subsection are illuminated and cleaned as necessary so that the legend is readily visible.

(c) Labels. The employer shall apply precautionary labels to all shipping and storage containers of inorganic arsenic, and to all products containing inorganic arsenic except when the inorganic arsenic in the product is bound in such a manner so as to make unlikely the possibility of airborne exposure to inorganic arsenic. (Possible examples of products not requiring labels are semiconductors, light emitting diodes and glass.) The label shall bear the following legend:

DANGER

CONTAINS INORGANIC ARSENIC

CANCER HAZARD

HARMFUL IF INHALED OR
SWALLOWED

USE ONLY WITH ADEQUATE
VENTILATION

OR RESPIRATORY PROTECTION

(17) Recordkeeping.

(a) Exposure monitoring.

(i) The employer shall establish and maintain an accurate record of all monitoring required by subsection (5) of this section.

(ii) This record shall include:

(A) The date(s), number, duration location, and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure where applicable;

(B) A description of the sampling and analytical methods used and evidence of their accuracy;

(C) The type of respiratory protective devices worn, if any;

(D) Name, Social Security number, and job classification of the employees monitored and of all other employees whose exposure the measurement is intended to represent; and

(E) The environmental variables that could affect the measurement of the employee's exposure.

(iii) The employer shall maintain these monitoring records for at least forty years or for the duration of employment plus twenty years, whichever is longer.

(b) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by subsection (14) of this section.

(ii) This record shall include:

(A) The name, Social Security number, and description of duties of the employee;

(B) A copy of the physician's written opinions;

(C) Results of any exposure monitoring done for that employee and the representative exposure levels supplied to the physician; and

(D) Any employee medical complaints related to exposure to inorganic arsenic.

(iii) The employer shall in addition keep, or assure that the examining physician keeps, the following medical records:

(A) A copy of the medical examination results including medical and work history required under subsection (14) of this section;

(B) A description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results or references to that information;

(C) The initial x-ray;

(D) The x-rays for the most recent five years;

(E) Any x-rays with a demonstrated abnormality and all subsequent x-rays; and

(F) Any cytologic examination slides with demonstrated atypia, if such atypia persists for three years, and all subsequent slides and written descriptions.

(iv) The employer shall maintain or assure that the physician maintains those medical records for at least forty years, or for the duration of employment, plus twenty years, whichever is longer.

(c) Availability.

(i) The employer shall make available upon request all records required to be maintained by subsection (17) of this section to the director for examination and copying.

(ii) Records required by this subsection shall be provided upon request to employees, designated representatives, and the assistant director in accordance with WAC 296-62-05201 through 296-62-05209 and 296-62-05213 through 296-62-05217.

(iii) The employer shall make available upon request an employee's medical records and exposure records representative of that employee's exposure required to be maintained by subsection (17) of this section to the affected employee or former employee or to a physician designated by the affected employee or former employee.

(d) Transfer of records.

(i) Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by this section.

(ii) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records required to be maintained by this section for the prescribed period, these records shall be transmitted to the director.

(iii) At the expiration of the retention period for the records required to be maintained by this section, the employer shall notify the director at least three months prior to the disposal of such records and shall transmit those records to the director if he requests them within that period.

(iv) The employer shall also comply with any additional requirements involving transfer of records set forth in WAC 296-62-05215.

(18) Observation of monitoring.

(a) Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure

to inorganic arsenic conducted pursuant to subsection (5) of this section.

(b) Observation procedures.

(i) Whenever observation of the monitoring of employee exposure to inorganic arsenic requires entry into an area where the use of respirators, protective clothing, or equipment is required, the employer shall provide the observer with and assure the use of such respirators, clothing, and such equipment, and shall require the observer to comply with all other applicable safety and health procedures.

(ii) Without interfering with the monitoring, observers shall be entitled to;

(A) Receive an explanation of the measurement procedures;

(B) Observe all steps related to the monitoring of inorganic arsenic performed at the place of exposure; and

(C) Record the results obtained or receive copies of the results when returned by the laboratory.

(19) Effective date. This standard shall become effective thirty days after filing with the code reviser.

(20) Appendices. The information contained in the appendices to this section is not intended by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

(21) Startup dates.

(a) General. The startup dates of requirements of this standard shall be the effective date of this standard unless another startup date is provided for, either in other subsections of this section or in this subsection.

(b) Monitoring. Initial monitoring shall be commenced by August 1, 1978, and shall be completed by September 15, 1978.

(c) Regulated areas. Regulated areas required to be established as a result of initial monitoring shall be set up as soon as possible after the results of that monitoring is known and no later than October 1, 1978.

(d) Compliance program. The written program required by subsection (7)(b) as a result of initial monitoring shall be made available for inspection and copying as soon as possible and no later than December 1, 1978.

(e) Hygiene and lunchroom facilities. Construction plans for change-rooms, showers, lavatories, and lunchroom facilities shall be completed no later than December 1, 1978, and these facilities shall be constructed and in use no later than July 1, 1979. However, if as part of the compliance plan it is predicted by an independent engineering firm that engineering controls and work practices will reduce exposures below the permissible exposure limit by December 31, 1979, for affected employees, then such facilities need not be completed until one year after the engineering controls are completed or December 31, 1980, whichever is earlier, if such controls have not in fact succeeded in reducing exposure to below the permissible exposure limit.

(f) Summary of startup dates set forth elsewhere in this standard.

STARTUP DATES

August 1, 1978 - Respirator use over 500 $\mu\text{g}/\text{m}^3$.

AS SOON AS POSSIBLE BUT NO LATER THAN

September 15, 1978 - Completion of initial monitoring.

- October 1, 1978 - Complete establishment of regulated areas.
Respirator use for employees exposed above 50 $\mu\text{g}/\text{m}^3$.
Completion of initial training. Notification of use.
- December 1, 1978 - Respirator use over 10 $\mu\text{g}/\text{m}^3$. Completion of initial medical. Completion of compliance plan.
Optional use of powered air-purifying respirators.
- July 1, 1979 - Completion of lunch rooms and hygiene facilities.
- December 31, 1979 - Completion of engineering controls.
- All other requirements of the standard have as their startup date August 1, 1978.

[Statutory Authority: RCW 49.17.010, [49.17].040 and [49.17].050. 98-02-030, § 296-62-07347, filed 12/31/97, effective 1/31/98. Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-62-07347, filed 7/20/94, effective 9/20/94. Statutory Authority: RCW 49.17.040, 49.17.050 and 49.17.240. 81-18-029 (Order 81-21), § 296-62-07347, filed 8/27/81; 81-16-015 (Order 81-20), § 296-62-07347, filed 7/27/81; 79-08-115 (Order 79-9), § 296-62-07347, filed 7/31/79; 79-02-037 (Order 79-1), § 296-62-07347, filed 1/23/79.]

WAC 296-62-07354 Appendices—Inorganic arsenic.

The information in Appendices A, B, and C is not intended, by itself, to create any additional obligations not otherwise imposed by WAC 296-62-07347 nor detract from existing obligation.

(1) Appendix A—Inorganic arsenic substance information sheet.

(a) Substance identification.

(i) Substance. Inorganic arsenic.

(ii) Definition. Copper acetoarsenite, arsenic and all inorganic compounds containing arsenic except arsine, measured as arsenic (As).

(iii) Permissible exposure limit. Ten micrograms per cubic meter of air as determined as an average over an 8 hour period. No employee may be exposed to any skin or eye contact with arsenic trichloride or to skin or eye contact likely to cause skin or eye irritation.

(iv) Regulated areas. Only employees authorized by your employer should enter a regulated area.

(b) Health hazard data.

(i) Comments. The health hazard of inorganic arsenic is high.

(ii) Ways in which the chemical affects your body. Exposure to airborne concentrations of inorganic arsenic may cause lung cancer, and can be a skin irritant. Inorganic arsenic may also affect your body if swallowed. One compound in particular, arsenic trichloride, is especially dangerous because it can be absorbed readily through the skin. Because inorganic arsenic is a poison, you should wash your hands thoroughly prior to eating or smoking.

(c) Personal protective equipment and clothing.

(i) Respirators. Respirators will be provided by the employer at no cost to employees for routine use if the employer is in the process of implementing engineering and work practice controls or where engineering and work practice controls are not feasible or insufficient. Respirators must be worn for nonroutine activities or in emergency situations where there is likely to be exposure to levels of inorganic arsenic in excess of the permissible exposure limit. Since how well the respirator fits is very important, the employer is required to conduct fit tests to make sure the

respirator seals properly when worn. These tests are simple and rapid and will be explained during training sessions.

(ii) Protective clothing. If work is in a regulated area, the employer is required to provide at no cost to employees, and it must be worn, appropriate, clean, protective clothing and equipment. The purpose of this equipment is to prevent the employee from taking home arsenic-contaminated dust and to protect the body from repeated skin contact with inorganic arsenic likely to cause skin irritation. This clothing shall include such items as coveralls or similar full-body clothing, gloves, shoes or coverlets, and aprons. Protective equipment should include face shields or vented goggles, where eye irritation may occur.

(d) Hygiene facilities and practices.

(i) The employer shall ensure that employees do not eat, drink, smoke, chew gum or tobacco, or apply cosmetics in the regulated area, except that drinking water is permitted. If work is in a regulated area, the employer is required to provide lunchrooms or other areas for these purposes.

(ii) If work is in a regulated area, the employer is required to provide showers, washing facilities, and change rooms. The employer shall ensure that employees wash faces and hands before eating and shower at the end of the work shift. Do not take used protective clothing out of change rooms without the employer's permission. The employer is required to provide for laundering or cleaning of the protective clothing.

(e) Signs and labels. The employer is required to post warning signs and labels for employee protection. Signs must be posted in regulated areas. The signs must warn that a cancer hazard is present, that only authorized employees may enter the area, and that no smoking or eating is allowed, and that respirators must be worn.

(f) Medical examinations. If exposure to arsenic is over the action level (5 $\mu\text{g}/\text{m}^3$) (including all persons working in regulated areas) at least 30 days per year, or employees have been exposed to arsenic for more than 10 years over the action level, the employer is required to provide employees with a medical examination. The examination shall be every 6 months for employees over 45 years old or with more than 10 years exposure over the action level and annually for other covered employees. The medical examination must include a medical history; a chest x-ray (annual requirement only); skin examination; and nasal examination. The examining physician will provide a written opinion to the employer containing the results of the medical exams. Employees should also receive a copy of this opinion. The physician must not tell the employer any conditions he detects unrelated to occupational exposure to arsenic but must tell employees those conditions.

(g) Observation of monitoring. The employer is required to monitor employee exposure to arsenic and employees or their representatives are entitled to observe the monitoring procedure. Employees are entitled to receive an explanation of the measurement procedure, and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, employees must also be provided with and must wear the protective clothing and equipment.

(h) Access to records. Employees or their representatives are entitled to records of employee exposure to inorganic arsenic upon request to the employer. Employee medical examination records can be furnished to employees' physician if employees request the employer to provide them.

(i) Training and notification. Additional information on all of these items plus training as to hazards of exposure to inorganic arsenic and the engineering and work practice controls associated with employees' jobs will also be provided by the employer. If employees are exposed over the permissible exposure limit, the employer must inform employees of that fact and the actions to be taken to reduce employee exposure.

(2) Appendix B—Substance technical guidelines. Arsenic, arsenic trioxide, arsenic trichloride (3 examples)

(a) Physical and chemical properties

(i) Arsenic (metal)

(A) Formula: As

(B) Appearance: Gray metal

(C) Melting point: Sublimes without melting at 613C

(D) Specific gravity: ($H_2O=1$):5.73.

(E) Solubility in water: Insoluble

(ii) Arsenic trioxide

(A) Formula: As_2O_3 , (As_4O_6).

(B) Appearance: White powder

(C) Melting point: 315C

(D) Specific gravity: ($H_2O=1$):3.74

(E) Solubility in water: 3.7 grams in 100cc of water at 20C

(iii) Arsenic trichloride (liquid)(Trichloride)

(A) Formula: $AsCl_3$

(B) Appearance: Colorless or pale yellow liquid

(C) Melting point: -8.5C

(D) Boiling point: 130.2C

(E) Specific gravity ($H_2O=1$):2.16 at 20C

(F) Vapor Pressure: 10mm Hg at 23.5C.

(G) Solubility in water: Decomposes in water.

(b) Fire, explosion, and reactivity data.

(i) Fire: Arsenic trioxide and arsenic trichloride are nonflammable.

(ii) Reactivity:

(A) Conditions contributing to instability: Heat.

(B) Incompatibility: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.

(c) Monitoring and measurement procedures.

(i) Samples collected should be full shift (at least 7 hours) samples. Sampling should be done using a personal sampling pump at a flow rate of 2 liters per minute. Samples should be collected on 0.8 micrometer pore size membrane filter (37mm diameter). Volatile arsenicals such as arsenic trichloride can be most easily collected in a midjet bubbler filled with 15 ml. of 0.1 N NaOH.

(ii) The method of sampling and analysis should have an accuracy of not less than ± 25 percent (with a confidence limit of 95 percent) for 10 micrograms per cubic meter of air ($10 \mu\text{g}/\text{m}^3$) and ± 35 percent (with a confidence limit of 95 percent) for concentrations of inorganic arsenic between 5 and $10 \mu\text{g}/\text{m}^3$.

(3) Appendix C—Medical surveillance guidelines.

(a) General.

(i) Medical examinations are to be provided for all employees exposed to levels of inorganic arsenic above the action level ($5 \mu\text{g}/\text{m}^3$) for at least 30 days per year (which would include among others, all employees, who work in regulated areas). Examinations are also to be provided to all employees who have had 10 years or more exposure above the action level for more than 30 days per year while working for the present or predecessor employer though they may no longer be exposed above the level.

(ii) An initial medical examination is to be provided to all such employees by December 1, 1978. In addition, an initial medical examination is to be provided to all employees who are first assigned to areas in which worker exposure will probably exceed $5 \mu\text{g}/\text{m}^3$ (after the effective date of this standard) at the time of initial assignment. In addition to its immediate diagnostic usefulness the initial examination will provide a baseline for comparing future test results. The initial examination must include as a minimum the following elements:

(A) A work and medical history, including a smoking history, and presence and degree of respiratory symptoms such as breathlessness, cough, sputum production, and wheezing;

(B) A 14-inch by 17-inch posterior-anterior chest x-ray and an International Labor Office UICC/Cincinnati (ILO U/C) rating;

(C) A nasal and skin examination; and

(D) Other examinations which the physician believes appropriate because of the employee's exposure to inorganic arsenic or because of required respirator use.

(iii) Periodic examinations are also to be provided to the employees listed above. The periodic examinations shall be given annually for those covered employees 45 years of age or less with fewer than 10 years employment in areas where employee exposure exceeds the action level ($5 \mu\text{g}/\text{m}^3$). Periodic examinations need to include an updated work history and medical history; chest x-ray; nasal and skin examinations; and other examinations which the physician believes appropriate.

(iv) Periodic examinations for other covered employees, shall be provided every 6 months. These examinations shall include an updated work history and medical history; nasal and skin examinations; and other examinations which the physician believes appropriate.

(v) The examination contents are minimum requirements. Additional tests such as lateral and oblique x-rays or pulmonary function tests may be useful. For workers exposed to 3 arsenicals, copper acetoarsenite, potassium arsenite, or sodium arsenite, which are associated with lymphatic cancer, the examination should also include palpation of superficial lymph nodes and complete blood count.

(b) Noncarcinogenic effects.

(i) The WISHA standard is based on minimizing risk of exposed workers dying of lung cancer from exposure to inorganic arsenic. It will also minimize skin cancer from such exposures.

(ii) The following three sections quoted from "Occupational Diseases: A Guide to Their Recognition," Revised Edition, June 1977, National Institute for Occupational Safety and Health is included to provide information on the nonneoplastic effects of exposure to inorganic arsenic. Such

effects should not occur if the WISHA standards are followed.

(A) Local—Trivalent arsenic compounds are corrosive to the skin. Brief contact has no effect but prolonged contact results in a local hyperemia and later vesicular or pustular eruption. The moist mucous membranes are most sensitive to the irritant action. Conjunctiva, moist and macerated areas of skin, the eyelids, the angles of the ears, nose, mouth, and respiratory mucosa are also vulnerable to the irritant effects. The wrists are common sites of dermatitis, as are the genitalia if personal hygiene is poor. Perforations of the nasal septum may occur. Arsenic trioxide and pentoxide are capable of producing skin sensitization and contact dermatitis. Arsenic is also capable of producing keratoses, especially of the palms and soles.

(B) Systemic.

(I) The acute toxic effects of arsenic are generally seen following ingestion of inorganic arsenical compounds. This rarely occurs in an industrial setting. Symptoms develop within 1/2 to 4 hours following ingestion and are usually characterized by constriction of the throat followed by dysphagia, epigastric pain, vomiting, and watery diarrhea. Blood may appear in vomitus and stools. If the amount ingested is sufficiently high, shock may develop due to severe fluid loss, and death may ensue in 24 hours. If the acute effects are survived, exfoliative dermatitis and peripheral neuritis may develop.

(II) Cases of acute arsenical poisoning due to inhalation are exceedingly rare in industry. When it does occur, respiratory tract symptoms - cough, chest pain, dyspnea - giddiness, headache, and extreme general weakness precede gastrointestinal symptoms. The acute toxic symptoms of trivalent arsenical poisoning are due to severe inflammation of the mucous membranes and greatly increased permeability of the blood capillaries.

(III) Chronic arsenical poisoning due to ingestion is rare and generally confined to patients taking prescribed medications. However, it can be a concomitant of inhaled inorganic arsenic from swallowed sputum and improper eating habits. Symptoms are weight loss, nausea and diarrhea alternating with constipation, pigmentation and eruption of the skin, loss of hair, and peripheral neuritis. Chronic hepatitis and cirrhosis have been described. Polyneuritis may be the salient feature, but more frequently there are numbness and parasthenias of "glove and stocking" distribution. The skin lesions are usually melanotic and keratotic and may occasionally take the form of an intradermal cancer of the squamous cell type, but without infiltrative properties. Horizontal white lines (striations) on the fingernails and toenails are commonly seen in chronic arsenical poisoning and are considered to be a diagnostic accompaniment of arsenical polyneuritis.

(IV) Inhalation of inorganic arsenic compounds is the most common cause of chronic poisoning in the industrial situation. This condition is divided into three phases based on signs and symptoms.

(V) First phase: The worker complains of weakness, loss of appetite, some nausea, occasional vomiting, a sense of heaviness in the stomach, and some diarrhea.

(VI) Second phase: The worker complains of conjunctivitis, a catarrhal state of the mucous membranes of the nose,

larynx, and respiratory passage. Coryza, hoarseness, and mild tracheobronchitis may occur. Perforation of the nasal septum is common, and is probably the most typical lesion of the upper respiratory tract in occupational exposure to arsenical dust. Skin lesions, eczematoid and allergic in type, are common.

(VII) Third phase: The worker complains of symptoms of peripheral neuritis, initially of hands and feet, which is essentially sensory. In more severe cases, motor paralyses occur; the first muscles affected are usually the toe extensors and the peronei. In only the most severe cases will paralysis of flexor muscles of the feet or of the extensor muscles of hands occur.

(VIII) Liver damage from chronic arsenical poisoning is still debated, and as yet the question is unanswered. In cases of chronic and acute arsenical poisoning, toxic effects to the myocardium have been reported based on EKG changes. These findings, however, are now largely discounted and the EKG changes are ascribed to electrolyte disturbances concomitant with arsenicalism. Inhalation of arsenic trioxide and other inorganic arsenical dusts does not give rise to radiological evidence or pneumoconiosis. Arsenic does have a depressant effect upon the bone marrow, with disturbances of both erythropoiesis and myelopoiesis.

(4) Bibliography:

Dinman, B. D. 1960. Arsenic; Chronic Human Intoxication. *Journal Occupational Medicine* 2:137.

Elkins, H.B. 1959. *The Chemistry of Industrial Toxicology*, Second Edition. John Wiley and sons, New York.

Holquist, L. 1951. Occupational Arsenical Dermatitis; A Study Among Employees at a Copper-Ore Smelting Works Including Investigations of Skin Reactions to Contact with Arsenic Compounds. *Acta. Derm. Venereol.* (Supplement 26) 31:1.

Pinto, S. S., and C. M. McGill. 1953. Arsenic Trioxide Exposure in Industry. *Ind. Med. Surg.* 22:281.

Pinto, S. S., and K. W. Nelson. 1976. Arsenic Toxicology and Industrial Exposure, *Annu. Rev. Paramacol. Toxicol.* 16:95.

Vallee, B. L., Ulmer, D. D., and W. E. C. Wacker. 1960. Arsenic Toxicology and Biochemistry. *AMA Arch. Indust. Health* 21:132.

[Statutory Authority: RCW 49.17.010, [49.17].040 and [49.17].050. 98-02-030, § 296-62-07354, filed 12/31/97, effective 1/31/98. Statutory Authority: Chapter 49.17 RCW. 90-20-091 (Order 90-14), § 296-62-07354, filed 10/1/90, effective 11/15/90.]

WAC 296-62-07460 Butadiene. (1) Scope and application.

(a) This section applies to all occupational exposures to 1,3-Butadiene (BD), Chemical Abstracts Service Registry No. 106-99-0, except as provided in (b) of this subsection.

(b)(i) Except for the recordkeeping provisions in subsection (13)(a) of this section, this section does not apply to the processing, use, or handling of products containing BD or to other work operations and streams in which BD is present where objective data are reasonably relied upon that demonstrate the work operation or the product or the group of products or operations to which it belongs may not reasonably be foreseen to release BD in airborne concentrations at or above the action level or in excess of the STEL under the

expected conditions of processing, use, or handling that will cause the greatest possible release or in any plausible accident.

(ii) This section also does not apply to work operations, products or streams where the only exposure to BD is from liquid mixtures containing 0.1% or less of BD by volume or the vapors released from such liquids, unless objective data become available that show that airborne concentrations generated by such mixtures can exceed the action level or STEL under reasonably predictable conditions of processing, use or handling that will cause the greatest possible release.

(iii) Except for labeling requirements and requirements for emergency response, this section does not apply to the storage, transportation, distribution or sale of BD or liquid mixtures in intact containers or in transportation pipelines sealed in such a manner as to fully contain BD vapors or liquids.

(c) Where products or processes containing BD are exempted under (b) of this subsection, the employer shall maintain records of the objective data supporting that exemption and the basis for the employer's reliance on the data, as provided in subsection (13)(a) of this section.

(2) Definitions: For the purpose of this section, the following definitions shall apply:

"Action level" means a concentration of airborne BD of 0.5 ppm calculated as an 8-hour time-weighted average.

"Director" means the director of the department of labor and industries, or authorized representatives.

"Authorized person" means any person specifically designated by the employer, whose duties require entrance into a regulated area, or a person entering such an area as a designated representative of employees to exercise the right to observe monitoring and measuring procedures under subsection (4)(h) of this section, or a person designated under the WISH Act or regulations issued under the WISH Act to enter a regulated area.

"1,3-Butadiene" means an organic compound with chemical formula $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$ that has a molecular weight of approximately 54.15 gm/mole.

"Business day" means any Monday through Friday, except those days designated as federal, state, local or company specific holidays.

"Complete blood count (CBC)" means laboratory tests performed on whole blood specimens and includes the following: White blood cell count (WBC), hematocrit (Hct), red blood cell count (RBC), hemoglobin (Hgb), differential count of white blood cells, red blood cell morphology, red blood cell indices, and platelet count.

"Day" means any part of a calendar day.

"Emergency situation" means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of BD.

"Employee exposure" means exposure of a worker to airborne concentrations of BD which would occur if the employee were not using respiratory protective equipment.

"Objective data" means monitoring data, or mathematical modelling or calculations based on composition, chemical and physical properties of a material, stream or product.

"Permissible exposure limits (PELs)" means either the 8-hour time-weighted average (8-hr TWA) exposure or the short-term exposure limit (STEL).

"Physician or other licensed health care professional" is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide one or more of the specific health care services required by (k) of this subsection.

"Regulated area" means any area where airborne concentrations of BD exceed or can reasonably be expected to exceed the 8-hour time-weighted average (8-hr TWA) exposure of 1 ppm or the short-term exposure limit (STEL) of 5 ppm for 15 minutes.

"This section" means this 1,3-butadiene standard.

(3) Permissible exposure limits (PELs).

(a) Time-weighted average (TWA) limit. The employer shall ensure that no employee is exposed to an airborne concentration of BD in excess of one part BD per million parts of air (ppm) measured as an eight (8)-hour time-weighted average.

(b) Short-term exposure limit (STEL). The employer shall ensure that no employee is exposed to an airborne concentration of BD in excess of five parts of BD per million parts of air (5 ppm) as determined over a sampling period of fifteen minutes.

(4) Exposure monitoring.

(a) General.

(i) Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 15-minute short-term exposures of each employee.

(ii) Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for each shift and for each job classification in each work area.

(iii) Representative 15-minute short-term employee exposures shall be determined on the basis of one or more samples representing 15-minute exposures associated with operations that are most likely to produce exposures above the STEL for each shift and for each job classification in each work area.

(iv) Except for the initial monitoring required under (b) of this subsection, where the employer can document that exposure levels are equivalent for similar operations on different work shifts, the employer need only determine representative employee exposure for that operation from the shift during which the highest exposure is expected.

(b) Initial monitoring.

(i) Each employer who has a workplace or work operation covered by this section, shall perform initial monitoring to determine accurately the airborne concentrations of BD to which employees may be exposed, or shall rely on objective data pursuant to subsection (1)(b)(i) of this section to fulfill this requirement.

(ii) Where the employer has monitored within two years prior to the effective date of this section and the monitoring satisfies all other requirements of this section, the employer may rely on such earlier monitoring results to satisfy the requirements of (b)(i) of this subsection, provided that the conditions under which the initial monitoring was conducted have not changed in a manner that may result in new or additional exposures.

(c) Periodic monitoring and its frequency.

(i) If the initial monitoring required by (b) of this subsection reveals employee exposure to be at or above the action level but at or below both the 8-hour TWA limit and the STEL, the employer shall repeat the representative monitoring required by (a) of this subsection every twelve months.

(ii) If the initial monitoring required by (b) of this subsection reveals employee exposure to be above the 8-hour TWA limit, the employer shall repeat the representative monitoring required by (a)(ii) of this subsection at least every three months until the employer has collected two samples per quarter (each at least 7 days apart) within a two-year period, after which such monitoring must occur at least every six months.

(iii) If the initial monitoring required by (b) of this subsection reveals employee exposure to be above the STEL, the employer shall repeat the representative monitoring required by (a)(iii) of this subsection at least every three months until the employer has collected two samples per quarter (each at least 7 days apart) within a two-year period, after which such monitoring must occur at least every six months.

(iv) The employer may alter the monitoring schedule from every six months to annually for any required representative monitoring for which two consecutive measurements taken at least 7 days apart indicate that employee exposure has decreased to or below the 8-hour TWA, but is at or above the action level.

(d) Termination of monitoring.

(i) If the initial monitoring required by (b) of this subsection reveals employee exposure to be below the action level and at or below the STEL, the employer may discontinue the monitoring for employees whose exposures are represented by the initial monitoring.

(ii) If the periodic monitoring required by (c) of this subsection reveals that employee exposures, as indicated by at least two consecutive measurements taken at least 7 days apart, are below the action level and at or below the STEL, the employer may discontinue the monitoring for those employees who are represented by such monitoring.

(e) Additional monitoring.

(i) The employer shall institute the exposure monitoring required under subsection (4) of this section whenever there has been a change in the production, process, control equipment, personnel or work practices that may result in new or additional exposures to BD or when the employer has any reason to suspect that a change may result in new or additional exposures.

(ii) Whenever spills, leaks, ruptures or other breakdowns occur that may lead to employee exposure above the 8-hr TWA limit or above the STEL, the employer shall monitor (using leak source, such as direct reading instruments, area or personal monitoring), after the cleanup of the spill or repair of the leak, rupture or other breakdown, to ensure that exposures have returned to the level that existed prior to the incident.

(f) Accuracy of monitoring.

Monitoring shall be accurate, at a confidence level of 95 percent, to within plus or minus 25 percent for airborne concentrations of BD at or above the 1 ppm TWA limit and to within plus or minus 35 percent for airborne concentra-

tions of BD at or above the action level of 0.5 ppm and below the 1 ppm TWA limit.

(g) Employee notification of monitoring results.

(i) The employer shall, within 5 business days after the receipt of the results of any monitoring performed under this section, notify the affected employees of these results in writing either individually or by posting of results in an appropriate location that is accessible to affected employees.

(ii) The employer shall, within 15 business days after receipt of any monitoring performed under this section indicating the 8-hour TWA or STEL has been exceeded, provide the affected employees, in writing, with information on the corrective action being taken by the employer to reduce employee exposure to or below the 8-hour TWA or STEL and the schedule for completion of this action.

(h) Observation of monitoring.

(i) Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to BD conducted in accordance with this section.

(ii) Observation procedures. When observation of the monitoring of employee exposure to BD requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer at no cost with protective clothing and equipment, and shall ensure that the observer uses this equipment and complies with all other applicable safety and health procedures.

(5) Regulated areas.

(a) The employer shall establish a regulated area wherever occupational exposures to airborne concentrations of BD exceed or can reasonably be expected to exceed the permissible exposure limits, either the 8-hr TWA or the STEL.

(b) Access to regulated areas shall be limited to authorized persons.

(c) Regulated areas shall be demarcated from the rest of the workplace in any manner that minimizes the number of employees exposed to BD within the regulated area.

(d) An employer at a multi-employer worksite who establishes a regulated area shall communicate the access restrictions and locations of these areas to other employers with work operations at that worksite whose employees may have access to these areas.

(6) Methods of compliance.

(a) Engineering controls and work practices.

(i) The employer shall institute engineering controls and work practices to reduce and maintain employee exposure to or below the PELs, except to the extent that the employer can establish that these controls are not feasible or where subsection (8)(a)(i) of this section applies.

(ii) Wherever the feasible engineering controls and work practices which can be instituted are not sufficient to reduce employee exposure to or below the 8-hour TWA or STEL, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of subsection (8) of this section.

(b) Compliance plan.

(i) Where any exposures are over the PELs, the employer shall establish and implement a written plan to reduce

employee exposure to or below the PELs primarily by means of engineering and work practice controls, as required by (a) of this subsection, and by the use of respiratory protection where required or permitted under this section. No compliance plan is required if all exposures are under the PELs.

(ii) The written compliance plan shall include a schedule for the development and implementation of the engineering controls and work practice controls including periodic leak detection surveys.

(iii) Copies of the compliance plan required in (b) of this subsection shall be furnished upon request for examination and copying to the director, affected employees and designated employee representatives. Such plans shall be reviewed at least every 12 months, and shall be updated as necessary to reflect significant changes in the status of the employer's compliance program.

(iv) The employer shall not implement a schedule of employee rotation as a means of compliance with the PELs.

(7) Exposure goal program.

(a) For those operations and job classifications where employee exposures are greater than the action level, in addition to compliance with the PELs, the employer shall have an exposure goal program that is intended to limit employee exposures to below the action level during normal operations.

(b) Written plans for the exposure goal program shall be furnished upon request for examination and copying to the director, affected employees and designated employee representatives.

(c) Such plans shall be updated as necessary to reflect significant changes in the status of the exposure goal program.

(d) Respirator use is not required in the exposure goal program.

(e) The exposure goal program shall include the following items unless the employer can demonstrate that the item is not feasible, will have no significant effect in reducing employee exposures, or is not necessary to achieve exposures below the action level:

(i) A leak prevention, detection, and repair program.

(ii) A program for maintaining the effectiveness of local exhaust ventilation systems.

(iii) The use of pump exposure control technology such as, but not limited to, mechanical double-sealed or seal-less pumps.

(iv) Gauging devices designed to limit employee exposure, such as magnetic gauges on rail cars.

(v) Unloading devices designed to limit employee exposure, such as a vapor return system.

(vi) A program to maintain BD concentration below the action level in control rooms by use of engineering controls.

(8) Respiratory protection.

(a) General. The employer shall provide respirators that comply with the requirements of this subsection, at no cost to each affected employee, and ensure that each affected employee uses such respirator where required by this section. Respirators shall be used in the following circumstances:

(i) During the time interval necessary to install or implement feasible engineering and work practice controls;

(ii) In nonroutine work operations which are performed infrequently and in which exposures are limited in duration;

(iii) In work situations where feasible engineering controls and work practice controls are not yet sufficient to reduce exposures to or below the PELs; or

(iv) In emergencies.

(b) Respirator selection.

(i) Where respirators are required, the employer shall select and provide the appropriate respirator as specified in Table 1 of this section, and ensure its use.

(ii) The employer shall select respirators from among those approved by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 42 CFR Part 84, "Respiratory Protective Devices." Air purifying respirators shall have filter element(s) approved by NIOSH for organic vapors or BD.

(iii) If an employee whose job requires the use of a respirator cannot use a negative pressure respirator, the employer must be provided with a respirator having less breathing resistance, such as a powered air-purifying respirator or supplied air respirator, if the employee is able to use it and if it will provide adequate protection.

(c) Respirator program. Where respiratory protection is required, the employer shall institute a respirator program in accordance with WAC 296-62-071.

(d) Respirator use.

(i) Where air-purifying respirators are used, the employer shall replace the air purifying filter element(s) according to the replacement life interval set for the class of respirator listed in Table 1 in (e) of this subsection and at the beginning of each work shift.

(ii) In lieu of the replacement intervals listed in Table 1, the employer may replace cartridges or canisters at 90% of the expiration of service life, provided the employer can demonstrate that employees will be adequately protected. BD breakthrough data relied upon by the employer must derive from tests conducted under worst case conditions of humidity, temperature, and air flow rate through the filter element. The employer shall describe the data supporting the cartridge/canister change schedule and the basis for reliance on the data in the employer's respirator program.

(iii) A label shall be attached to the filter element(s) to indicate the date and time it is first installed on the respirator. If an employee detects the odor of BD, the employer shall replace the air-purifying element(s) immediately.

(iv) If a NIOSH-approved end of service life indicator (ESLI) for BD becomes available for an air-purifying filter element, the element may be used until such time as the indicator shows no further useful service life or until replaced at the beginning of the next work shift, whichever comes first. If an employee detects the odor of BD, the employer shall replace the air-purifying element(s) immediately.

(v) The employer shall permit employees who wear respirators to leave the regulated area to wash their faces and respirator facepieces as necessary in order to prevent skin irritation associated with respirator use or to change the filter elements of air-purifying respirators whenever they detect a change in breathing resistance or whenever the odor of BD is detected.

(e) Respirator fit testing.

(i) The employer shall perform either qualitative fit testing (QLFT) or quantitative fit testing (QNFT), as required in Appendix E to this section, at the time of initial

fitting and at least annually thereafter for employees who wear tight-fitting negative pressure respirators. Fit testing shall be used to select a respirator facepiece which exhibits minimum leakage and provides the required protection as prescribed in Table 1 of this section.

(ii) For each employee wearing a tight-fitting full facepiece negative pressure respirator who is exposed to airborne concentrations of BD that exceed 10 times the TWA PEL (10 ppm), the employer shall perform quantitative fit testing as required in Appendix E to this section, at the time of initial fitting and at least annually thereafter.

Table 1. - Minimum Requirements for Respiratory Protection for Airborne BD

Concentration of Airborne BD (ppm) or condition of use	Minimum required respirator
Less than or equal to 5 ppm(5 times PEL)	(a) Air-purifying half mask or full facepiece respirator equipped with approved BD or organic vapor cartridges or canisters. Cartridges or canisters shall be replaced every 4 hours.
Less than or equal to 10 ppm(10 times PEL)	(a) Air-purifying half mask or full facepiece respirator equipped with approved BD or organic vapor cartridges or canisters. Cartridges or canisters shall be replaced every 3 hours.
Less than or equal to 25 ppm(25 times PEL)	(a) Air-purifying full facepiece respirator equipped with approved BD or organic vapor cartridges or canisters. Cartridges or canisters shall be replaced every 2 hours. (b) Any powered air-purifying respirator equipped with approved BD or organic vapor cartridges. PAPR cartridges shall be replaced every 2 hours. (c) Continuous flow supplied air respirator equipped with a hood or helmet.
Less than or equal to 50 ppm(50 times PEL)	(a) Air-purifying full facepiece respirator equipped with approved BD or organic vapor cartridges or canisters. Cartridges or canisters shall be replaced every 1 hour. (b) Powered air purifying respirator equipped with a tight-fitting facepiece and an approved BD or organic vapor cartridges. PAPR cartridges shall be replaced every 1 hour.
Less than or equal to 1,000 ppm (1,000 times PEL)	(a) Supplied air respirator equipped with a half mask or full facepiece and operated in a pressure demand or other positive pressure mode.
Greater than 1,000 ppm	(a) Self-contained breathing unknown concentration, or apparatus equipped with a fire fighting full facepiece and operated in a pressure demand or other positive pressure mode. (b) Any supplied air respirator equipped with a full facepiece and operated in a pressure demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in a pressure demand or other positive pressure mode.
Escape from IDLH Conditions	(a) Any positive pressure self-contained breathing apparatus with an appropriate service life. (b) Any air-purifying full facepiece respirator equipped with a front or back mounted BD or organic vapor canister.

Notes: Respirators approved for use in higher concentrations are permitted to be used in lower concentrations. Full facepiece is required when eye irritation is anticipated.

(iii) The employer shall ensure that employees wearing tight-fitting respirators perform a facepiece seal fit check to ensure that a proper facepiece seal is obtained prior to entry into a BD atmosphere. The recommended positive or negative pressure fit check procedures listed in Appendix E

to this section or the respirator manufacturer's recommended fit check procedure shall be used.

(9) Protective clothing and equipment. Where appropriate to prevent eye contact and limit dermal exposure to BD, the employer shall provide protective clothing and equipment at no cost to the employee and shall ensure its use. Eye and

face protection shall meet the requirements of WAC 296-24-078.

(10) Emergency situations. Written plan. A written plan for emergency situations shall be developed, or an existing plan shall be modified, to contain the applicable elements specified in WAC 296-24-567, Employee emergency plans and fire prevention plans, and in WAC 296-62-3112, hazardous waste operations and emergency responses, for each workplace where there is a possibility of an emergency.

(11) Medical screening and surveillance.

(a) Employees covered. The employer shall institute a medical screening and surveillance program as specified in this subsection for:

(i) Each employee with exposure to BD at concentrations at or above the action level on 30 or more days or for employees who have or may have exposure to BD at or above the PELs on 10 or more days a year;

(ii) Employers (including successor owners) shall continue to provide medical screening and surveillance for employees, even after transfer to a non-BD exposed job and regardless of when the employee is transferred, whose work histories suggest exposure to BD:

(A) At or above the PELs on 30 or more days a year for 10 or more years;

(B) At or above the action level on 60 or more days a year for 10 or more years; or

(C) Above 10 ppm on 30 or more days in any past year; and

(iii) Each employee exposed to BD following an emergency situation.

(b) Program administration.

(i) The employer shall ensure that the health questionnaire, physical examination and medical procedures are provided without cost to the employee, without loss of pay, and at a reasonable time and place.

(ii) Physical examinations, health questionnaires, and medical procedures shall be performed or administered by a physician or other licensed health care professional.

(iii) Laboratory tests shall be conducted by an accredited laboratory.

(c) Frequency of medical screening activities. The employer shall make medical screening available on the following schedule:

(i) For each employee covered under (a)(i) and (ii) of this subsection, a health questionnaire and complete blood count (CBC) with differential and platelet count every year, and a physical examination as specified below:

(A) An initial physical examination that meets the requirements of this rule, if twelve months or more have elapsed since the last physical examination conducted as part of a medical screening program for BD exposure;

(B) Before assumption of duties by the employee in a job with BD exposure;

(C) Every 3 years after the initial physical examination;

(D) At the discretion of the physician or other licensed health care professional reviewing the annual health questionnaire and CBC;

(E) At the time of employee reassignment to an area where exposure to BD is below the action level, if the employee's past exposure history does not meet the criteria of (a)(ii) of this subsection for continued coverage in the

screening and surveillance program, and if twelve months or more have elapsed since the last physical examination; and

(F) At termination of employment if twelve months or more have elapsed since the last physical examination.

(ii) Following an emergency situation, medical screening shall be conducted as quickly as possible, but not later than 48 hours after the exposure.

(iii) For each employee who must wear a respirator, physical ability to perform the work and use the respirator must be determined as required by WAC 296-62-071.

(d) Content of medical screening.

(i) Medical screening for employees covered by (a)(i) and (ii) of this subsection shall include:

(A) A baseline health questionnaire that includes a comprehensive occupational and health history and is updated annually. Particular emphasis shall be placed on the hematopoietic and reticuloendothelial systems, including exposure to chemicals, in addition to BD, that may have an adverse effect on these systems, the presence of signs and symptoms that might be related to disorders of these systems, and any other information determined by the examining physician or other licensed health care professional to be necessary to evaluate whether the employee is at increased risk of material impairment of health from BD exposure. Health questionnaires shall consist of the sample forms in Appendix C to this section, or be equivalent to those samples;

(B) A complete physical examination, with special emphasis on the liver, spleen, lymph nodes, and skin;

(C) A CBC; and

(D) Any other test which the examining physician or other licensed health care professional deems necessary to evaluate whether the employee may be at increased risk from exposure to BD.

(ii) Medical screening for employees exposed to BD in an emergency situation shall focus on the acute effects of BD exposure and at a minimum include: A CBC within 48 hours of the exposure and then monthly for three months; and a physical examination if the employee reports irritation of the eyes, nose, throat, lungs, or skin, blurred vision, coughing, drowsiness, nausea, or headache. Continued employee participation in the medical screening and surveillance program, beyond these minimum requirements, shall be at the discretion of the physician or other licensed health care professional.

(e) Additional medical evaluations and referrals.

(i) Where the results of medical screening indicate abnormalities of the hematopoietic or reticuloendothelial systems, for which a nonoccupational cause is not readily apparent, the examining physician or other licensed health care professional shall refer the employee to an appropriate specialist for further evaluation and shall make available to the specialist the results of the medical screening.

(ii) The specialist to whom the employee is referred under this subsection shall determine the appropriate content for the medical evaluation, e.g., examinations, diagnostic tests and procedures, etc.

(f) Information provided to the physician or other licensed health care professional. The employer shall provide the following information to the examining physician or other licensed health care professional involved in the evaluation:

- (i) A copy of this section including its appendices;
- (ii) A description of the affected employee's duties as they relate to the employee's BD exposure;
- (iii) The employee's actual or representative BD exposure level during employment tenure, including exposure incurred in an emergency situation;
- (iv) A description of pertinent personal protective equipment used or to be used; and
- (v) Information, when available, from previous employment-related medical evaluations of the affected employee which is not otherwise available to the physician or other licensed health care professional or the specialist.

(g) The written medical opinion.

(i) For each medical evaluation required by this section, the employer shall ensure that the physician or other licensed health care professional produces a written opinion and provides a copy to the employer and the employee within 15 business days of the evaluation. The written opinion shall be limited to the following information:

(A) The occupationally pertinent results of the medical evaluation;

(B) A medical opinion concerning whether the employee has any detected medical conditions which would place the employee's health at increased risk of material impairment from exposure to BD;

(C) Any recommended limitations upon the employee's exposure to BD; and

(D) A statement that the employee has been informed of the results of the medical evaluation and any medical conditions resulting from BD exposure that require further explanation or treatment.

(ii) The written medical opinion provided to the employer shall not reveal specific records, findings, and diagnoses that have no bearing on the employee's ability to work with BD.

Note: This provision does not negate the ethical obligation of the physician or other licensed health care professional to transmit any other adverse findings directly to the employee.

(h) Medical surveillance.

(i) The employer shall ensure that information obtained from the medical screening program activities is aggregated (with all personal identifiers removed) and periodically reviewed, to ascertain whether the health of the employee population of that employer is adversely affected by exposure to BD.

(ii) Information learned from medical surveillance activities must be disseminated to covered employees, as defined in (a) of this subsection, in a manner that ensures the confidentiality of individual medical information.

(12) Communication of BD hazards to employees.

(a) Hazard communication. The employer shall communicate the hazards associated with BD exposure in accordance with the requirements of the hazard communication standard, WAC 296-62-054.

(b) Employee information and training.

(i) The employer shall provide all employees exposed to BD with information and training in accordance with the requirements of the hazard communication standard, WAC 296-62-054.

(ii) The employer shall institute a training program for all employees who are potentially exposed to BD at or above

the action level or the STEL, ensure employee participation in the program and maintain a record of the contents of such program.

(iii) Training shall be provided prior to or at the time of initial assignment to a job potentially involving exposure to BD at or above the action level or STEL and at least annually thereafter.

(iv) The training program shall be conducted in a manner that the employee is able to understand. The employer shall ensure that each employee exposed to BD over the action level or STEL is informed of the following:

(A) The health hazards associated with BD exposure, and the purpose and a description of the medical screening and surveillance program required by this section;

(B) The quantity, location, manner of use, release, and storage of BD and the specific operations that could result in exposure to BD, especially exposures above the PEL or STEL;

(C) The engineering controls and work practices associated with the employee's job assignment, and emergency procedures and personal protective equipment;

(D) The measures employees can take to protect themselves from exposure to BD;

(E) The contents of this standard and its appendices; and

(F) The right of each employee exposed to BD at or above the action level or STEL to obtain:

(I) Medical examinations as required by subsection (10) of this section at no cost to the employee;

(II) The employee's medical records required to be maintained by subsection (13)(d) of this section; and

(III) All air monitoring results representing the employee's exposure to BD and required to be kept by subsection (13)(b) of this section.

(c) Access to information and training materials.

(i) The employer shall make a copy of this standard and its appendices readily available without cost to all affected employees and their designated representatives and shall provide a copy if requested.

(ii) The employer shall provide to the director, or the designated employee representatives, upon request, all materials relating to the employee information and the training program.

(13) Recordkeeping.

(a) Objective data for exemption from initial monitoring.

(i) Where the processing, use, or handling of products or streams made from or containing BD are exempted from other requirements of this section under subsection (1)(b) of this section, or where objective data have been relied on in lieu of initial monitoring under subsection (4)(b)(ii) of this section, the employer shall establish and maintain a record of the objective data reasonably relied upon in support of the exemption.

(ii) This record shall include at least the following information:

(A) The product or activity qualifying for exemption;

(B) The source of the objective data;

(C) The testing protocol, results of testing, and analysis of the material for the release of BD;

(D) A description of the operation exempted and how the data support the exemption; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(b) Exposure measurements.

(i) The employer shall establish and maintain an accurate record of all measurements taken to monitor employee exposure to BD as prescribed in subsection (4) of this section.

(ii) The record shall include at least the following information:

(A) The date of measurement;

(B) The operation involving exposure to BD which is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and results of samples taken;

(E) Type of protective devices worn, if any;

(F) Name, Social Security number and exposure of the employees whose exposures are represented; and

(G) The written corrective action and the schedule for completion of this action required by subsection (4)(g)(ii) of this section.

(iii) The employer shall maintain this record for at least 30 years in accordance with WAC 296-62-052.

(c) Respirator fit test.

(i) The employer shall establish a record of the fit tests administered to an employee including:

(A) The name of the employee;

(B) Type of respirator;

(C) Brand and size of respirator;

(D) Date of test; and

(E) Where QNFT is used, the fit factor, strip chart recording or other recording of the results of the test.

(ii) Fit test records shall be maintained for respirator users until the next fit test is administered.

(d) Medical screening and surveillance.

(i) The employer shall establish and maintain an accurate record for each employee subject to medical screening and surveillance under this section.

(ii) The record shall include at least the following information:

(A) The name and Social Security number of the employee;

(B) Physician's or other licensed health care professional's written opinions as described in subsection (11)(f) of this section;

(C) A copy of the information provided to the physician or other licensed health care professional as required by subsections (11)(f) of this section.

(iii) Medical screening and surveillance records shall be maintained for each employee for the duration of employment plus 30 years, in accordance with WAC 296-62-052.

(e) Availability.

(i) The employer, upon written request, shall make all records required to be maintained by this section available for examination and copying to the director.

(ii) Access to records required to be maintained by (a) through (c) of this subsection shall be granted in accordance with WAC 296-62-05209.

(f) Transfer of records.

(i) Whenever the employer ceases to do business, the employer shall transfer records required by this section to the successor employer. The successor employer shall receive and maintain these records. If there is no successor employer, the employer shall notify the director, at least three months prior to disposal, and transmit them to the director if requested by the director within that period.

(ii) The employer shall transfer medical and exposure records as set forth in WAC 296-62-05215.

(14) Dates.

(a) Effective date. This section shall become effective (day,month), 1997.

(b) Start-up dates.

(i) The initial monitoring required under subsection (4)(b) of this section shall be completed immediately or within sixty days of the introduction of BD into the workplace.

(ii) The requirements of subsections (3) through (13) of this section, including feasible work practice controls but not including engineering controls specified in subsection (6)(a) of this section, shall be complied with immediately.

(iii) Engineering controls specified by subsection (6)(a) of this section shall be implemented by February 4, 1999, and the exposure goal program specified in subsection (7) of this section shall be implemented by February 4, 2000.

(15) Appendices.

(a) Appendix E to this section is mandatory.

(b) Appendices A, B, C, D, and F to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

Appendix A. Substance Safety Data Sheet For 1,3-Butadiene (Non-Mandatory)

(1) Substance Identification.

(a) Substance: 1,3-Butadiene (CH₂=CH-CH=CH₂).

(b) Synonyms: 1,3-Butadiene (BD); butadiene; biethylene; bi-vinyl; divinyl; butadiene-1,3; buta-1,3-diene; erythrene; NCI-C50602; CAS-106-99-0.

(c) BD can be found as a gas or liquid.

(d) BD is used in production of styrene-butadiene rubber and polybutadiene rubber for the tire industry. Other uses include copolymer latexes for carpet backing and paper coating, as well as resins and polymers for pipes and automobile and appliance parts. It is also used as an intermediate in the production of such chemicals as fungicides.

(e) Appearance and odor: BD is a colorless, non-corrosive, flammable gas with a mild aromatic odor at standard ambient temperature and pressure.

(f) Permissible exposure: Exposure may not exceed 1 part BD per million parts of air averaged over the 8-hour workday, nor may short-term exposure exceed 5 parts of BD per million parts of air averaged over any 15-minute period in the 8-hour workday.

(2) Health Hazard Data.

(a) BD can affect the body if the gas is inhaled or if the liquid form, which is very cold (cryogenic), comes in contact with the eyes or skin.

(b) Effects of overexposure: Breathing very high levels of BD for a short time can cause central nervous system effects, blurred vision, nausea, fatigue, headache, decreased

blood pressure and pulse rate, and unconsciousness. There are no recorded cases of accidental exposures at high levels that have caused death in humans, but this could occur. Breathing lower levels of BD may cause irritation of the eyes, nose, and throat. Skin contact with liquefied BD can cause irritation and frostbite.

(c) Long-term (chronic) exposure: BD has been found to be a potent carcinogen in rodents, inducing neoplastic lesions at multiple target sites in mice and rats. A recent study of BD-exposed workers showed that exposed workers have an increased risk of developing leukemia. The risk of leukemia increases with increased exposure to BD. OSHA has concluded that there is strong evidence that workplace exposure to BD poses an increased risk of death from cancers of the lymphohematopoietic system.

(d) Reporting signs and symptoms: You should inform your supervisor if you develop any of these signs or symptoms and suspect that they are caused by exposure to BD.

(3) Emergency First Aid Procedures.

In the event of an emergency, follow the emergency plan and procedures designated for your work area. If you have been trained in first aid procedures, provide the necessary first aid measures. If necessary, call for additional assistance from co-workers and emergency medical personnel.

(a) Eye and Skin Exposures: If there is a potential that liquefied BD can come in contact with eye or skin, face shields and skin protective equipment must be provided and used. If liquefied BD comes in contact with the eye, immediately flush the eyes with large amounts of water, occasionally lifting the lower and the upper lids. Flush repeatedly. Get medical attention immediately. Contact lenses should not be worn when working with this chemical. In the event of skin contact, which can cause frostbite, remove any contaminated clothing and flush the affected area repeatedly with large amounts of tepid water.

(b) Breathing: If a person breathes in large amounts of BD, move the exposed person to fresh air at once. If breathing has stopped, begin cardiopulmonary resuscitation (CPR) if you have been trained in this procedure. Keep the affected person warm and at rest. Get medical attention immediately.

(c) Rescue: Move the affected person from the hazard exposure. If the exposed person has been overcome, call for help and begin emergency rescue procedures. Use extreme caution so that you do not become a casualty. Understand the plant's emergency rescue procedures and know the locations of rescue equipment before the need arises.

(4) Respirators and Protective Clothing.

(a) Respirators: Good industrial hygiene practices recommend that engineering and work practice controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when these controls fail and need to be supplemented or during brief, non-routine, intermittent exposure. Respirators may also be used in situations involving non-routine work operations which are

performed infrequently and in which exposures are limited in duration, and in emergency situations. In some instances cartridge respirator use is allowed, but only with strict time constraints. For example, at exposure below 5 ppm BD, a cartridge (or canister) respirator, either full or half face, may be used, but the cartridge must be replaced at least every 4 hours, and it must be replaced every 3 hours when the exposure is between 5 and 10 ppm.

If the use of respirators is necessary, the only respirators permitted are those that have been approved by the National Institute for Occupational Safety and Health (NIOSH). In addition to respirator selection, a complete respiratory protection program must be instituted which includes regular training, maintenance, fit testing, inspection, cleaning, and evaluation of respirators. If you can smell BD while wearing a respirator, proceed immediately to fresh air, and change cartridge (or canister) before re-entering an area where there is BD exposure. If you experience difficulty in breathing while wearing a respirator, tell your supervisor.

(b) Protective Clothing: Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent the skin from becoming frozen by contact with liquefied BD (or a vessel containing liquid BD).

Employees should be provided with and required to use splash-proof safety goggles where liquefied BD may contact the eyes.

(5) Precautions for Safe Use, Handling, and Storage.

(a) Fire and Explosion Hazards: BD is a flammable gas and can easily form explosive mixtures in air. It has a lower explosive limit of 2%, and an upper explosive limit of 11.5%. It has an autoignition temperature of 420 deg. C (788 deg. F). Its vapor is heavier than air (vapor density, 1.9) and may travel a considerable distance to a source of ignition and flash back. Usually it contains inhibitors to prevent self-polymerization (which is accompanied by evolution of heat) and to prevent formation of explosive peroxides. At elevated temperatures, such as in fire conditions, polymerization may take place. If the polymerization takes place in a container, there is a possibility of violent rupture of the container.

(b) Hazard: Slightly toxic. Slight respiratory irritant. Direct contact of liquefied BD on skin may cause freeze burns and frostbite.

(c) Storage: Protect against physical damage to BD containers. Outside or detached storage of BD containers is preferred. Inside storage should be in a cool, dry, well-ventilated, noncombustible location, away from all possible sources of ignition. Store cylinders vertically and do not stack. Do not store with oxidizing material.

(d) Usual Shipping Containers: Liquefied BD is contained in steel pressure apparatus.

(e) Electrical Equipment: Electrical installations in Class I hazardous locations, as defined in Article 500 of the National Electrical Code, should be in accordance with Article 501 of the Code. If explosion-proof electrical equipment is necessary, it shall be suitable for use in Group B. Group D equipment may be used if such equipment is isolated in accordance with Section 501-5(a) by sealing all conduit 1/2-inch size or larger. See Venting of Deflagrations

(NFPA No. 68, 1994), National Electrical Code (NFPA No. 70, 1996), Static Electricity (NFPA No. 77, 1993), Lightning Protection Systems (NFPA No. 780, 1995), and Fire Hazard Properties of Flammable Liquids, Gases and Volatile Solids (NFPA No. 325, 1994).

(f) Fire Fighting: Stop flow of gas. Use water to keep fire-exposed containers cool. Fire extinguishers and quick drenching facilities must be readily available, and you should know where they are and how to operate them.

(g) Spill and Leak: Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until clean-up has been completed. If BD is spilled or leaked, the following steps should be taken:

(i) Eliminate all ignition sources.

(ii) Ventilate area of spill or leak.

(iii) If in liquid form, for small quantities, allow to evaporate in a safe manner.

(iv) Stop or control the leak if this can be done without risk. If source of leak is a cylinder and the leak cannot be stopped in place, remove the leaking cylinder to a safe place and repair the leak or allow the cylinder to empty.

(h) Disposal: This substance, when discarded or disposed of, is a hazardous waste according to Federal regulations (40 CFR part 261). It is listed as hazardous waste number D001 due to its ignitability. The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with 40 CFR parts 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulation of any additional requirements as these may be more restrictive than federal laws and regulation.

(i) You should not keep food, beverages, or smoking materials in areas where there is BD exposure, nor should you eat or drink in such areas.

(j) Ask your supervisor where BD is used in your work area and ask for any additional plant safety and health rules.

(6) Medical Requirements.

Your employer is required to offer you the opportunity to participate in a medical screening and surveillance program if you are exposed to BD at concentrations exceeding the action level (0.5 ppm BD as an 8-hour TWA) on 30 days or more a year, or at or above the 8-hr TWA (1 ppm) or STEL (5 ppm for 15 minutes) on 10 days or more a year. Exposure for any part of a day counts. If you have had exposure to BD in the past, but have been transferred to another job, you may still be eligible to participate in the medical screening and surveillance program.

The WISHA rule specifies the past exposures that would qualify you for participation in the program. These past exposure are work histories that suggest the following:

(a) That you have been exposed at or above the PELs on 30 days a year for 10 or more years;

(b) That you have been exposed at or above the action level on 60 days a year for 10 or more years; or

(c) That you have been exposed above 10 ppm on 30 days in any past year.

Additionally, if you are exposed to BD in an emergency situation, you are eligible for a medical examination within 48 hours. The basic medical screening program includes a health questionnaire, physical examination, and blood test. These medical evaluations must be offered to you at a reasonable time and place, and without cost or loss of pay.

(7) Observation of Monitoring.

Your employer is required to perform measurements that are representative of your exposure to BD and you or your designated representative are entitled to observe the monitoring procedure. You are entitled to observe the steps taken in the measurement procedure, and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, you or your representative must also be provided with, and must wear, the protective clothing and equipment.

(8) Access to Information.

(a) Each year, your employer is required to inform you of the information contained in this appendix. In addition, your employer must instruct you in the proper work practices for using BD, emergency procedures, and the correct use of protective equipment.

(b) Your employer is required to determine whether you are being exposed to BD. You or your representative has the right to observe employee measurements and to record the results obtained. Your employer is required to inform you of your exposure. If your employer determines that you are being overexposed, he or she is required to inform you of the actions which are being taken to reduce your exposure to within permissible exposure limits and of the schedule to implement these actions.

(c) Your employer is required to keep records of your exposures and medical examinations. These records must be kept by the employer for at least thirty (30) years.

(d) Your employer is required to release your exposure and medical records to you or your representative upon your request.

Appendix B. Substance Technical Guidelines for 1,3-Butadiene (Non-Mandatory)

(1) Physical and Chemical Data.

(a) Substance identification:

(i) Synonyms: 1,3-Butadiene (BD); butadiene; biethylene; bivinyll; divinyl; butadiene-1,3; buta-1,3-diene; erythrene; NCI-C50620; CAS-106-99-0.

(ii) Formula: $(CH_2)=CH-CH=CH_2$.

(iii) Molecular weight: 54.1.

(b) Physical data:

(i) Boiling point (760 mm Hg): -4.7 deg. C (23.5 deg. F).

(ii) Specific gravity (water=1): 0.62 at 20 deg. C (68 deg. F).

(iii) Vapor density (air=1 at boiling point of BD): 1.87.

(iv) Vapor pressure at 20 deg. C (68 deg. F): 910 mm Hg.

(v) Solubility in water, g/100 g water at 20 deg. C (68 deg. F): 0.05.

(vi) Appearance and odor: Colorless, flammable gas with a mildly aromatic odor. Liquefied BD is a colorless liquid with a mildly aromatic odor.

(2) Fire, Explosion, and Reactivity Hazard Data.

(a) Fire:

(i) Flash point: -76 deg. C (-105 deg. F) for take out; liquefied BD; Not applicable to BD gas.

(ii) Stability: A stabilizer is added to the monomer to inhibit formation of polymer during storage. Forms explosive peroxides in air in absence of inhibitor.

(iii) Flammable limits in air, percent by volume: Lower: 2.0; Upper: 11.5.

(iv) Extinguishing media: Carbon dioxide for small fires, polymer or alcohol foams for large fires.

(v) Special fire fighting procedures: Fight fire from protected location or maximum possible distance. Stop flow of gas before extinguishing fire. Use water spray to keep fire-exposed cylinders cool.

(vi) Unusual fire and explosion hazards: BD vapors are heavier than air and may travel to a source of ignition and flash back. Closed containers may rupture violently when heated.

(vii) For purposes of compliance with the requirements of WAC 296-24-330, BD is classified as a flammable gas. For example, 7,500 ppm, approximately one-fourth of the lower flammable limit, would be considered to pose a potential fire and explosion hazard.

(viii) For purposes of compliance with WAC 296-24-585, BD is classified as a Class B fire hazard.

(ix) For purposes of compliance with WAC 296-24-956, locations classified as hazardous due to the presence of BD shall be Class I.

(b) Reactivity:

(i) Conditions contributing to instability: Heat. Peroxides are formed when inhibitor concentration is not maintained at proper level. At elevated temperatures, such as in fire conditions, polymerization may take place.

(ii) Incompatibilities: Contact with strong oxidizing agents may cause fires and explosions. The contacting of crude BD (not BD monomer) with copper and copper alloys may cause formations of explosive copper compounds.

(iii) Hazardous decomposition products: Toxic gases (such as carbon monoxide) may be released in a fire involving BD.

(iv) Special precautions: BD will attack some forms of plastics, rubber, and coatings. BD in storage should be checked for proper inhibitor content, for self-polymerization, and for formation of peroxides when in contact with air and iron. Piping carrying BD may become plugged by formation of rubbery polymer.

(c) Warning Properties:

(i) Odor Threshold: An odor threshold of 0.45 ppm has been reported in The American Industrial Hygiene Association (AIHA) Report, Odor Thresholds for Chemicals with Established Occupational Health Standards. (Ex. 32-28C).

(ii) Eye Irritation Level: Workers exposed to vapors of BD (concentration or purity unspecified) have complained of irritation of eyes, nasal passages, throat, and lungs. Dogs and rabbits exposed experimentally to as much as 6700 ppm for 7 1/2 hours a day for 8 months have developed no histologically demonstrable abnormality of the eyes.

(iii) Evaluation of Warning Properties: Since the mean odor threshold is about half of the 1 ppm PEL, and more than 10-fold below the 5 ppm STEL, most wearers of air purifying respirators should still be able to detect breakthrough before a significant overexposure to BD occurs.

(3) Spill, Leak, and Disposal Procedures.

(a) Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until cleanup has been completed. If BD is spilled or leaked, the following steps should be taken:

(i) Eliminate all ignition sources.

(ii) Ventilate areas of spill or leak.

(iii) If in liquid form, for small quantities, allow to evaporate in a safe manner.

(iv) Stop or control the leak if this can be done without risk. If source of leak is a cylinder and the leak cannot be stopped in place, remove the leaking cylinder to a safe place and repair the leak or allow the cylinder to empty.

(b) Disposal: This substance, when discarded or disposed of, is a hazardous waste according to Federal regulations (40 CFR part 261). It is listed by the EPA as hazardous waste number D001 due to its ignitability. The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with 40 CFR parts 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements because these may be more restrictive than federal laws and regulations.

(4) Monitoring and Measurement Procedures.

(a) Exposure above the Permissible Exposure Limit (8-hr TWA) or Short-Term Exposure Limit (STEL):

(i) 8-hr TWA exposure evaluation: Measurements taken for the purpose of determining employee exposure under this standard are best taken with consecutive samples covering the full shift. Air samples must be taken in the employee's breathing zone (air that would most nearly represent that inhaled by the employee).

(ii) STEL exposure evaluation: Measurements must represent 15 minute exposures associated with operations most likely to exceed the STEL in each job and on each shift.

(iii) Monitoring frequencies: Table 1 gives various exposure scenarios and their required monitoring frequencies, as required by the final standard for occupational exposure to butadiene.

Table 1. — Five Exposure Scenarios and Their Associated Monitoring Frequencies

Action Level	8-hr TWA	STEL	Required Monitoring Activity
—*	—	—	No 8-hr TWA or STEL monitoring required.
+*	—	—	No STEL monitoring required. Monitor 8-hr TWA annually.
+	—	—	No STEL monitoring required. Periodic monitoring 8-hr TWA, in accordance with (4)(c)(iii).**
+	+	+	Periodic monitoring 8-hr TWA, in accordance with (4)(c)(iii)**. Periodic monitoring STEL in accordance with (4)(c)(iii).
+	—	+	Periodic monitoring STEL, in accordance with (4)(c)(iii). Monitor 8-hr TWA annually.

Footnote(*) Exposure Scenario, Limit Exceeded: + = Yes, - = No.

Footnote(**) The employer may decrease the frequency of exposure monitoring to annually when at least 2 consecutive measurements taken at least 7 days apart show exposures to be below the 8-hr TWA, but at or above the action level.

(iv) Monitoring techniques: Appendix D describes the validated method of sampling and analysis which has been tested by OSHA for use with BD. The employer has the obligation of selecting a monitoring method which meets the accuracy and precision requirements of the standard under his or her unique field conditions. The standard requires that the method of monitoring must be accurate, to a 95 percent confidence level, to plus or minus 25 percent for concentrations of BD at or above 1 ppm, and to plus or minus 35 percent for concentrations below 1 ppm.

(5) Personal Protective Equipment.

(a) Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent the skin from becoming frozen from contact with liquid BD.

(b) Any clothing which becomes wet with liquid BD should be removed immediately and not re-worn until the butadiene has evaporated.

(c) Employees should be provided with and required to use splash proof safety goggles where liquid BD may contact the eyes.

(6) Housekeeping and Hygiene Facilities.

For purposes of complying with WAC 296-24-120 (Part B-1 Sanitation), the following items should be emphasized:

(a) The workplace should be kept clean, orderly, and in a sanitary condition.

(b) Adequate washing facilities with hot and cold water are to be provided and maintained in a sanitary condition.

(7) Additional Precautions.

(a) Store BD in tightly closed containers in a cool, well-ventilated area and take all necessary precautions to avoid any explosion hazard.

(b) Non-sparking tools must be used to open and close metal containers. These containers must be effectively grounded.

(c) Do not incinerate BD cartridges, tanks or other containers.

(d) Employers must advise employees of all areas and operations where exposure to BD might occur.

Appendix C. Medical Screening and Surveillance for 1,3-Butadiene (Non-Mandatory)

(1) Basis for Medical Screening and Surveillance Requirements.

(a) Route of Entry Inhalation.

(b) Toxicology.

Inhalation of BD has been linked to an increased risk of cancer, damage to the reproductive organs, and fetotoxicity. Butadiene can be converted via oxidation to epoxybutene and diepoxybutane, two genotoxic metabolites that may play a role in the expression of BD's toxic effects. BD has been tested for carcinogenicity in mice and rats. Both species responded to BD exposure by developing cancer at multiple primary organ sites. Early deaths in mice were caused by malignant lymphomas, primarily lymphocytic type, originating in the thymus.

Mice exposed to BD have developed ovarian or testicular atrophy. Sperm head morphology tests also revealed abnormal sperm in mice exposed to BD; lethal mutations were found in a dominant lethal test. In light of these results in animals, the possibility that BD may adversely affect the reproductive systems of male and female workers must be considered.

Additionally, anemia has been observed in animals exposed to butadiene. In some cases, this anemia appeared to be a primary response to exposure; in other cases, it may have been secondary to a neoplastic response.

(c) Epidemiology.

Epidemiologic evidence demonstrates that BD exposure poses an increased risk of leukemia. Mild alterations of hematologic parameters have also been observed in synthetic rubber workers exposed to BD.

(2) Potential Adverse Health Effects.

(a) Acute.

Skin contact with liquid BD causes characteristic burns or frostbite. BD in gaseous form can irritate the eyes, nasal

passages, throat, and lungs. Blurred vision, coughing, and drowsiness may also occur. Effects are mild at 2,000 ppm and pronounced at 8,000 ppm for exposures occurring over the full workshift.

At very high concentrations in air, BD is an anesthetic, causing narcosis, respiratory paralysis, unconsciousness, and death. Such concentrations are unlikely, however, except in an extreme emergency because BD poses an explosion hazard at these levels.

(b) Chronic.

The principal adverse health effects of concern are BD-induced lymphoma, leukemia and potential reproductive toxicity. Anemia and other changes in the peripheral blood cells may be indicators of excessive exposure to BD.

(c) Reproductive.

Workers may be concerned about the possibility that their BD exposure may be affecting their ability to procreate a healthy child. For workers with high exposures to BD, especially those who have experienced difficulties in conceiving, miscarriages, or stillbirths, appropriate medical and laboratory evaluation of fertility may be necessary to determine if BD is having any adverse effect on the reproductive system or on the health of the fetus.

(3) Medical Screening Components At-A-Glance.

(a) Health Questionnaire.

The most important goal of the health questionnaire is to elicit information from the worker regarding potential signs or symptoms generally related to leukemia or other blood abnormalities. Therefore, physicians or other licensed health care professionals should be aware of the presenting symptoms and signs of lymphohematopoietic disorders and cancers, as well as the procedures necessary to confirm or exclude such diagnoses. Additionally, the health questionnaire will assist with the identification of workers at greatest risk of developing leukemia or adverse reproductive effects from their exposures to BD.

Workers with a history of reproductive difficulties or a personal or family history of immune deficiency syndromes, blood dyscrasias, lymphoma, or leukemia, and those who are or have been exposed to medicinal drugs or chemicals known to affect the hematopoietic or lymphatic systems may be at higher risk from their exposure to BD. After the initial administration, the health questionnaire must be updated annually.

(b) Complete Blood Count (CBC).

The medical screening and surveillance program requires an annual CBC, with differential and platelet count, to be provided for each employee with BD exposure. This test is to be performed on a blood sample obtained by phlebotomy of the venous system or, if technically feasible, from a fingerstick sample of capillary blood. The sample is to be analyzed by an accredited laboratory.

Abnormalities in a CBC may be due to a number of different etiologies. The concern for workers exposed to BD includes, but is not limited to, timely identification of lymphohematopoietic cancers, such as leukemia and non-Hodgkin's lymphoma. Abnormalities of portions of the CBC are identified by comparing an individual's results to those of an established range of normal values for males and females. A substantial change in any individual employee's CBC may also be viewed as "abnormal" for that individual

even if all measurements fall within the population-based range of normal values. It is suggested that a flowsheet for laboratory values be included in each employee's medical record so that comparisons and trends in annual CBCs can be easily made.

A determination of the clinical significance of an abnormal CBC shall be the responsibility of the examining physician, other licensed health care professional, or medical specialist to whom the employee is referred. Ideally, an abnormal CBC should be compared to previous CBC measurements for the same employee, when available. Clinical common sense may dictate that a CBC value that is very slightly outside the normal range does not warrant medical concern. A CBC abnormality may also be the result of a temporary physical stressor, such as a transient viral illness, blood donation, or menorrhagia, or laboratory error. In these cases, the CBC should be repeated in a timely fashion, i.e., within 6 weeks, to verify that return to the normal range has occurred. A clinically significant abnormal CBC should result in removal of the employee from further exposure to BD. Transfer of the employee to other work duties in a BD-free environment would be the preferred recommendation.

(c) Physical Examination.

The medical screening and surveillance program requires an initial physical examination for workers exposed to BD; this examination is repeated once every three years. The initial physical examination should assess each worker's baseline general health and rule out clinical signs of medical conditions that may be caused by or aggravated by occupational BD exposure. The physical examination should be directed at identification of signs of lymphohematopoietic disorders, including lymph node enlargement, splenomegaly, and hepatomegaly.

Repeated physical examinations should update objective clinical findings that could be indicative of interim development of a lymphohematopoietic disorder, such as lymphoma, leukemia, or other blood abnormality. Physical examinations may also be provided on an as needed basis in order to follow up on a positive answer on the health questionnaire, or in response to an abnormal CBC. Physical examination of workers who will no longer be working in jobs with BD exposure are intended to rule out lymphohematopoietic disorders.

The need for physical examinations for workers concerned about adverse reproductive effects from their exposure to BD should be identified by the physician or other licensed health care professional and provided accordingly. For these workers, such consultations and examinations may relate to developmental toxicity and reproductive capacity.

Physical examination of workers acutely exposed to significant levels of BD should be especially directed at the respiratory system, eyes, sinuses, skin, nervous system, and any region associated with particular complaints. If the worker has received a severe acute exposure, hospitalization may be required to assure proper medical management. Since this type of exposure may place workers at greater risk of blood abnormalities, a CBC must be obtained within 48 hours and repeated at one, two, and three months.

Appendix D: Sampling and Analytical Method for 1,3-Butadiene (Non-Mandatory)

OSHA Method No.: 56.

Matrix: Air.

Target concentration: 1 ppm (2.21 mg/m³).

Procedure: Air samples are collected by drawing known volumes of air through sampling tubes containing charcoal adsorbent which has been coated with 4-tert-butylcatechol. The samples are desorbed with carbon disulfide and then analyzed by gas chromatography using a flame ionization detector.

Recommended sampling rate and air volume: 0.05 L/min and 3 L.

Detection limit of the overall procedure: 90 ppb (200 ug/m³) (based on 3 L air volume).

Reliable quantitation limit: 155 ppb (343 ug/m³) (based on 3 L air volume).

Standard error of estimate at the target concentration: 6.5%.

Special requirements: The sampling tubes must be coated with 4-tert-butylcatechol. Collected samples should be stored in a freezer.

Status of method: A sampling and analytical method has been subjected to the established evaluation procedures of the Organic Methods Evaluation Branch, OSHA Analytical Laboratory, Salt Lake City, Utah 84165.

(1) Background.

This work was undertaken to develop a sampling and analytical procedure for BD at 1 ppm. The current method recommended by OSHA for collecting BD uses activated coconut shell charcoal as the sampling medium (Ref. 5.2). This method was found to be inadequate for use at low BD levels because of sample instability.

The stability of samples has been significantly improved through the use of a specially cleaned charcoal which is coated with 4-tert-butylcatechol (TBC). TBC is a polymerization inhibitor for BD (Ref. 5.3).

(a) Toxic effects.

Symptoms of human exposure to BD include irritation of the eyes, nose and throat. It can also cause coughing, drowsiness and fatigue. Dermatitis and frostbite can result from skin exposure to liquid BD. (Ref. 5.1)

NIOSH recommends that BD be handled in the workplace as a potential occupational carcinogen. This recommendation is based on two inhalation studies that resulted in cancers at multiple sites in rats and in mice. BD has also demonstrated mutagenic activity in the presence of a liver microsomal activating system. It has also been reported to have adverse reproductive effects. (Ref. 5.1)

(b) Potential workplace exposure.

About 90% of the annual production of BD is used to manufacture styrene-butadiene rubber and Polybutadiene rubber. Other uses include: Polychloroprene rubber, acrylonitrile butadiene-styrene resins, nylon intermediates, styrene-butadiene latexes, butadiene polymers, thermoplastic elastomers, nitrile resins, methyl methacrylate-butadiene styrene resins and chemical intermediates. (Ref. 5.1)

(c) Physical properties (Ref. 5.1).

CAS No.: 106-99-0

Molecular weight: 54.1

Appearance: Colorless gas

Boiling point: -4.41 deg. C (760 mm Hg)

Freezing point: -108.9 deg. C

Vapor pressure: 2 atm (a) 15.3 deg. C; 5 atm (a) 47 deg. C

Explosive limits: 2 to 11.5% (by volume in air)

Odor threshold: 0.45 ppm

Structural formula: H(2)C:CHCH:CH(2)

Synonyms: BD; biethylene; bivinyl; butadiene; divinyl; buta-1,3-diene; alpha-gamma-butadiene; erythrene; NCI-C50602; pyrrolylene; vinylethylene.

(d) Limit defining parameters.

The analyte air concentrations listed throughout this method are based on an air volume of 3 L and a desorption volume of 1 mL. Air concentrations listed in ppm are referenced to 25 deg. C and 760 mm Hg.

(e) Detection limit of the analytical procedure.

The detection limit of the analytical procedure was 304 pg per injection. This was the amount of BD which gave a response relative to the interferences present in a standard.

(f) Detection limit of the overall procedure.

The detection limit of the overall procedure was 0.60 ug per sample (90 ppb or 200 ug/m³). This amount was determined graphically. It was the amount of analyte which, when spiked on the sampling device, would allow recovery approximately equal to the detection limit of the analytical procedure.

(g) Reliable quantitation limit.

The reliable quantitation limit was 1.03 ug per sample (155 ppb or 343 ug/m³). This was the smallest amount of analyte which could be quantitated within the limits of a recovery of at least 75% and a precision (+/- 1.96 SD) of +/- 25% or better.

(h) Sensitivity.(1)

Footnote(1) The reliable quantitation limit and detection limits reported in the method are based upon optimization of the instrument for the smallest possible amount of analyte. When the target concentration of an analyte is exceptionally higher than these limits, they may not be attainable at the routine operation parameters.

The sensitivity of the analytical procedure over a concentration range representing 0.6 to 2 times the target concentration, based on the recommended air volume, was 387 area units per ug/mL. This value was determined from the slope of the calibration curve. The sensitivity may vary with the particular instrument used in the analysis.

(i) Recovery.

The recovery of BD from samples used in storage tests remained above 77% when the samples were stored at ambient temperature and above 94% when the samples were stored at refrigerated temperature. These values were determined from regression lines which were calculated from the storage data. The recovery of the analyte from the collection device must be at least 75% following storage.

(j) Precision (analytical method only).

The pooled coefficient of variation obtained from replicate determinations of analytical standards over the range of 0.6 to 2 times the target concentration was 0.011.

(k) Precision (overall procedure).

The precision at the 95% confidence level for the refrigerated temperature storage test was +/- 12.7%. This value includes an additional +/- 5% for sampling error. The overall procedure must provide results at the target concentrations that are +/- 25% at the 95% confidence level.

(l) Reproducibility.

Samples collected from a controlled test atmosphere and a draft copy of this procedure were given to a chemist unassociated with this evaluation. The average recovery was 97.2% and the standard deviation was 6.2%.

(2) Sampling procedure.

(a) Apparatus. Samples are collected by use of a personal sampling pump that can be calibrated to within +/- 5% of the recommended 0.05 L/min sampling rate with the sampling tube in line.

(b) Samples are collected with laboratory prepared sampling tubes. The sampling tube is constructed of silane-treated glass and is about 5-cm long. The ID is 4 mm and the OD is 6 mm. One end of the tube is tapered so that a glass wool end plug will hold the contents of the tube in place during sampling. The opening in the tapered end of the sampling tube is at least one-half the ID of the tube (2 mm). The other end of the sampling tube is open to its full 4-mm ID to facilitate packing of the tube. Both ends of the tube are fire-polished for safety. The tube is packed with 2 sections of pretreated charcoal which has been coated with TBC. The tube is packed with a 50-mg backup section, located nearest the tapered end, and with a 100-mg sampling section of charcoal. The two sections of coated adsorbent are separated and retained with small plugs of silanized glass wool. Following packing, the sampling tubes are sealed with two 7/32 inch OD plastic end caps. Instructions for the pretreatment and coating of the charcoal are presented in Section 4.1 of this method.

(c) Reagents.

None required.

(d) Technique.

(i) Properly label the sampling tube before sampling and then remove the plastic end caps.

(ii) Attach the sampling tube to the pump using a section of flexible plastic tubing such that the larger front section of the sampling tube is exposed directly to the atmosphere. Do not place any tubing ahead of the sampling tube. The sampling tube should be attached in the worker's breathing zone in a vertical manner such that it does not impede work performance.

(iii) After sampling for the appropriate time, remove the sampling tube from the pump and then seal the tube with plastic end caps. Wrap the tube lengthwise.

(iv) Include at least one blank for each sampling set. The blank should be handled in the same manner as the samples with the exception that air is not drawn through it.

(v) List any potential interferences on the sample data sheet.

(vi) The samples require no special shipping precautions under normal conditions. The samples should be refrigerated if they are to be exposed to higher than normal ambient temperatures. If the samples are to be stored before they are shipped to the laboratory, they should be kept in a freezer. The samples should be placed in a freezer upon receipt at the laboratory.

(e) Breakthrough.

(Breakthrough was defined as the relative amount of analyte found on the backup section of the tube in relation to the total amount of analyte collected on the sampling tube. Five-percent breakthrough occurred after sampling a test atmosphere containing 2.0 ppm BD for 90 min. at 0.05

L/min. At the end of this time 4.5 L of air had been sampled and 20.1 ug of the analyte was collected. The relative humidity of the sampled air was 80% at 23 deg. C.)

Breakthrough studies have shown that the recommended sampling procedure can be used at air concentrations higher than the target concentration. The sampling time, however, should be reduced to 45 min. if both the expected BD level and the relative humidity of the sampled air are high.

(f) Desorption efficiency.

The average desorption efficiency for BD from TBC coated charcoal over the range from 0.6 to 2 times the target concentration was 96.4%. The efficiency was essentially constant over the range studied.

(g) Recommended air volume and sampling rate.

(h) The recommended air volume is 3 L.

(i) The recommended sampling rate is 0.05 L/min. for 1 hour.

(j) Interferences.

There are no known interferences to the sampling method.

(k) Safety precautions.

(i) Attach the sampling equipment to the worker in such a manner that it will not interfere with work performance or safety.

(ii) Follow all safety practices that apply to the work area being sampled.

(3) Analytical procedure.

(a) Apparatus.

(i) A gas chromatograph (GC), equipped with a flame ionization detector (FID).(2)

Footnote (2) A Hewlett-Packard Model 5840A GC was used for this evaluation. Injections were performed using a Hewlett-Packard Model 7671A automatic sampler.

(ii) A GC column capable of resolving the analytes from any interference.(3)

Footnote (3) A 20-ft x 1/8-inch OD stainless steel GC column containing 20% FFAP on 80/100 mesh Chromabsorb W-AW-DMCS was used for this evaluation.

(iii) Vials, glass 2-mL with Teflon-lined caps.

(iv) Disposable Pasteur-type pipets, volumetric flasks, pipets and syringes for preparing samples and standards, making dilutions and performing injections.

(b) Reagents.

(i) Carbon disulfide.(4)

Footnote (4) Fisher Scientific Company A.C.S. Reagent Grade solvent was used in this evaluation.

The benzene contaminant that was present in the carbon disulfide was used as an internal standard (ISTD) in this evaluation.

(ii) Nitrogen, hydrogen and air, GC grade.

(iii) BD of known high purity.(5)

Footnote (5) Matheson Gas Products, CP Grade 1,3-butadiene was used in this study.

(c) Standard preparation.

(i) Prepare standards by diluting known volumes of BD gas with carbon disulfide. This can be accomplished by injecting the appropriate volume of BD into the headspace above the 1-mL of carbon disulfide contained in sealed 2-mL vial. Shake the vial after the needle is removed from the septum.(6)

Footnote (6) A standard containing 7.71 ug/mL (at ambient temperature and pressure) was prepared by diluting 4 uL of the gas with 1-mL of carbon disulfide.

(ii) The mass of BD gas used to prepare standards can be determined by use of the following equations:

$$MV=(760/BP)(273+t)/(273)(22.41)$$

Where:

MV = ambient molar volume BP = ambient barometric pressure T = ambient temperature ug/uL
 $= 54.09/MV \text{ ug/standard} = (\text{ug/uL})(\text{uL})$ BD used to prepare the standard

(d) Sample preparation.

(i) Transfer the 100-mg section of the sampling tube to a 2-mL vial. Place the 50-mg section in a separate vial. If the glass wool plugs contain a significant amount of charcoal, place them with the appropriate sampling tube section.

(ii) Add 1-mL of carbon disulfide to each vial.

(iii) Seal the vials with Teflon-lined caps and then allow them to desorb for one hour. Shake the vials by hand vigorously several times during the desorption period.

(iv) If it is not possible to analyze the samples within 4 hours, separate the carbon disulfide from the charcoal, using a disposable Pasteur-type pipet, following the one hour. This separation will improve the stability of desorbed samples.

(v) Save the used sampling tubes to be cleaned and repacked with fresh adsorbent.

(e) Analysis.

(i) GC Conditions.

Column temperature: 95 deg. C

Injector temperature: 180 deg. C

Detector temperature: 275 deg. C

Carrier gas flow rate: 30 mL/min.

Injection volume: 0.80 uL

GC column: 20-ft x 1/8-in OD stainless steel GC column containing 20%

FFAP on 80/100 Chromabsorb W-AW-DMCS.

(ii) Chromatogram. See Section 4.2.

(iii) Use a suitable method, such as electronic or peak heights, to measure detector response.

(iv) Prepare a calibration curve using several standard solutions of different concentrations. Prepare the calibration curve daily. Program the integrator to report the results in ug/mL.

(v) Bracket sample concentrations with standards.

(f) Interferences (analytical).

(i) Any compound with the same general retention time as the analyte and which also gives a detector response is a potential interference. Possible interferences should be reported by the industrial hygienist to the laboratory with submitted samples.

(ii) GC parameters (temperature, column, etc.) may be changed to circumvent interferences.

(iii) A useful means of structure designation is GC/MS. It is recommended that this procedure be used to confirm samples whenever possible.

(g) Calculations.

(i) Results are obtained by use of calibration curves. Calibration curves are prepared by plotting detector response against concentration for each standard. The best line through the data points is determined by curve fitting.

(ii) The concentration, in ug/mL, for a particular sample is determined by comparing its detector response to the calibration curve. If any analyte is found on the backup section, this amount is added to the amount found on the front section. Blank corrections should be performed before adding the results together.

(iii) The BD air concentration can be expressed using the following equation:

$$\text{mg/m(3)}=(A)(B)/(C)(D)$$

Where:

A = ug/mL from Section 3.7.2 B = volume C = L of air sampled D = efficiency

(iv) The following equation can be used to convert results in mg/m(3) to ppm:

$$\text{ppm}=(\text{mg/m(3)})(24.46)/54.09$$

Where:

mg/m(3) = result from Section 3.7.3. 24.46 = molar volume of an ideal gas at 760 mm Hg and 25 deg. C.

(h) Safety precautions (analytical).

(i) Avoid skin contact and inhalation of all chemicals.

(ii) Restrict the use of all chemicals to a fume hood whenever possible.

(iii) Wear safety glasses and a lab coat in all laboratory areas.

(4) Additional Information.

(a) A procedure to prepare specially cleaned charcoal coated with TBC.

(i) Apparatus.

(A) Magnetic stirrer and stir bar.

(B) Tube furnace capable of maintaining a temperature of 700 deg. C and equipped with a quartz tube that can hold 30 g of charcoal.(8)

Footnote (8) A Lindberg Type 55035 Tube furnace was used in this evaluation.

(C) A means to purge nitrogen gas through the charcoal inside the quartz tube.

(D) Water bath capable of maintaining a temperature of 60 deg. C.

(E) Miscellaneous laboratory equipment: One-liter vacuum flask, 1-L Erlenmeyer flask, 350-M1 Buchner funnel with a coarse fitted disc, 4-oz brown bottle, rubber stopper, Teflon tape etc.

(ii) Reagents.

(A) Phosphoric acid, 10% by weight, in water.(9)

Footnote (9) Baker Analyzed Reagent grade was diluted with water for use in this evaluation.

(B) 4-tert-Butylcatechol (TBC).(10)

Footnote (10) The Aldrich Chemical Company 99% grade was used in this evaluation.

(C) Specially cleaned coconut shell charcoal, 20/40 mesh.(11)

Footnote (11) Specially cleaned charcoal was obtained from Supelco, Inc. for use in this evaluation. The cleaning process used by Supelco is proprietary.

(D) Nitrogen gas, GC grade.

(iii) Procedure.

Weigh 30g of charcoal into a 500-mL Erlenmeyer flask. Add about 250 mL of 10% phosphoric acid to the flask and then swirl the mixture. Stir the mixture for 1 hour using a magnetic stirrer. Filter the mixture using a fitted Buchner

funnel. Wash the charcoal several times with 250-mL portions of deionized water to remove all traces of the acid. Transfer the washed charcoal to the tube furnace quartz tube. Place the quartz tube in the furnace and then connect the nitrogen gas purge to the tube. Fire the charcoal to 700 deg. C. Maintain that temperature for at least 1 hour. After the charcoal has cooled to room temperature, transfer it to a tared beaker. Determine the weight of the charcoal and then add an amount of TBC which is 10% of the charcoal, by weight.

CAUTION-TBC is toxic and should only be handled in a fume hood while wearing gloves.

Carefully mix the contents of the beaker and then transfer the mixture to a 4-oz bottle. Stopper the bottle with a clean rubber stopper which has been wrapped with Teflon tape. Clamp the bottle in a water bath so that the water level is above the charcoal level. Gently heat the bath to 60 deg. C and then maintain that temperature for 1 hour. Cool the charcoal to room temperature and then transfer the coated charcoal to a suitable container.

The coated charcoal is now ready to be packed into sampling tubes. The sampling tubes should be stored in a sealed container to prevent contamination. Sampling tubes should be stored in the dark at room temperature. The sampling tubes should be segregated by coated adsorbent lot number.

(b) Chromatograms.

The chromatograms were obtained using the recommended analytical method. The chart speed was set at 1 cm/min. for the first three min. and then at 0.2 cm/min. for the time remaining in the analysis.

The peak which elutes just before BD is a reaction product between an impurity on the charcoal and TBC. This peak is always present, but it is easily resolved from the analyte. The peak which elutes immediately before benzene is an oxidation product of TBC.

(5) References.

(a) "Current Intelligence Bulletin 41, 1,3-Butadiene", U.S. Dept. of Health and Human Services, Public Health Service, Center for Disease Control, NIOSH.

(b) "NIOSH Manual of Analytical Methods", 2nd ed.; U.S. Dept. of Health Education and Welfare, National Institute for Occupational Safety and Health: Cincinnati, OH, 1977, Vol. 2, Method No. S91 DHEW (NIOSH) Publ. (U.S.), No. 77-157-B.

(c) Hawley, G.C., Ed. "The Condensed Chemical Dictionary", 8th ed.; Van Nostrand Reinhold Company: New York, 1971; 139.5.4. Chem. Eng. News (June 10, 1985), (63), 22-66.

Appendix E: Respirator Fit Testing Procedures (Mandatory)

A. The Employer Shall Conduct Fit Testing Using the Following Procedures.

These provisions apply to both QLFT and QNFT.

1. The test subject shall be allowed to pick the most comfortable respirator from a selection of respirators of various sizes and models.

2. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine a comfortable fit. A mirror shall be available to

assist the subject in evaluating the fit and positioning the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.

3. The test subject shall be informed that he/she is being asked to select the respirator which provides the most comfortable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.

4. The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those which obviously do not give a comfortable fit.

5. The more comfortable facepieces are noted; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in item 6 below. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.

6. Assessment of comfort shall include reviewing the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:

- (a) Position of the mask on the nose.
- (b) Room for eye protection.
- (c) Room to talk.
- (d) Position of mask on face and cheeks.

7. The following criteria shall be used to help determine the adequacy of the respirator fit:

- (a) Chin properly placed;
- (b) Adequate strap tension, not overly tightened;
- (c) Fit across nose bridge;
- (d) Respirator of proper size to span distance from nose to chin;
- (e) Tendency of respirator to slip;
- (f) Self-observation in mirror to evaluate fit and respirator position.

8. The test subject shall conduct the negative and positive pressure fit checks using procedures in Appendix A or those recommended by the respirator manufacturer. Before conducting the negative or positive pressure fit checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the fit check tests.

9. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.

10. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician to determine whether the test subject can wear a respirator while performing her or his duties.

11. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

12. Exercise regimen. Prior to the commencement of the fit test, the test subject shall be given a description of the

fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.

13. Test Exercises. The test subject shall perform exercises, in the test environment, while wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with fit, in the manner described below:

(a) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.

(b) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as to not hyperventilate.

(c) Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.

(d) Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).

(e) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

(f) Grimace. The test subject shall grimace by smiling or frowning. (Only for QNFT testing, not performed for QLFT)

(g) Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT units which prohibit bending at the waist.

(h) Normal breathing. Same as exercise (a). Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds.

The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become uncomfortable, another model of respirator shall be tried.

B. Qualitative Fit Test (QLFT) Protocols

1. General

(a) The employer shall assign specific individuals who shall assume full responsibility for implementing the respirator qualitative fit test program.

(b) The employer shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment

and perform tests properly, recognize invalid tests, and assure that test equipment is in proper working order.

(c) The employer shall assure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

2. Isoamyl Acetate Protocol

(a) Odor threshold screening.

The odor threshold screening test, performed without wearing a respirator, is intended to determine if the individual tested can detect the odor of isoamyl acetate.

(1) Three 1 liter glass jars with metal lids are required.

(2) Odor free water (e.g. distilled or spring water) at approximately 25 degrees C shall be used for the solutions.

(3) The isoamyl acetate (IAA) (also known as isopentyl acetate) stock solution is prepared by adding 1 cc of pure IAA to 800 cc of odor free water in a 1 liter jar and shaking for 30 seconds. A new solution shall be prepared at least weekly.

(4) The screening test shall be conducted in a room separate from the room used for actual fit testing. The two rooms shall be well ventilated to prevent the odor of IAA from becoming evident in the general room air where testing takes place.

(5) The odor test solution is prepared in a second jar by placing 0.4 cc of the stock solution into 500 cc of odor free water using a clean dropper or pipette. The solution shall be shaken for 30 seconds and allowed to stand for two to three minutes so that the IAA concentration above the liquid may reach equilibrium. This solution shall be used for only one day.

(6) A test blank shall be prepared in a third jar by adding 500 cc of odor free water.

(7) The odor test and test blank jars shall be labeled 1 and 2 for jar identification. Labels shall be placed on the lids so they can be periodically peeled off and switched to maintain the integrity of the test.

(8) The following instruction shall be typed on a card and placed on the table in front of the two test jars (i.e., 1 and 2): "The purpose of this test is to determine if you can smell banana oil at a low concentration. The two bottles in front of you contain water. One of these bottles also contains a small amount of banana oil. Be sure the covers are on tight, then shake each bottle for two seconds. Unscrew the lid of each bottle, one at a time, and sniff at the mouth of the bottle. Indicate to the test conductor which bottle contains banana oil."

(9) The mixtures used in the IAA odor detection test shall be prepared in an area separate from where the test is performed, in order to prevent olfactory fatigue in the subject.

(10) If the test subject is unable to correctly identify the jar containing the odor test solution, the IAA qualitative fit test shall not be performed.

(11) If the test subject correctly identifies the jar containing the odor test solution, the test subject may proceed to respirator selection and fit testing.

(b) Isoamyl acetate fit test

(1) The fit test chamber shall be similar to a clear 55-gallon drum liner suspended inverted over a 2-foot diameter frame so that the top of the chamber is about 6 inches above the test subject's head. The inside top center of the chamber shall have a small hook attached.

(2) Each respirator used for the fitting and fit testing shall be equipped with organic vapor cartridges or offer protection against organic vapors.

(3) After selecting, donning, and properly adjusting a respirator, the test subject shall wear it to the fit testing room. This room shall be separate from the room used for odor threshold screening and respirator selection, and shall be well ventilated, as by an exhaust fan or lab hood, to prevent general room contamination.

(4) A copy of the test exercises and any prepared text from which the subject is to read shall be taped to the inside of the test chamber.

(5) Upon entering the test chamber, the test subject shall be given a 6-inch by 5-inch piece of paper towel, or other porous, absorbent, single-ply material, folded in half and wetted with 0.75 cc of pure IAA. The test subject shall hang the wet towel on the hook at the top of the chamber.

(6) Allow two minutes for the IAA test concentration to stabilize before starting the fit test exercises. This would be an appropriate time to talk with the test subject; to explain the fit test, the importance of his/her cooperation, and the purpose for the test exercises; or to demonstrate some of the exercises.

(7) If at any time during the test, the subject detects the banana like odor of IAA, the test is failed. The subject shall quickly exit from the test chamber and leave the test area to avoid olfactory fatigue.

(8) If the test is failed, the subject shall return to the selection room and remove the respirator. The test subject shall repeat the odor sensitivity test, select and put on another respirator, return to the test area and again begin the fit test procedure described in (1) through (7) above. The process continues until a respirator that fits well has been found. Should the odor sensitivity test be failed, the subject shall wait about 5 minutes before retesting. Odor sensitivity will usually have returned by this time.

(9) When the subject wearing the respirator passes the test, its efficiency shall be demonstrated for the subject by having the subject break the face seal and take a breath before exiting the chamber.

(10) When the test subject leaves the chamber, the subject shall remove the saturated towel and return it to the person conducting the test, so there is no significant IAA concentration buildup in the chamber during subsequent tests. The used towels shall be kept in a self-sealing bag to keep the test area from being contaminated.

3. Saccharin Solution Aerosol Protocol

The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

(a) Taste threshold screening. The saccharin taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of saccharin.

(1) During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches in diameter by 14 inches tall with at least the front portion clear and that allows free movements of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.

(2) The test enclosure shall have a 3/4-inch hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.

(3) The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his/her slightly open mouth with tongue extended.

(4) Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent the test conductor shall spray the threshold check solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.

(5) The threshold check solution consists of 0.83 grams of sodium saccharin USP in 100 ml of warm water. It can be prepared by putting 1 ml of the fit test solution (see (b)(5) below) in 100 ml of distilled water.

(6) To produce the aerosol, the nebulizer bulb is firmly squeezed so that it collapses completely, then released and allowed to fully expand.

(7) Ten squeezes are repeated rapidly and then the test subject is asked whether the saccharin can be tasted.

(8) If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted.

(9) If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted.

(10) The test conductor will take note of the number of squeezes required to solicit a taste response.

(11) If the saccharin is not tasted after 30 squeezes (step 10), the test subject may not perform the saccharin fit test.

(12) If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.

(13) Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.

(14) The nebulizer shall be thoroughly rinsed in water, shaken dry, and refilled at least each morning and afternoon or at least every four hours.

(b) Saccharin solution aerosol fit test procedure

(1) The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.

(2) The fit test uses the same enclosure described in (a) above.

(3) The test subject shall don the enclosure while wearing the respirator selected in section (a) above. The respirator shall be properly adjusted and equipped with a particulate filter(s).

(4) A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.

(5) The fit test solution is prepared by adding 83 grams of sodium saccharin to 100 ml of warm water.

(6) As before, the test subject shall breathe through the slightly open mouth with tongue extended.

(7) The nebulizer is inserted into the hole in the front of the enclosure and the fit test solution is sprayed into the enclosure using the same number of squeezes required to elicit a taste response in the screening test. A minimum of 10 squeezes is required.

(8) After generating the aerosol the test subject shall be instructed to perform the exercises in section A. 13 above.

(9) Every 30 seconds the aerosol concentration shall be replenished using one half the number of squeezes as initially.

(10) The test subject shall indicate to the test conductor if at any time during the fit test the taste of saccharin is detected.

(11) If the taste of saccharin is detected, the fit is deemed unsatisfactory and a different respirator shall be tried.

4. Irritant Fume Protocol

(a) The respirator to be tested shall be equipped with high-efficiency particulate air (HEPA) filters.

(b) No form of test enclosure or hood for the test subject shall be used.

(c) The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties.

(d) Break both ends of a ventilation smoke tube containing stannic chloride. Attach one end of the smoke tube to an aspirator squeeze bulb and cover the other end with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.

(d) Advise the test subject that the smoke can be irritating to the eyes and instruct the subject to keep his/her eyes closed while the test is performed.

(e) The test conductor shall direct the stream of irritant smoke from the smoke tube towards the face seal area of the test subject. He/She shall begin at least 12 inches from the facepiece and gradually move to within one inch, moving around the whole perimeter of the mask.

(f) The exercises identified in section A. 13 above shall be performed by the test subject while the respirator seal is being challenged by the smoke.

(g) Each test subject passing the smoke test without evidence of a response (involuntary cough) shall be given a sensitivity check of the smoke from the same tube once the respirator has been removed to determine whether he/she reacts to the smoke. Failure to evoke a response shall void the fit test.

(h) The fit test shall be performed in a location with exhaust ventilation sufficient to prevent general contamination of the testing area by the test agent.

C. Quantitative Fit Test (QNFT) Protocols

The following quantitative fit testing procedures have been demonstrated to be acceptable.

(1) Quantitative fit testing using a non-hazardous challenge aerosol (such as corn oil or sodium chloride) generated in a test chamber, and employing instrumentation to quantify the fit of the respirator.

(2) Quantitative fit testing using ambient aerosol as the challenge agent and appropriate instrumentation (condensation nuclei counter) to quantify the respirator fit.

(3) Quantitative fit testing using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a facepiece to quantify the respirator fit.

1. General

(a) The employer shall assign specific individuals who shall assume full responsibility for implementing the respirator quantitative fit test program.

(b) The employer shall ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and assure that test equipment is in proper working order.

(c) The employer shall assure that QNFT equipment is kept clean, maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

2. Generated aerosol quantitative fit testing protocol Apparatus

(a) Instrumentation. Aerosol generation, dilution, and measurement systems using particulates (corn oil or sodium chloride) or gases or vapors as test aerosols shall be used for quantitative fit testing.

(b) Test chamber. The test chamber shall be large enough to permit all test subjects to perform freely all required exercises without disturbing the challenge agent concentration or the measurement apparatus. The test chamber shall be equipped and constructed so that the challenge agent is effectively isolated from the ambient air, yet uniform in concentration throughout the chamber.

(c) When testing air-purifying respirators, the normal filter or cartridge element shall be replaced with a high-efficiency particulate air (HEPA) filter supplied by the same manufacturer in the case of particulate QNFT aerosols or a sorbent offering contaminant penetration protection equivalent to high-efficiency filters where the QNFT test agent is a gas or vapor.

(d) The sampling instrument shall be selected so that a computer record or strip chart record may be made of the test showing the rise and fall of the challenge agent concentration with each inspiration and expiration at fit factors of at least 2,000. Integrators or computers which integrate the amount of test agent penetration leakage into the respirator for each exercise may be used provided a record of the readings is made.

(e) The combination of substitute air-purifying elements, challenge agent and challenge agent concentration shall be such that the test subject is not exposed in excess of an established exposure limit for the challenge agent at any time during the testing process based upon the length of the exposure and the exposure limit duration.

(f) The sampling port on the test specimen respirator shall be placed and constructed so that no leakage occurs around the port (e.g. where the respirator is probed), a free air flow is allowed into the sampling line at all times and so that there is no interference with the fit or performance of the respirator. The in-mask sampling device (probe) shall be designed and used so that the air sample is drawn from the breathing zone of the test subject, midway between the nose and mouth and with the probe extending into the facepiece cavity at least 1/4 inch.

(g) The test set up shall permit the person administering the test to observe the test subject inside the chamber during the test.

(h) The equipment generating the challenge atmosphere shall maintain the concentration of challenge agent constant to within a 10 percent variation for the duration of the test.

(i) The time lag (interval between an event and the recording of the event on the strip chart or computer or integrator) shall be kept to a minimum. There shall be a

clear association between the occurrence of an event and its being recorded.

(j) The sampling line tubing for the test chamber atmosphere and for the respirator sampling port shall be of equal diameter and of the same material. The length of the two lines shall be equal.

(k) The exhaust flow from the test chamber shall pass through a high-efficiency filter before release.

(l) When sodium chloride aerosol is used, the relative humidity inside the test chamber shall not exceed 50 percent.

(m) The limitations of instrument detection shall be taken into account when determining the fit factor.

(n) Test respirators shall be maintained in proper working order and inspected for deficiencies such as cracks, missing valves and gaskets, etc.

3. Procedural Requirements

(a) When performing the initial positive or negative pressure fit check the sampling line shall be crimped closed in order to avoid air pressure leakage during either of these fit checks.

(b) The use of an abbreviated screening QLFT test is optional and may be utilized in order to quickly identify poor fitting respirators which passed the positive and/or negative pressure test and thus reduce the amount of QNFT time. The use of the CNC QNFT instrument in the count mode is another optional method to use to obtain a quick estimate of fit and eliminate poor fitting respirators before going on to perform a full QNFT.

(c) A reasonably stable challenge agent concentration shall be measured in the test chamber prior to testing. For canopy or shower curtain type of test units the determination of the challenge agent stability may be established after the test subject has entered the test environment.

(d) Immediately after the subject enters the test chamber, the challenge agent concentration inside the respirator shall be measured to ensure that the peak penetration does not exceed 5 percent for a half mask or 1 percent for a full facepiece respirator.

(e) A stable challenge concentration shall be obtained prior to the actual start of testing.

(f) Respirator restraining straps shall not be over tightened for testing. The straps shall be adjusted by the wearer without assistance from other persons to give a reasonably comfortable fit typical of normal use.

(g) The test shall be terminated whenever any single peak penetration exceeds 5 percent for half masks and 1 percent for full facepiece respirators. The test subject shall be refitted and retested.

(h) Calculation of fit factors.

(1) The fit factor shall be determined for the quantitative fit test by taking the ratio of the average chamber concentration to the concentration measured inside the respirator for each test exercise except the grimace exercise.

(2) The average test chamber concentration shall be calculated as the arithmetic average of the concentration measured before and after each test (i.e. 8 exercises) or the arithmetic average of the concentration measured before and after each exercise or the true average measured continuously during the respirator sample.

(3) The concentration of the challenge agent inside the respirator shall be determined by one of the following methods:

(i) Average peak penetration method means the method of determining test agent penetration into the respirator utilizing a strip chart recorder, integrator, or computer. The agent penetration is determined by an average of the peak heights on the graph or by computer integration, for each exercise except the grimace exercise. Integrators or computers which calculate the actual test agent penetration into the respirator for each exercise will also be considered to meet the requirements of the average peak penetration method.

(ii) Maximum peak penetration method means the method of determining test agent penetration in the respirator as determined by strip chart recordings of the test. The highest peak penetration for a given exercise is taken to be representative of average penetration into the respirator for that exercise.

(iii) Integration by calculation of the area under the individual peak for each exercise except the grimace exercise. This includes computerized integration.

(iv) The calculation of the overall fit factor using individual exercise fit factors involves first converting the exercise fit factors to penetration values, determining the average, and then converting that result back to a fit factor. This procedure is described in the following equation:

$$\text{Overall Fit Factor} = \frac{\text{Number of exercises}}{1/ff(1)+1/ff(2)+1/ff(3)+1/ff(4)+1/ff(5)+1/ff(7)+1/ff(8)}$$

where ff(1), ff(2), ff(3), etc. are the fit factors for exercise 1,2,3, etc. (Results of the grimace exercise (7) are not used in this calculation.)

(j) The test subject shall not be permitted to wear a half mask or quarter facepiece respirator unless a minimum fit factor of 100 is obtained, or a full facepiece respirator unless a minimum fit factor of 500 is obtained.

(k) Filters used for quantitative fit testing shall be replaced whenever increased breathing resistance is encountered, or when the test agent has altered the integrity of the filter media. Organic vapor cartridges/canisters shall be replaced if there is any indication of breakthrough by a test agent.

4. Ambient aerosol condensation nuclei counter (CNC) quantitative fit testing protocol

The ambient aerosol condensation nuclei counter (CNC) quantitative fit testing (Portacount(TM)) protocol quantitatively fit tests respirators with the use of a probe. The probed respirator is only used for quantitative fit tests. A probed respirator has a special sampling device, installed on the respirator, that allows the probe to sample the air from inside the mask. A probed respirator is required for each make, model, and size in which your company requires and can be obtained from the respirator manufacturer or distributor. The CNC instrument manufacturer Dynatech Nevada also provides probe attachments (TSI sampling adapters) that permits fit testing in an employee's own respirator. A fit factor pass level of 100 is necessary for a half-mask respirator and a fit factor of at least 10 times greater than the assigned protection factor for any other negative pressure respirator. The Agency does not recommend the use of homemade sampling adapters. The entire screening and

testing procedure shall be explained to the test subject prior to the conduct of the screening test.

(a) Portacount Fit Test Requirements.

(1) Check the respirator to make sure the respirator is fitted with a high efficiency filter and that the sampling probe and line are properly attached to the facepiece.

(2) Instruct the person to be tested to don the respirator several minutes before the fit test starts. This purges the particles inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual should have already been trained on how to wear the respirator properly.

(3) Check the following conditions for the adequacy of the respirator fit: Chin properly placed; Adequate strap tension, not overly tightened; Fit across nose bridge; Respirator of proper size to span distance from nose to chin; Tendencies for the respirator to slip; Self-observation in a mirror to evaluate fit and respirator position.

(4) Have the person wearing the respirator do a fit check. If leakage is detected, determine the cause. If leakage is from a poorly fitting facepiece, try another size of the same type of respirator.

(5) Follow the instructions for operating the Portacount and proceed with the test.

(b) Portacount Test Exercises.

(1) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally for 1 minute.

(2) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply for 1 minute, taking caution so as too not hyperventilate.

(3) Turning head side to side. Standing in place, the subject shall slowly turn his or her head from side to side between the extreme positions on each side for 1 minute. The head shall be held at each extreme momentarily so the subject can inhale at each side.

(4) Moving head up and down. Standing in place, the subject shall slowly move his or her head up and down for 1 minute. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).

(5) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song for 1 minute.

(6) Grimace. The test subject shall grimace by smiling or frowning for 15 seconds.

(7) Bending Over. The test subject shall bend at the waist as if he or she were to touch his or her toes for 1 minute. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT units which prohibit bending at the waist.

(8) Normal Breathing. Remove and re-don the respirator within a one-minute period. Then, in a normal standing position, without talking, the subject shall breathe normally for 1 minute.

After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become uncomfortable, another model of respirator shall be tried.

(c) Portacount Test Instrument.

(1) The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over.

(2) A record of the test needs to be kept on file assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model and size of respirator used, and date tested.

APPENDIX F, MEDICAL QUESTIONNAIRES, (Non-mandatory)

1,3-Butadiene (BD) Initial Health Questionnaire

DIRECTIONS:

You have been asked to answer the questions on this form because you work with BD (butadiene). These questions are about your work, medical history, and health concerns. Please do your best to answer all of the questions. If you need help, please tell the doctor or health care professional who reviews this form.

This form is a confidential medical record. Only information directly related to your health and safety on the job may be given to your employer. Personal health information will not be given to anyone without your consent.

Date: _____

Name: _____ SSN ____/____/____
Last First MI

Job Title: _____

Company's Name: _____

Supervisor's Name: _____

Supervisor's Phone No.: () ____-____

Work History

1. Please list all jobs you have had in the past, starting with the job you have now and moving back in time to your first job. (For more space, write on the back of this page.)

Main Job Duty
Year
Company Name
City, State

Chemicals

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

2. Please describe what you do during a typical work day. Be sure to tell about your work with BD.

3. Please check any of these chemicals that you work with now or have worked with in the past:

- benzene
- glues
- toluene
- inks, dyes
- other solvents, grease cutters
- insecticides (like DDT, lindane, etc.)
- paints, varnishes, thinners, strippers
- dusts
- carbon tetrachloride ("carbon tet")
- arsine
- carbon disulfide
- lead
- cement
- petroleum products
- nitrites

4. Please check the protective clothing or equipment you use at the job you have now:

- gloves
- coveralls
- respirator
- dust mask
- safety glasses, goggles

Please circle your answer.

5. Does your protective clothing or equipment fit you properly? yes no

6. Have you ever made changes in your protective clothing or equipment to make it fit better? yes no

7. Have you been exposed to BD when you were not wearing protective clothing or equipment? yes no

8. Where do you eat, drink and/or smoke when you are at work? (Please check all that apply.)

- Cafeteria/restaurant/snack bar
- Break room/employee lounge
- Smoking lounge
- At my work station

Please circle your answer.

9. Have you been exposed to radiation (like x-rays or nuclear material) at the job you have now or at past jobs? yes no

10. Do you have any hobbies that expose you to dusts or chemicals (including paints, glues, etc.)? yes no

11. Do you have any second or side jobs? yes no
If yes, what are your duties there?

12. Were you in the military? yes no
If yes, what did you do in the military? _____

Family Health History

1. In the FAMILY MEMBER column, across from the disease name, write which family member, if any, had the disease.

- | DISEASE | FAMILY MEMBER |
|------------------------------|---------------|
| Cancer | |
| Lymphoma | |
| Sickle Cell Disease or Trait | |
| Immune Disease | |
| Leukemia | |
| Anemia | |

2. Please fill in the following information about family health

- Relative Alive? _____
- Age at Death? _____
- Cause of Death? _____
- Father _____
- Mother _____
- Brother/Sister _____
- Brother/Sister _____
- Brother/Sister _____
- Personal Health History _____
- Birth Date ___/___/___ Age ___ Sex ___ Height ___
- Weight ___

Please circle your answer.

1. Do you smoke any tobacco products? yes no

2. Have you ever had any kind of surgery or operation? yes no

If yes, what type of surgery:

3. Have you ever been in the hospital for any other reasons? yes no

If yes, please describe the reason _____

4. Do you have any on-going or current medical problems or conditions? yes no

If yes, please describe: _____

5. Do you now have or have you ever had any of the following? Please check all that apply to you.

- unexplained fever
- anemia ("low blood")
- HIV/AIDS
- weakness
- sickle cell
- miscarriage
- skin rash
- bloody stools
- leukemia/lymphoma
- neck mass/swelling

- wheezing _____
- yellowing of skin _____
- bruising easily _____
- lupus _____
- weight loss _____
- kidney problems _____
- enlarged lymph nodes _____
- liver disease _____
- cancer _____
- infertility _____
- drinking problems _____
- thyroid problems _____
- night sweats _____
- chest pain _____
- still birth _____
- eye redness _____
- lumps you can feel _____
- child with birth defect _____
- autoimmune disease _____
- overly tired _____
- lung problems _____
- rheumatoid arthritis _____
- mononucleosis ("mono") _____
- nagging cough _____

Please circle your answer.

6. Do you have any symptoms or health problems that you think may be related to your work with BD? yes no

If yes, please describe: _____

7. Have any of your co-workers had similar symptoms or problems? yes no don't know

If yes, please describe: _____

8. Do you notice any irritation of your eyes, nose, throat, lungs, or skin when working with BD? yes no

9. Do you notice any blurred vision, coughing, drowsiness, nausea, or headache when working with BD? yes no

10. Do you take any medications (including birth control or over-the-counter)? yes no

If yes, please list: _____

11. Are you allergic to any medication, food, or chemicals? yes no

If yes, please list: _____

12. Do you have any health conditions not covered by this questionnaire that you think are affected by your work with BD? yes no

If yes, please explain: _____

13. Did you understand all the questions? yes no

Signature _____

1,3-Butadiene (BD) Health Update Questionnaire

DIRECTIONS:

You have been asked to answer the questions on this form because you work with BD (butadiene). These questions are about your work, medical history, and health concerns. Please do your best to answer all of the questions. If you need help, please tell the doctor or health care professional who reviews this form.

This form is a confidential medical record. Only information directly related to your health and safety on the job may be given to your employer. Personal health information will not be given to anyone without your consent.

Date: _____

Name: _____ SSN / /
Last First MI

Job Title: _____

Company's Name: _____

Supervisor's Name: _____

Supervisor's Phone No.: () _____

1. Please describe any NEW duties that you have at your job. _____

2. Please describe any additional job duties you have:

Please circle your answer.

3. Are you exposed to any other chemicals in your work since the last time you were evaluated for exposure to BD? yes no

If yes, please list what they are: _____

4. Does your personal protective equipment and clothing fit you properly? yes no

5. Have you made changes in this equipment or clothing to make it fit better? yes no

6. Have you been exposed to BD when you were not wearing protective clothing or equipment? yes no

7. Are you exposed to any NEW chemicals at home or while working on hobbies? yes no

If yes, please list what they are: _____

8. Since your last BD health evaluation, have you started working any new second or side jobs? yes no

If yes, what are your duties there? _____

Personal Health History

- 1. What is your current weight? _____ pounds
- 2. Have you been diagnosed with any new medical conditions or illness since your last evaluation? yes no

If yes, please tell what they are: _____

- 3. Since your last evaluation, have you been in the hospital for any illnesses, injuries, or surgery? yes no

If yes, please describe: _____

- 4. Do you have any of the following? Please place a check for all that apply to you.

- unexplained fever _____
- anemia ("low blood") _____
- HIV/AIDS _____
- weakness _____
- sickle cell _____
- miscarriage _____
- skin rash _____
- bloody stools _____
- leukemia/lymphoma _____
- neck mass/swelling _____
- wheezing _____
- yellowing of skin _____
- bruising easily _____
- lupus _____
- weight loss _____
- kidney problems _____
- enlarged lymph nodes _____
- liver disease _____
- cancer _____
- infertility _____
- drinking problems _____
- thyroid problems _____
- night sweats _____
- chest pain _____
- still birth _____
- eye redness _____
- lumps you can feel _____
- child with birth defect _____
- autoimmune disease _____
- overly tired _____
- lung problems _____
- rheumatoid arthritis _____
- mononucleosis ("mono") _____
- nagging cough _____

Please circle your answer.

- 5. Do you have any symptoms or health problems that you think may be related to your work with BD? yes no

If yes, please describe: _____

- 6. Have any of your co-workers had similar symptoms or problems? yes no don't know

If yes, please describe: _____

- 7. Do you notice any irritation of your eyes, nose, throat, lungs, or skin when working with BD? yes no

- 8. Do you notice any blurred vision, coughing, drowsiness, nausea, or headache when working with BD? yes no

- 9. Have you been taking any NEW medications (including birth control or over-the-counter)? yes no

If yes, please list:

- 10. Have you developed any new allergies to medications, foods, or chemicals? yes no

If yes, please list:

- 11. Do you have any health conditions not covered by this questionnaire that you think are affected by your work with BD? yes no

If yes, please explain: _____

- 12. Do you understand all the questions? yes no

Signature _____

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07460, filed 9/5/97, effective 11/5/97.]

WAC 296-62-07470 Methylene chloride. This occupational health standard establishes requirements for employers to control occupational exposure to methylene chloride (MC). Employees exposed to MC are at increased risk of developing cancer, adverse effects on the heart, central nervous system and liver, and skin or eye irritation. Exposure may occur through inhalation, by absorption through the skin, or through contact with the skin. MC is a solvent which is used in many different types of work activities, such as paint stripping, polyurethane foam manufacturing, and cleaning and degreasing. Under the requirements of subsection (4) of this section, each covered employer must make an initial determination of each employee's exposure to MC. If the employer determines that employees are exposed below the action level, the only other provisions of this section that apply are that a record must be made of the determination, the employees must receive information and training under subsection (12) of this section and, where appropriate, employees must be protected from contact with liquid MC under subsection (8) of this section.

The provisions of the MC standard are as follows:

(1) Scope and application. This section applies to all occupational exposures to methylene chloride (MC), Chemical Abstracts Service Registry Number 75-09-2, in general industry, construction and shipyard employment.

(2) Definitions. For the purposes of this section, the following definitions shall apply:

"Action level" means a concentration of airborne MC of 12.5 parts per million (ppm) calculated as an eight (8)-hour time-weighted average (TWA).

"Authorized person" means any person specifically authorized by the employer and required by work duties to be present in regulated areas, or any person entering such an

area as a designated representative of employees for the purpose of exercising the right to observe monitoring and measuring procedures under subsection (4) of this section, or any other person authorized by the WISH Act or regulations issued under the act.

"Director" means the director of the department of labor and industries, or designee.

"Emergency" means any occurrence, such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment, which results, or is likely to result in an uncontrolled release of MC. If an incidental release of MC can be controlled by employees such as maintenance personnel at the time of release and in accordance with the leak/spill provisions required by subsection (6) of this section, it is not considered an emergency as defined by this standard.

"Employee exposure" means exposure to airborne MC which occurs or would occur if the employee were not using respiratory protection.

"Methylene chloride (MC)" means an organic compound with chemical formula, CH₂Cl₂. Its Chemical Abstracts Service Registry Number is 75-09-2. Its molecular weight is 84.9 g/mole.

"Physician or other licensed health care professional" is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the health care services required by subsection (10) of this section.

"Regulated area" means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of MC exceeds or can reasonably be expected to exceed either the 8-hour TWA PEL or the STEL.

"Symptom" means central nervous system effects such as headaches, disorientation, dizziness, fatigue, and decreased attention span; skin effects such as chapping, erythema, cracked skin, or skin burns; and cardiac effects such as chest pain or shortness of breath.

"This section" means this methylene chloride standard.

(3) Permissible exposure limits (PELs).

(a) Eight-hour time-weighted average (TWA) PEL. The employer shall ensure that no employee is exposed to an airborne concentration of MC in excess of twenty-five parts of MC per million parts of air (25 ppm) as an 8-hour TWA.

(b) Short-term exposure limit (STEL). The employer shall ensure that no employee is exposed to an airborne concentration of MC in excess of one hundred and twenty-five parts of MC per million parts of air (125 ppm) as determined over a sampling period of fifteen minutes.

(4) Exposure monitoring.

(a) Characterization of employee exposure.

(i) Where MC is present in the workplace, the employer shall determine each employee's exposure by either:

(A) Taking a personal breathing zone air sample of each employee's exposure; or

(B) Taking personal breathing zone air samples that are representative of each employee's exposure.

(ii) Representative samples. The employer may consider personal breathing zone air samples to be representative of employee exposures when they are taken as follows:

(A) 8-hour TWA PEL. The employer has taken one or more personal breathing zone air samples for at least one

employee in each job classification in a work area during every work shift, and the employee sampled is expected to have the highest MC exposure.

(B) Short-term exposure limits. The employer has taken one or more personal breathing zone air samples which indicate the highest likely 15-minute exposures during such operations for at least one employee in each job classification in the work area during every work shift, and the employee sampled is expected to have the highest MC exposure.

(C) Exception. Personal breathing zone air samples taken during one work shift may be used to represent employee exposures on other work shifts where the employer can document that the tasks performed and conditions in the workplace are similar across shifts.

(iii) Accuracy of monitoring. The employer shall ensure that the methods used to perform exposure monitoring produce results that are accurate to a confidence level of 95 percent, and are:

(A) Within plus or minus 25 percent for airborne concentrations of MC above the 8-hour TWA PEL or the STEL; or

(B) Within plus or minus 35 percent for airborne concentrations of MC at or above the action level but at or below the 8-hour TWA PEL.

(b) Initial determination. Each employer whose employees are exposed to MC shall perform initial exposure monitoring to determine each affected employee's exposure, except under the following conditions:

(i) Where objective data demonstrate that MC cannot be released in the workplace in airborne concentrations at or above the action level or above the STEL. The objective data shall represent the highest MC exposures likely to occur under reasonably foreseeable conditions of processing, use, or handling. The employer shall document the objective data exemption as specified in subsection (13) of this section;

(ii) Where the employer has performed exposure monitoring within 12 months prior to December 1, and that exposure monitoring meets all other requirements of this section, and was conducted under conditions substantially equivalent to existing conditions; or

(iii) Where employees are exposed to MC on fewer than 30 days per year (e.g., on a construction site), and the employer has measurements by direct reading instruments which give immediate results (such as a detector tube) and which provide sufficient information regarding employee exposures to determine what control measures are necessary to reduce exposures to acceptable levels.

(c) Periodic monitoring. Where the initial determination shows employee exposures at or above the action level or above the STEL, the employer shall establish an exposure monitoring program for periodic monitoring of employee exposure to MC in accordance with Table 1:

Table 1
Six Initial Determination Exposure Scenarios and Their Associated Monitoring Frequencies

Exposure scenario

Required monitoring activity

Below the action level and at or below the STEL.

No 8-hour TWA or STEL monitoring required.

Below the action level and above the STEL.

No 8-hour TWA monitoring required; monitor STEL exposures every three months.

At or above the action level, at or below the TWA, and at or below the STEL.

Monitor 8-hour TWA exposures every six months.

At or above the action level, at or below the TWA, and above the STEL.

Monitor 8-hour TWA exposures every six months and monitor STEL exposures every three months.

Above the TWA and at or below the STEL.

Monitor 8-hour TWA exposures every three months.

Above the TWA and above the STEL.

Monitor both 8-hour TWA exposures and STEL exposures every three months.

(Note to subsection (3)(c) of this section: The employer may decrease the frequency of exposure monitoring to every six months when at least 2 consecutive measurements taken at least 7 days apart show exposures to be at or below the 8-hour TWA PEL. The employer may discontinue the periodic 8-hour TWA monitoring for employees where at least two consecutive measurements taken at least 7 days apart are below the action level. The employer may discontinue the periodic STEL monitoring for employees where at least two consecutive measurements taken at least 7 days apart are at or below the STEL.)

(d) Additional monitoring.

(i) The employer shall perform exposure monitoring when a change in workplace conditions indicates that employee exposure may have increased. Examples of situations that may require additional monitoring include changes in production, process, control equipment, or work practices, or a leak, rupture, or other breakdown.

(ii) Where exposure monitoring is performed due to a spill, leak, rupture or equipment breakdown, the employer shall clean up the MC and perform the appropriate repairs before monitoring.

(e) Employee notification of monitoring results.

(i) The employer shall, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results in writing, either individually or by posting of results in an appropriate location that is accessible to affected employees.

(ii) Whenever monitoring results indicate that employee exposure is above the 8-hour TWA PEL or the STEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the 8-hour TWA PEL or STEL and the schedule for completion of this action.

(f) Observation of monitoring.

(i) Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to MC conducted in accordance with this section.

(ii) Observation procedures. When observation of the monitoring of employee exposure to MC requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide, at no cost to the observer(s), and the observer(s) shall be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

(5) Regulated areas.

(a) The employer shall establish a regulated area wherever an employee's exposure to airborne concentrations of MC exceeds or can reasonably be expected to exceed either the 8-hour TWA PEL or the STEL.

(b) The employer shall limit access to regulated areas to authorized persons.

(c) The employer shall supply a respirator, selected in accordance with subsection (7)(c) of this section, to each person who enters a regulated area and shall require each affected employee to use that respirator whenever MC exposures are likely to exceed the 8-hour TWA PEL or STEL.

(Note to subsection (5)(c) of this section: An employer who has implemented all feasible engineering, work practice and administrative controls (as required in subsection (6) of this section), and who has established a regulated area (as required by subsection (5)(a) of this section) where MC exposure can be reliably predicted to exceed the 8-hour TWA PEL or the STEL only on certain days (for example, because of work or process schedule) would need to have affected employees use respirators in that regulated area only on those days.)

(d) The employer shall ensure that, within a regulated area, employees do not engage in nonwork activities which may increase dermal or oral MC exposure.

(e) The employer shall ensure that while employees are wearing respirators, they do not engage in activities (such as taking medication or chewing gum or tobacco) which interfere with respirator seal or performance.

(f) The employer shall demarcate regulated areas from the rest of the workplace in any manner that adequately establishes and alerts employees to the boundaries of the

area and minimizes the number of authorized employees exposed to MC within the regulated area.

(g) An employer at a multi-employer worksite who establishes a regulated area shall communicate the access restrictions and locations of these areas to all other employees with work operations at that worksite.

(6) Methods of compliance.

(a) Engineering and work practice controls. The employer shall institute and maintain the effectiveness of engineering controls and work practices to reduce employee exposure to or below the PELs except to the extent that the employer can demonstrate that such controls are not feasible.

(b) Wherever the feasible engineering controls and work practices which can be instituted are not sufficient to reduce employee exposure to or below the 8-TWA PEL or STEL, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of subsection (7) of this section.

(c) Prohibition of rotation. The employer shall not implement a schedule of employee rotation as a means of compliance with the PELs.

(d) Leak and spill detection.

(i) The employer shall implement procedures to detect leaks of MC in the workplace. In work areas where spills may occur, the employer shall make provisions to contain any spills and to safely dispose of any MC-contaminated waste materials.

(ii) The employer shall ensure that all incidental leaks are repaired and that incidental spills are cleaned promptly by employees who use the appropriate personal protective equipment and are trained in proper methods of cleanup.

(Note to subsection (6)(d)(ii) of this section: See Appendix A of this section for examples of procedures that satisfy this requirement. Employers covered by this standard may also be subject to the hazardous waste and emergency response provisions contained in WAC 296-62-3112.)

(7) Respiratory protection.

(a) General requirements. The employer shall provide a respirator which complies with the requirement of this

subsection, at no cost to each affected employee, and ensure that each affected employee uses such respirator where appropriate. Respirators shall be used in the following circumstances:

(i) Whenever an employee's exposure to MC exceeds or can reasonably be expected to exceed the 8-hour TWA PEL or the STEL (such as where an employee is using MC in a regulated area);

(ii) During the time interval necessary to install or implement feasible engineering and work practice controls;

(iii) In a few work operations, such as some maintenance operations and repair activities, for which the employer demonstrates that engineering and work practice controls are infeasible;

(iv) Where feasible engineering and work practice controls are not sufficient to reduce exposures to or below the PELs; or

(v) In emergencies.

(b) Medical evaluation. Before having any employee use a supplied-air respirator in the negative pressure mode, or a gas mask with organic vapor canister for emergency escape, the employer shall have a physician or other licensed health care professional ascertain each affected employee's ability to use such respiratory protection. The physician or other licensed health care professional shall provide his or her findings to the affected employee and the employer in a written opinion.

(Note to subsection (7)(b) of this section: See also WAC 296-62-07109(3) - Respiratory Protection for medical evaluation requirements for employees using respirators for purposes other than emergency escape.)

(c) Respirator selection. The appropriate atmosphere-supplying respirators, as specified in Table 2, shall be selected from those approved by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 42 CFR Part 84, "Respiratory Protective Devices." When employers elect to provide gas masks with organic vapor canisters for use in emergency escape, the organic vapor canisters shall bear the approval of NIOSH.

Table 2.—Minimum Requirements for Respiratory Protection for Airborne Methylene Chloride

Methylene chloride airborne concentration (ppm) or condition of use	Minimum respirator required ¹
Up to 625 ppm (25 X PEL)	(1) Continuous flow supplied-air respirator, hood or helmet.
Up to 1250 ppm (50 X 8 hr TWA PEL)	(1) Full facepiece supplied-air respirator operated in negative pressure (demand) mode. (2) Full facepiece self-contained breathing apparatus (SCBA) operated in negative pressure (demand) mode.
Up to 5000 ppm (200 X 8-TWA PEL)	(1) Continuous flow supplied-air respirator, full facepiece. (2) Pressure demand supplied-air respirator, full facepiece. (3) Positive pressure full facepiece SCBA.

Unknown concentration, or above 5000 ppm
(Greater than 200 X 8-TWA PEL)

Fire fighting

Emergency escape

(1) Positive pressure full facepiece SCBA.
(2) Full facepiece pressure demand supplied-air respirator with an auxiliary self-contained air supply.

Positive pressure full facepiece SCBA.

(1) Any continuous flow or pressure demand SCBA.
(2) Gas mask with organic vapor canister.

¹ Respirators assigned for higher airborne concentrations may be used at lower concentrations.

(d) Respirator program. Where respiratory protection is required by this section, the employer shall institute a respirator program in accordance with WAC 296-62-071.

(e) Permission to leave area. The employer shall permit employees who wear respirators to leave the regulated area to readjust the facepieces to their faces to achieve a proper fit, and to wash their faces and respirator facepieces as necessary in order to prevent skin irritation associated with respirator use.

(f) Filter respirators. Employers who provide gas masks with organic vapor canisters for the purpose of emergency escape shall replace those canisters after any emergency use before those gas masks are returned to service.

(g) Respirator fit testing.

(i) The employer shall ensure that each respirator issued to the employee is properly fitted and exhibits the least possible facepiece leakage from among the facepieces tested.

(ii) The employer shall perform qualitative or quantitative fit tests at the time of initial fitting and at least annually thereafter for each employee wearing a negative pressure respirator, including those employees for whom emergency escape respirators are provided.

(Note to subsection (7)(g)(ii) of this section: The only supplied-air respirators to which this provision would apply are SCBA in negative pressure mode and full facepiece supplied-air respirators operated in negative pressure mode. The small business compliance guides will contain examples of protocols for qualitative and quantitative fit testing.)

(8) Protective work clothing and equipment.

(a) Where needed to prevent MC- induced skin or eye irritation, the employer shall provide clean protective clothing and equipment which is resistant to MC, at no cost to the employee, and shall ensure that each affected employee uses it. Eye and face protection shall meet the requirements of WAC 296-24-078, as applicable.

(b) The employer shall clean, launder, repair and replace all protective clothing and equipment required by this subsection as needed to maintain their effectiveness.

(c) The employer shall be responsible for the safe disposal of such clothing and equipment.

(Note to subsection (8)(c) of this section: See Appendix A for examples of disposal procedures that will satisfy this requirement.)

(9) Hygiene facilities.

(a) If it is reasonably foreseeable that employees' skin may contact solutions containing 0.1 percent or greater MC (for example, through splashes, spills or improper work practices), the employer shall provide conveniently located

washing facilities capable of removing the MC, and shall ensure that affected employees use these facilities as needed.

(b) If it is reasonably foreseeable that an employee's eyes may contact solutions containing 0.1 percent or greater MC (for example through splashes, spills or improper work practices), the employer shall provide appropriate eyewash facilities within the immediate work area for emergency use, and shall ensure that affected employees use those facilities when necessary.

(10) Medical surveillance.

(a) Affected employees. The employer shall make medical surveillance available for employees who are or may be exposed to MC as follows:

(i) At or above the action level on 30 or more days per year, or above the 8-hour TWA PEL or the STEL on 10 or more days per year;

(ii) Above the 8-TWA PEL or STEL for any time period where an employee has been identified by a physician or other licensed health care professional as being at risk from cardiac disease or from some other serious MC-related health condition and such employee requests inclusion in the medical surveillance program;

(iii) During an emergency.

(b) Costs. The employer shall provide all required medical surveillance at no cost to affected employees, without loss of pay and at a reasonable time and place.

(c) Medical personnel. The employer shall ensure that all medical surveillance procedures are performed by a physician or other licensed health care professional, as defined in subsection (2) of this section.

(d) Frequency of medical surveillance. The employer shall make medical surveillance available to each affected employee as follows:

(i) Initial surveillance. The employer shall provide initial medical surveillance under the schedule provided by subsection (14)(b)(iii) of this section, or before the time of initial assignment of the employee, whichever is later. The employer need not provide the initial surveillance if medical records show that an affected employee has been provided with medical surveillance that complies with this section within 12 months before December 1.

(ii) Periodic medical surveillance. The employer shall update the medical and work history for each affected employee annually. The employer shall provide periodic physical examinations, including appropriate laboratory surveillance, as follows:

(A) For employees 45 years of age or older, within 12 months of the initial surveillance or any subsequent medical surveillance; and

(B) For employees younger than 45 years of age, within 36 months of the initial surveillance or any subsequent medical surveillance.

(iii) Termination of employment or reassignment. When an employee leaves the employer's workplace, or is reassigned to an area where exposure to MC is consistently at or below the action level and STEL, medical surveillance shall be made available if six months or more have elapsed since the last medical surveillance.

(iv) Additional surveillance. The employer shall provide additional medical surveillance at frequencies other than those listed above when recommended in the written medical opinion. (For example, the physician or other licensed health care professional may determine an examination is warranted in less than 36 months for employees younger than 45 years of age based upon evaluation of the results of the annual medical and work history.)

(e) Content of medical surveillance.

(i) Medical and work history. The comprehensive medical and work history shall emphasize neurological symptoms, skin conditions, history of hematologic or liver disease, signs or symptoms suggestive of heart disease (angina, coronary artery disease), risk factors for cardiac disease, MC exposures, and work practices and personal protective equipment used during such exposures.

(Note to subsection (10)(e)(i) of this section: See Appendix B of this section for an example of a medical and work history format that would satisfy this requirement.)

(ii) Physical examination. Where physical examinations are provided as required above, the physician or other licensed health care professional shall accord particular attention to the lungs, cardiovascular system (including blood pressure and pulse), liver, nervous system, and skin. The physician or other licensed health care professional shall determine the extent and nature of the physical examination based on the health status of the employee and analysis of the medical and work history.

(iii) Laboratory surveillance. The physician or other licensed health care professional shall determine the extent of any required laboratory surveillance based on the employee's observed health status and the medical and work history.

(Note to subsection (10)(e)(iii) of this section: See Appendix B of this section for information regarding medical tests. Laboratory surveillance may include before-and after-shift carboxyhemoglobin determinations, resting ECG, hematocrit, liver function tests and cholesterol levels.)

(iv) Other information or reports. The medical surveillance shall also include any other information or reports the physician or other licensed health care professional determines are necessary to assess the employee's health in relation to MC exposure.

(f) Content of emergency medical surveillance. The employer shall ensure that medical surveillance made available when an employee has been exposed to MC in emergency situations includes, at a minimum:

(i) Appropriate emergency treatment and decontamination of the exposed employee;

(ii) Comprehensive physical examination with special emphasis on the nervous system, cardiovascular system, lungs, liver and skin, including blood pressure and pulse;

(iii) Updated medical and work history, as appropriate for the medical condition of the employee; and

(iv) Laboratory surveillance, as indicated by the employee's health status.

(Note to subsection (10)(f)(iv) of this section: See Appendix B for examples of tests which may be appropriate.)

(g) Additional examinations and referrals. Where the physician or other licensed health care professional determines it is necessary, the scope of the medical examination shall be expanded and the appropriate additional medical surveillance, such as referrals for consultation or examination, shall be provided.

(h) Information provided to the physician or other licensed health care professional. The employer shall provide the following information to a physician or other licensed health care professional who is involved in the diagnosis of MC-induced health effects:

(i) A copy of this section including its applicable appendices;

(ii) A description of the affected employee's past, current and anticipated future duties as they relate to the employee's MC exposure;

(iii) The employee's former or current exposure levels or, for employees not yet occupationally exposed to MC, the employee's anticipated exposure levels and the frequency and exposure levels anticipated to be associated with emergencies;

(iv) A description of any personal protective equipment, such as respirators, used or to be used; and

(v) Information from previous employment-related medical surveillance of the affected employee which is not otherwise available to the physician or other licensed health care professional.

(i) Written medical opinions.

(i) For each physical examination required by this section, the employer shall ensure that the physician or other licensed health care professional provides to the employer and to the affected employee a written opinion regarding the results of that examination within 15 days of completion of the evaluation of medical and laboratory findings, but not more than 30 days after the examination. The written medical opinion shall be limited to the following information:

(A) The physician's or other licensed health care professional's opinion concerning whether the employee has any detected medical condition(s) which would place the employee's health at increased risk of material impairment from exposure to MC;

(B) Any recommended limitations upon the employee's exposure to MC or upon the employee's use of protective clothing or equipment and respirators;

(C) A statement that the employee has been informed by the physician or other licensed health care professional that MC is a potential occupational carcinogen, of risk factors for heart disease, and the potential for exacerbation of underlying heart disease by exposure to MC through its metabolism to carbon monoxide; and

(D) A statement that the employee has been informed by the physician or other licensed health care professional of the results of the medical examination and any medical

conditions resulting from MC exposure which require further explanation or treatment.

(ii) The employer shall instruct the physician or other licensed health care professional not to reveal to the employer, orally or in the written opinion, any specific records, findings, and diagnoses that have no bearing on occupational exposure to MC.

(Note to subsection (10)(h)(ii) of this section: The written medical opinion may also include information and opinions generated to comply with other OSHA health standards.)

(11) Hazard communication. The employer shall communicate the following hazards associated with MC on labels and in material safety data sheets in accordance with the requirements of the hazard communication standard, WAC 296-62-054: cancer, cardiac effects (including elevation of carboxyhemoglobin), central nervous system effects, liver effects, and skin and eye irritation.

(12) Employee information and training.

(a) The employer shall provide information and training for each affected employee prior to or at the time of initial assignment to a job involving potential exposure to MC.

(b) The employer shall ensure that information and training is presented in a manner that is understandable to the employees.

(c) In addition to the information required under the hazard communication standard at WAC 296-62-054:

(i) The employer shall inform each affected employee of the requirements of this section and information available in its appendices, as well as how to access or obtain a copy of it in the workplace;

(ii) Wherever an employee's exposure to airborne concentrations of MC exceeds or can reasonably be expected to exceed the action level, the employer shall inform each affected employee of the quantity, location, manner of use, release, and storage of MC and the specific operations in the workplace that could result in exposure to MC, particularly noting where exposures may be above the 8-hour TWA PEL or STEL;

(d) The employer shall train each affected employee as required under the hazard communication standard at WAC 296-62-054, as appropriate.

(e) The employer shall re-train each affected employee as necessary to ensure that each employee exposed above the action level or the STEL maintains the requisite understanding of the principles of safe use and handling of MC in the workplace.

(f) Whenever there are workplace changes, such as modifications of tasks or procedures or the institution of new tasks or procedures, which increase employee exposure, and where those exposures exceed or can reasonably be expected to exceed the action level, the employer shall update the training as necessary to ensure that each affected employee has the requisite proficiency.

(g) An employer whose employees are exposed to MC at a multi-employer worksite shall notify the other employers with work operations at that site in accordance with the requirements of the hazard communication standard, WAC 296-62-054, as appropriate.

(h) The employer shall provide to the director, upon request, all available materials relating to employee informa-

tion and training.

(13) Recordkeeping.

(a) Objective data.

(i) Where an employer seeks to demonstrate that initial monitoring is unnecessary through reasonable reliance on objective data showing that any materials in the workplace containing MC will not release MC at levels which exceed the action level or the STEL under foreseeable conditions of exposure, the employer shall establish and maintain an accurate record of the objective data relied upon in support of the exemption.

(ii) This record shall include at least the following information:

(A) The MC-containing material in question;

(B) The source of the objective data;

(C) The testing protocol, results of testing, and/or analysis of the material for the release of MC;

(D) A description of the operation exempted under subsection (4)(b)(i) of this section and how the data support the exemption; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(b) Exposure measurements.

(i) The employer shall establish and keep an accurate record of all measurements taken to monitor employee exposure to MC as prescribed in subsection (4) of this section.

(ii) Where the employer has 20 or more employees, this record shall include at least the following information:

(A) The date of measurement for each sample taken;

(B) The operation involving exposure to MC which is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and results of samples taken;

(E) Type of personal protective equipment, such as respiratory protective devices, worn, if any; and

(F) Name, Social Security number, job classification and exposure of all of the employees represented by monitoring, indicating which employees were actually monitored.

(iii) Where the employer has fewer than 20 employees, the record shall include at least the following information:

(A) The date of measurement for each sample taken;

(B) Number, duration, and results of samples taken; and

(C) Name, Social Security number, job classification and exposure of all of the employees represented by monitoring, indicating which employees were actually monitored.

(iv) The employer shall maintain this record for at least thirty (30) years, in accordance with WAC 296-62-052.

(c) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance under subsection (10) of this section.

(ii) The record shall include at least the following information:

(A) The name, Social Security number and description of the duties of the employee;

(B) Written medical opinions; and

(C) Any employee medical conditions related to exposure to MC.

(iii) The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with WAC 296-62-052.

(d) Availability.

(i) The employer, upon written request, shall make all records required to be maintained by this section available to the director for examination and copying in accordance with WAC 296-62-052.

(Note to subsection (13)(d)(i) of this section: All records required to be maintained by this section may be kept in the most administratively convenient form (for example, electronic or computer records would satisfy this requirement).)

(ii) The employer, upon request, shall make any employee exposure and objective data records required by this section available for examination and copying by affected employees, former employees, and designated representatives in accordance with WAC 296-62-052.

(iii) The employer, upon request, shall make employee medical records required to be kept by this section available for examination and copying by the subject employee and by anyone having the specific written consent of the subject employee in accordance with WAC 296-62-052.

(e) Transfer of records. The employer shall comply with the requirements concerning transfer of records set forth in WAC 296-62-05215.

(14) Dates.

(a) Effective date. This section shall become effective December 1, 1997.

(b) Start-up dates.

(i) Initial monitoring required by subsection (4)(b) of this section shall be completed according to the following schedule:

(A) For employers with fewer than 20 employees, no later than February 4, 1998.

(B) Immediately for all other employers.

(ii) Engineering controls required under subsection (6)(a) of this section shall be implemented according to the following schedule:

(A) For employers with fewer than 20 employees, no later than April 10, 2000.

(B) For polyurethane foam manufacturers with 20 to 99 employees, no later than April 10, 1999.

(C) For all other employers, no later than April 10, 1998.

(iii) All other requirements of this section shall be complied with according to the following schedule:

(A) For employers with fewer than 20 employees, no later than April 10, 1998.

(B) For polyurethane foam manufacturers with 20 to 99 employees, no later than January 5, 1998.

(C) For all other employers, on the effective date.

(c) Transitional dates. The exposure limits for MC specified in WAC 296-62-07515 Table 1, shall remain in effect until the start-up dates for the exposure limits specified in subsection (14) of this section, or if the exposure limits in this section are stayed or vacated.

(15) Appendices. The information contained in the appendices does not, by itself, create any additional obligations not otherwise imposed or detract from any existing

obligation.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 97-18-062, § 296-62-07470, filed 9/2/97, effective 12/1/97.]

WAC 296-62-07473 Appendix A. Substance Safety Data Sheet and Technical Guidelines for Methylene Chloride

I. Substance Identification

A. Substance: Methylene chloride (CH₂Cl₂).

B. Synonyms: MC, Dichloromethane (DCM); Methylene dichloride; Methylene bichloride; Methane dichloride; CAS: 75-09-2; NCI-C50102.

C. Physical data:

1. Molecular weight: 84.9.

2. Boiling point (760 mm Hg): 39.8 deg.C (104 deg.F).

3. Specific gravity (water=1): 1.3.

4. Vapor density (air=1 at boiling point): 2.9.

5. Vapor pressure at 20 deg. C (68 deg. F): 350 mm Hg.

6. Solubility in water, g/100 g water at 20 deg. C (68 deg. F)=1.32.

7. Appearance and odor: colorless liquid with a chloroform-like odor.

D. Uses: MC is used as a solvent, especially where high volatility is required. It is a good solvent for oils, fats, waxes, resins, bitumen, rubber and cellulose acetate and is a useful paint stripper and degreaser. It is used in paint removers, in propellant mixtures for aerosol containers, as a solvent for plastics, as a degreasing agent, as an extracting agent in the pharmaceutical industry and as a blowing agent in polyurethane foams. Its solvent property is sometimes increased by mixing with methanol, petroleum naphtha or tetrachloroethylene.

E. Appearance and odor: MC is a clear colorless liquid with a chloroform-like odor. It is slightly soluble in water and completely miscible with most organic solvents.

F. Permissible exposure: Exposure may not exceed 25 parts MC per million parts of air (25 ppm) as an eight-hour time-weighted average (8-hour TWA PEL) or 125 parts of MC per million parts of air (125 ppm) averaged over a 15-minute period (STEL).

II. Health Hazard Data

A. MC can affect the body if it is inhaled or if the liquid comes in contact with the eyes or skin. It can also affect the body if it is swallowed.

B. Effects of overexposure:

1. Short-term Exposure: MC is an anesthetic. Inhaling the vapor may cause mental confusion, light-headedness, nausea, vomiting, and headache. Continued exposure may cause increased light-headedness, staggering, unconsciousness, and even death. High vapor concentrations may also cause irritation of the eyes and respiratory tract. Exposure to MC may make the symptoms of angina (chest pains) worse. Skin exposure to liquid MC may cause irritation. If liquid MC remains on the skin, it may cause skin burns. Splashes of the liquid into the eyes may cause irritation.

2. Long-term (chronic) exposure: The best evidence that MC causes cancer is from laboratory studies in which rats, mice and hamsters inhaled MC 6 hours per day, 5 days per week for 2 years. MC exposure produced lung and liver tumors in mice and mammary tumors in rats. No carcino-

genic effects of MC were found in hamsters. There are also some human epidemiological studies which show an association between occupational exposure to MC and increases in biliary (bile duct) cancer and a type of brain cancer. Other epidemiological studies have not observed a relationship between MC exposure and cancer. WISHA interprets these results to mean that there is suggestive (but not absolute) evidence that MC is a human carcinogen.

C. Reporting signs and symptoms: You should inform your employer if you develop any signs or symptoms and suspect that they are caused by exposure to MC.

D. Warning Properties:

1. Odor Threshold: Different authors have reported varying odor thresholds for MC. Kirk-Othmer and Sax both reported 25 to 50 ppm; Summer and May both reported 150 ppm; Spector reports 320 ppm. Patty, however, states that since one can become adapted to the odor, MC should not be considered to have adequate warning properties.

2. Eye Irritation Level: Kirk-Othmer reports that "MC vapor is seriously damaging to the eyes." Sax agrees with Kirk-Othmer's statement. The ACGIH Documentation of TLVs states that irritation of the eyes has been observed in workers exposed to concentrations up to 5000 ppm.

3. Evaluation of Warning Properties: Since a wide range of MC odor thresholds are reported (25-320 ppm), and human adaptation to the odor occurs, MC is considered to be a material with poor warning properties.

III. Emergency First Aid Procedures

In the event of emergency, institute first aid procedures and send for first aid or medical assistance.

A. Eye and Skin Exposures: If there is a potential for liquid MC to come in contact with eye or skin, face shields and skin protective equipment must be provided and used. If liquid MC comes in contact with the eye, get medical attention. Contact lenses should not be worn when working with this chemical.

B. Breathing: If a person breathes in large amounts of MC, move the exposed person to fresh air at once. If breathing has stopped, perform cardiopulmonary resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

C. Rescue: Move the affected person from the hazardous exposure immediately. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises. Do not become a casualty yourself.

IV. Respirators, Protective Clothing, and Eye Protection

A. Respirators: Good industrial hygiene practices recommend that engineering controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not feasible, when such controls are in the process of being installed, or when these controls fail and need to be supplemented. Respirators may also be used for operations which require entry into tanks or closed vessels, and in emergency situations. If the use of respirators is necessary, the only respirators permitted are those that have been approved by

the National Institute for Occupational Safety and Health (NIOSH). Supplied-air respirators are required because air-purifying respirators do not provide adequate respiratory protection against MC. In addition to respirator selection, a complete written respiratory protection program should be instituted which includes regular training, maintenance, inspection, cleaning, and evaluation. If you can smell MC while wearing a respirator, proceed immediately to fresh air. If you experience difficulty in breathing while wearing a respirator, tell your employer.

B. Protective Clothing: Employees must be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent repeated or prolonged skin contact with liquid MC or contact with vessels containing liquid MC. Any clothing which becomes wet with liquid MC should be removed immediately and not reworn until the employer has ensured that the protective clothing is fit for reuse. Contaminated protective clothing should be placed in a regulated area designated by the employer for removal of MC before the clothing is laundered or disposed of. Clothing and equipment should remain in the regulated area until all of the MC contamination has evaporated; clothing and equipment should then be laundered or disposed of as appropriate.

C. Eye Protection: Employees should be provided with and required to use splash-proof safety goggles where liquid MC may contact the eyes.

V. Housekeeping and Hygiene Facilities

For purposes of complying with WAC 296-24-120, the following items should be emphasized:

A. The workplace should be kept clean, orderly, and in a sanitary condition. The employer should institute a leak and spill detection program for operations involving liquid MC in order to detect sources of fugitive MC emissions.

B. Emergency drench showers and eyewash facilities are recommended. These should be maintained in a sanitary condition. Suitable cleansing agents should also be provided to assure the effective removal of MC from the skin.

C. Because of the hazardous nature of MC, contaminated protective clothing should be placed in a regulated area designated by the employer for removal of MC before the clothing is laundered or disposed of.

VI. Precautions for Safe Use, Handling, and Storage

A. Fire and Explosion Hazards: MC has no flash point in a conventional closed tester, but it forms flammable vapor-air mixtures at approximately 100 deg.C (212 deg.F), or higher. It has a lower explosion limit of 12%, and an upper explosion limit of 19% in air. It has an autoignition temperature of 556.1 deg.C (1033 deg.F), and a boiling point of 39.8 deg.C (104 deg.F). It is heavier than water with a specific gravity of 1.3. It is slightly soluble in water.

B. Reactivity Hazards: Conditions contributing to the instability of MC are heat and moisture. Contact with strong oxidizers, caustics, and chemically active metals such as aluminum or magnesium powder, sodium and potassium may cause fires and explosions. Special precautions: Liquid MC will attack some forms of plastics, rubber, and coatings.

C. Toxicity: Liquid MC is painful and irritating if splashed in the eyes or if confined on the skin by gloves, clothing, or shoes. Vapors in high concentrations may cause

narcosis and death. Prolonged exposure to vapors may cause cancer or exacerbate cardiac disease.

D. Storage: Protect against physical damage. Because of its corrosive properties, and its high vapor pressure, MC should be stored in plain, galvanized or lead lined, mild steel containers in a cool, dry, well ventilated area away from direct sunlight, heat source and acute fire hazards.

E. Piping Material: All piping and valves at the loading or unloading station should be of material that is resistant to MC and should be carefully inspected prior to connection to the transport vehicle and periodically during the operation.

F. Usual Shipping Containers: Glass bottles, 5- and 55-gallon steel drums, tank cars, and tank trucks.

Note: This section addresses MC exposure in marine terminal and longshore employment only where leaking or broken packages allow MC exposure that is not addressed through compliance with WAC 296-56.

G. Electrical Equipment: Electrical installations in Class I hazardous locations as defined in Article 500 of the National Electrical Code, should be installed according to Article 501 of the code; and electrical equipment should be suitable for use in atmospheres containing MC vapors. See Flammable and Combustible Liquids Code (NFPA No. 325M), Chemical Safety Data Sheet SD-86 (Manufacturing Chemists' Association, Inc.).

H. Fire Fighting: When involved in fire, MC emits highly toxic and irritating fumes such as phosgene, hydrogen chloride and carbon monoxide. Wear breathing apparatus and use water spray to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Extinguishing media are dry chemical, carbon dioxide, foam. For purposes of compliance with WAC 296-24-956, locations classified as hazardous due to the presence of MC shall be Class I.

I. Spills and Leaks: Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until cleanup has been completed. If MC has spilled or leaked, the following steps should be taken:

1. Remove all ignition sources.
2. Ventilate area of spill or leak.
3. Collect for reclamation or absorb in vermiculite, dry sand, earth, or a similar material.

J. Methods of Waste Disposal: Small spills should be absorbed onto sand and taken to a safe area for atmospheric evaporation. Incineration is the preferred method for disposal of large quantities by mixing with a combustible solvent and spraying into an incinerator equipped with acid scrubbers to remove hydrogen chloride gases formed. Complete combustion will convert carbon monoxide to carbon dioxide. Care should be taken for the presence of phosgene.

K. You should not keep food, beverage, or smoking materials, or eat or smoke in regulated areas where MC concentrations are above the permissible exposure limits.

L. Portable heating units should not be used in confined areas where MC is used.

M. Ask your supervisor where MC is used in your work area and for any additional plant safety and health rules.

VII. Medical Requirements

Your employer is required to offer you the opportunity to participate in a medical surveillance program if you are exposed to MC at concentrations at or above the action level (12.5 ppm 8-hour TWA) for more than 30 days a year or at concentrations exceeding the PELs (25 ppm 8-hour TWA or 125 ppm 15-minute STEL) for more than 10 days a year. If you are exposed to MC at concentrations over either of the PELs, your employer will also be required to have a physician or other licensed health care professional ensure that you are able to wear the respirator that you are assigned. Your employer must provide all medical examinations relating to your MC exposure at a reasonable time and place and at no cost to you.

VIII. Monitoring and Measurement Procedures

A. Exposure above the Permissible Exposure Limit:

1. Eight-hour exposure evaluation: Measurements taken for the purpose of determining employee exposure under this section are best taken with consecutive samples covering the full shift. Air samples must be taken in the employee's breathing zone.

2. Monitoring techniques: The sampling and analysis under this section may be performed by collection of the MC vapor on two charcoal adsorption tubes in series or other composition adsorption tubes, with subsequent chemical analysis. Sampling and analysis may also be performed by instruments such as real-time continuous monitoring systems, portable direct reading instruments, or passive dosimeters as long as measurements taken using these methods accurately evaluate the concentration of MC in employees' breathing zones. OSHA method 80 is an example of a validated method of sampling and analysis of MC. Copies of this method are available from OSHA or can be downloaded from the Internet at <http://www.osha.gov>. The employer has the obligation of selecting a monitoring method which meets the accuracy and precision requirements of the standard under his or her unique field conditions. The standard requires that the method of monitoring must be accurate, to a 95 percent confidence level, to plus or minus 25 percent for concentrations of MC at or above 25 ppm, and to plus or minus 35 percent for concentrations at or below 25 ppm. In addition to OSHA method 80, there are numerous other methods available for monitoring for MC in the workplace.

B. Since many of the duties relating to employee exposure are dependent on the results of measurement procedures, employers must assure that the evaluation of employee exposure is performed by a technically qualified person.

IX. Observation of Monitoring

Your employer is required to perform measurements that are representative of your exposure to MC and you or your designated representative are entitled to observe the monitoring procedure. You are entitled to observe the steps taken in the measurement procedure, and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, you or your representative must also be provided with, and must wear, protective clothing and equipment.

Access To Information

A. Your employer is required to inform you of the information contained in this Appendix. In addition, your employer must instruct you in the proper work practices for

using MC, emergency procedures, and the correct use of protective equipment.

B. Your employer is required to determine whether you are being exposed to MC. You or your representative has the right to observe employee measurements and to record the results obtained. Your employer is required to inform you of your exposure. If your employer determines that you are being over exposed, he or she is required to inform you of the actions which are being taken to reduce your exposure to within permissible exposure limits.

C. Your employer is required to keep records of your

exposures and medical examinations. These records must be kept by the employer for at least thirty (30) years.

D. Your employer is required to release your exposure and medical records to you or your representative upon your request.

E. Your employer is required to provide labels and material safety data sheets (MSDS) for all materials, mixtures or solutions composed of greater than 0.1 percent MC. An example of a label that would satisfy these requirements would be:

**Danger Contains Methylene Chloride
Potential Cancer Hazard**

May worsen heart disease because methylene chloride is converted to carbon monoxide in the body.

May cause dizziness, headache, irritation of the throat and lungs, loss of consciousness and death at high concentrations (for example, if used in a poorly ventilated room).

Avoid Skin Contact. Contact with liquid causes skin and eye irritation.

X. Common Operations and Controls

The following list includes some common operations in which exposure to MC may occur and control methods which may be effective in each case:

Operations	Controls
Use as solvent in paint and varnish removers cold cleaning and ultrasonic cleaning, and as a solvent in furniture stripping.	General dilution ventilation; local; manufacture of aerosols; cold cleaning exhaust ventilation; personal protective equipment; substitution.
Use as solvent in vapor degreasing.	Process enclosure; local exhaust ventilation; chilling coils; substitution.
Use as a secondary refrigerant in air scientific testing.	General dilution ventilation; local conditioning and exhaust ventilation; personal protective equipment.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 97-18-062, § 296-62-07473, filed 9/2/97, effective 12/1/97.]

WAC 296-62-07475 Appendix B. Medical Surveillance for Methylene Chloride

I. Primary Route of Entry Inhalation.

II. Toxicology.

Methylene Chloride (MC) is primarily an inhalation hazard. The principal acute hazardous effects are the depressant action on the central nervous system, possible cardiac toxicity and possible liver toxicity. The range of CNS effects are from decreased eye/hand coordination and decreased performance in vigilance tasks to narcosis and even death of individuals exposed at very high doses. Cardiac toxicity is due to the metabolism of MC to carbon monoxide, and the effects of carbon monoxide on heart tissue. Carbon monoxide displaces oxygen in the blood, decreases the oxygen available to heart tissue, increasing the risk of damage to the heart, which may result in heart attacks in susceptible individuals. Susceptible individuals include persons with heart disease and those with risk factors for heart disease. Elevated liver enzymes and irritation to

the respiratory passages and eyes have also been reported for both humans and experimental animals exposed to MC vapors.

MC is metabolized to carbon monoxide and carbon dioxide via two separate pathways. Through the first pathway, MC is metabolized to carbon monoxide as an end-product via the P-450 mixed function oxidase pathway located in the microsomal fraction of the cell. This biotransformation of MC to carbon monoxide occurs through the process of microsomal oxidative dechlorination which takes place primarily in the liver. The amount of conversion to carbon monoxide is significant as measured by the concentration of carboxyhemoglobin, up to 12% measured in the blood following occupational exposure of up to 610 ppm. Through the second pathway, MC is metabolized to carbon dioxide as an end product (with formaldehyde and formic acid as metabolic intermediates) via the glutathione dependent enzyme found in the cytosolic fraction of the liver cell. Metabolites along this pathway are believed to be associated with the carcinogenic activity of MC.

MC has been tested for carcinogenicity in several laboratory rodents. These rodent studies indicate that there is clear evidence that MC is carcinogenic to male and female

mice and female rats. Based on epidemiologic studies, OSHA has concluded that there is suggestive evidence of increased cancer risk in MC-related worker populations. The epidemiological evidence is consistent with the finding of excess cancer in the experimental animal studies. NIOSH regards MC as a potential occupational carcinogen and the International Agency for Research Cancer (IARC) classifies MC as an animal carcinogen. OSHA considers MC as a suspected human carcinogen.

III. Medical Signs and Symptoms of Acute Exposure
Skin exposure to liquid MC may cause irritation or skin burns. Liquid MC can also be irritating to the eyes. MC is also absorbed through the skin and may contribute to the MC exposure by inhalation. At high concentrations in air, MC may cause nausea, vomiting, light-headedness, numbness of the extremities, changes in blood enzyme levels, and breathing problems, leading to bronchitis and pulmonary edema, unconsciousness and even death.

At lower concentrations in air, MC may cause irritation to the skin, eye, and respiratory tract and occasionally headache and nausea. Perhaps the greatest problem from exposure to low concentrations of MC is the CNS effects on coordination and alertness that may cause unsafe operations of machinery and equipment, leading to self-injury or accidents. Low levels and short duration exposures do not seem to produce permanent disability, but chronic exposures to MC have been demonstrated to produce liver toxicity in animals, and therefore, the evidence is suggestive for liver toxicity in humans after chronic exposure. Chronic exposure to MC may also cause cancer.

IV. Surveillance and Preventive Considerations

As discussed above, MC is classified as a suspect or potential human carcinogen. It is a central nervous system (CNS) depressant and a skin, eye and respiratory tract irritant. At extremely high concentrations, MC has caused liver damage in animals. MC principally affects the CNS, where it acts as a narcotic. The observation of the symptoms characteristic of CNS depression, along with a physical examination, provides the best detection of early neurological disorders. Since exposure to MC also increases the carboxyhemoglobin level in the blood, ambient carbon monoxide levels would have an additive effect on that carboxyhemoglobin level. Based on such information, a periodic post-shift carboxyhemoglobin test as an index of the presence of carbon monoxide in the blood is recommended, but not required, for medical surveillance.

Based on the animal evidence and three epidemiologic studies previously mentioned, OSHA concludes that MC is a suspect human carcinogen. The medical surveillance program is designed to observe exposed workers on a regular basis. While the medical surveillance program cannot detect MC-induced cancer at a preneoplastic stage, OSHA anticipates that, as in the past, early detection and treatments of cancers leading to enhanced survival rates will continue to evolve.

A. Medical and Occupational History:

The medical and occupational work history plays an important role in the initial evaluation of workers exposed to MC. It is therefore extremely important for the examining physician or other licensed health care professional to evaluate the MC-exposed worker carefully and completely and to focus the examination on MC's potentially associated

health hazards. The medical evaluation must include an annual detailed work and medical history with special emphasis on cardiac history and neurological symptoms.

An important goal of the medical history is to elicit information from the worker regarding potential signs or symptoms associated with increased levels of carboxyhemoglobin due to the presence of carbon monoxide in the blood. Physicians or other licensed health care professionals should ensure that the smoking history of all MC exposed employees is known. Exposure to MC may cause a significant increase in carboxyhemoglobin level in all exposed persons. However, smokers as well as workers with anemia or heart disease and those concurrently exposed to carbon monoxide are at especially high risk of toxic effects because of an already reduced oxygen carrying capacity of the blood.

A comprehensive or interim medical and work history should also include occurrence of headache, dizziness, fatigue, chest pain, shortness of breath, pain in the limbs, and irritation of the skin and eyes. In addition, it is important for the physician or other licensed health care professional to become familiar with the operating conditions in which exposure to MC is likely to occur. The physician or other licensed health care professional also must become familiar with the signs and symptoms that may indicate that a worker is receiving otherwise unrecognized and exceptionally high exposure levels of MC.

An example of a medical and work history that would satisfy the requirement for a comprehensive or interim work history is represented by the following:

The following is a list of recommended questions and issues for the self-administered questionnaire for methylene chloride exposure.

Questionnaire For Methylene Chloride Exposure

I. Demographic Information

1. Name _____
2. Social Security Number _____
3. Date _____
4. Date of Birth _____
5. Age _____
6. Present occupation _____
7. Sex _____
8. Race _____

II. Occupational History

1. Have you ever worked with methylene chloride, dichloromethane, methylene dichloride, or CH₂Cl₂ (all are different names for the same chemical)? Please list which on the occupational history form if you have not already.

2. If you have worked in any of the following industries and have not listed them on the occupational history form, please do so.

- Furniture stripping _____
- Polyurethane foam manufacturing _____
- Chemical manufacturing or formulation _____
- Pharmaceutical manufacturing _____
- Any industry in which you used solvents to clean and degrease equipment or parts _____
- Construction, especially painting and refinishing _____
- Aerosol manufacturing _____
- Any industry in which you used aerosol adhesives _____

3. If you have not listed hobbies or household projects on the occupational history form, especially furniture refinishing, spray painting, or paint stripping, please do so.

III. Medical History

A. General

1. Do you consider yourself to be in good health? If no, state reason(s).

2. Do you or have you ever had:

- a. Persistent thirst
- b. Frequent urination (three times or more at night)
- c. Dermatitis or irritated skin
- d. Nonhealing wounds

3. What prescription or nonprescription medications do you take, and for what reasons?

4. Are you allergic to any medications, and what type of reaction do you have?

B. Respiratory

1. Do you have or have you ever had any chest illnesses or diseases? Explain.

2. Do you have or have you ever had any of the following:

- a. Asthma
- b. Wheezing
- c. Shortness of breath

3. Have you ever had an abnormal chest X-ray? If so, when, where, and what were the findings?

4. Have you ever had difficulty using a respirator or breathing apparatus? Explain.

5. Do any chest or lung diseases run in your family? Explain.

6. Have you ever smoked cigarettes, cigars, or a pipe? Age started:

7. Do you now smoke?

8. If you have stopped smoking completely, how old were you when you stopped?

9. On the average of the entire time you smoked, how many packs of cigarettes, cigars, or bowls of tobacco did you smoke per day?

C. Cardiovascular

1. Have you ever been diagnosed with any of the following:

Which of the following apply to you now or did apply to you at some time in the past, even if the problem is controlled by medication? Please explain any yes answers (i.e., when problem was diagnosed, length of time on medication).

- a. High cholesterol or triglyceride level
- b. Hypertension (high blood pressure)
- c. Diabetes
- d. Family history of heart attack, stroke, or blocked arteries

2. Have you ever had chest pain? If so, answer the next five questions.

a. What was the quality of the pain (i.e., crushing, stabbing, squeezing)?

b. Did the pain go anywhere (i.e., into jaw, left arm)?

c. What brought the pain out?

d. How long did it last?

e. What made the pain go away?

3. Have you ever had heart disease, a heart attack, stroke, aneurysm, or blocked arteries anywhere in your body? Explain (when, treatment).

4. Have you ever had bypass surgery for blocked arteries in your heart or anywhere else? Explain.

5. Have you ever had any other procedures done to open up a blocked artery (balloon angioplasty, carotid endarterectomy, clot-dissolving drug)?

6. Do you have or have you ever had (explain each):

- a. Heart murmur
- b. Irregular heartbeat
- c. Shortness of breath while lying flat
- d. Congestive heart failure
- e. Ankle swelling
- f. Recurrent pain anywhere below the waist while walking

7. Have you ever had an electrocardiogram (EKG)? When?

8. Have you ever had an abnormal EKG? If so, when, where, and what were the findings?

9. Do any heart diseases, high blood pressure, diabetes, high cholesterol, or high triglycerides run in your family? Explain.

D. Hepatobiliary and Pancreas

1. Do you now or have you ever drunk alcoholic beverages? Age started: _____ Age stopped: _____.

2. Average numbers per week:

a. Beers: _____, ounces in usual container: b. Glasses of wine: _____, ounces per glass: c. Drinks: _____, ounces in usual container:

3. Do you have or have you ever had (explain each):

a. Hepatitis (infectious, autoimmune, drug-induced, or chemical)

b. Jaundice

c. Elevated liver enzymes or elevated bilirubin

d. Liver disease or cancer

E. Central Nervous System

1. Do you or have you ever had (explain each):

a. Headache

b. Dizziness

c. Fainting

d. Loss of consciousness

e. Garbled speech

f. Lack of balance

g. Mental/psychiatric illness

h. Forgetfulness

F. Hematologic

1. Do you have, or have you ever had (explain each):

a. Anemia

b. Sickle cell disease or trait

c. Glucose-6-phosphate dehydrogenase deficiency

d. Bleeding tendency disorder

2. If not already mentioned previously, have you ever had a reaction to sulfa drugs or to drugs used to prevent or treat malaria? What was the drug? Describe the reaction.

B. Physical Examination

The complete physical examination, when coupled with the medical and occupational history, assists the physician or other licensed health care professional in detecting pre-existing conditions that might place the employee at increased risk, and establishes a baseline for future health monitoring. These examinations should include:

1. Clinical impressions of the nervous system, cardiovascular function and pulmonary function, with additional tests conducted where indicated or determined by the

examining physician or other licensed health care professional to be necessary.

2. An evaluation of the advisability of the worker using a respirator, because the use of certain respirators places an additional burden on the cardiopulmonary system. It is necessary for the attending physician or other licensed health care professional to evaluate the cardiopulmonary function of these workers, in order to inform the employer in a written medical opinion of the worker's ability or fitness to work in an area requiring the use of certain types of respiratory protective equipment. The presence of facial hair or scars that might interfere with the worker's ability to wear certain types of respirators should also be noted during the examination and in the written medical opinion.

Because of the importance of lung function to workers required to wear certain types of respirators to protect themselves from MC exposure, these workers must receive an assessment of pulmonary function before they begin to wear a negative pressure respirator and at least annually thereafter. The recommended pulmonary function tests include measurement of the employee's forced vital capacity (FVC), forced expiratory volume at one second (FEV1), as well as calculation of the ratios of FEV1 to FVC, and the ratios of measured FVC and measured FEV1 to expected respective values corrected for variation due to age, sex, race, and height. Pulmonary function evaluation must be conducted by a physician or other licensed health care professional experienced in pulmonary function tests.

The following is a summary of the elements of a physical exam which would fulfill the requirements under the MC standard:

Physical Exam

I. Skin and appendages

1. Irritated or broken skin 2. Jaundice 3. Clubbing cyanosis, edema 4. Capillary refill time 5. Pallor

II. Head

1. Facial deformities 2. Scars 3. Hair growth

III. Eyes

1. Scleral icterus 2. Corneal arcus 3. Pupillary size and response 4. Fundoscopic exam

IV. Chest

1. Standard exam

V. Heart

1. Standard exam 2. Jugular vein distension 3.

Peripheral pulses

VI. Abdomen

1. Liver span

VII. Nervous System

1. Complete standard neurologic exam

VIII. Laboratory

1. Hemoglobin and hematocrit 2. Alanine aminotransferase (ALT, SGPT) 3. Post-shift carboxyhemoglobin

I. Studies

1. Pulmonary function testing

2. Electrocardiogram

An evaluation of the oxygen carrying capacity of the blood of employees (for example by measured red blood cell volume) is considered useful, especially for workers acutely exposed to MC. It is also recommended, but not required, that end of shift carboxyhemoglobin levels be determined periodically, and any level above 3% for nonsmokers and above 10% for smokers should prompt an investigation of

the worker and his workplace. This test is recommended because MC is metabolized to CO, which combines strongly with hemoglobin, resulting in a reduced capacity of the blood to transport oxygen in the body. This is of particular concern for cigarette smokers because they already have a diminished hemoglobin capacity due to the presence of CO in cigarette smoke.

C. Additional Examinations and Referrals

1. Examination by a Specialist

When a worker examination reveals unexplained symptoms or signs (i.e. in the physical examination or in the laboratory tests), follow-up medical examinations are necessary to assure that MC exposure is not adversely affecting the worker's health. When the examining physician or other licensed health care professional finds it necessary, additional tests should be included to determine the nature of the medical problem and the underlying cause. Where relevant, the worker should be sent to a specialist for further testing and treatment as deemed necessary. The final rule requires additional investigations to be covered and it also permits physicians or other licensed health care professionals to add appropriate or necessary tests to improve the diagnosis of disease should such tests become available in the future.

2. Emergencies

The examination of workers exposed to MC in an emergency should be directed at the organ systems most likely to be affected. If the worker has received a severe acute exposure, hospitalization may be required to assure proper medical intervention. It is not possible to precisely define "severe," but the physician or other licensed health care professional's judgment should not merely rest on hospitalization. If the worker has suffered significant conjunctival, oral, or nasal irritation, respiratory distress, or discomfort, the physician or other licensed health care professional should instigate appropriate follow-up procedures. These include attention to the eyes, lungs and the neurological system. The frequency of follow-up examinations should be determined by the attending physician or other licensed health care professional. This testing permits the early identification essential to proper medical management of such workers.

D. Employer Obligations

The employer is required to provide the responsible physician or other licensed health care professional and any specialists involved in a diagnosis with the following information: a copy of the MC standard including relevant appendices, a description of the affected employee's duties as they relate to his or her exposure to MC; an estimate of the employee's exposure including duration (e.g., 15hr/wk, three 8-hour shifts/wk, full time); a description of any personal protective equipment used by the employee, including respirators; and the results of any previous medical determinations for the affected employee related to MC exposure to the extent that this information is within the employer's control.

E. Physicians' or Other Licensed Health Care Professionals' Obligations

The standard requires the employer to ensure that the physician or other licensed health care professional provides a written statement to the employee and the employer. This statement should contain the physician's or licensed health care professional's opinion as to whether the employee has

any medical condition placing him or her at increased risk of impaired health from exposure to MC or use of respirators, as appropriate. The physician or other licensed health care professional should also state his or her opinion regarding any restrictions that should be placed on the employee's exposure to MC or upon the use of protective clothing or equipment such as respirators. If the employee wears a respirator as a result of his or her exposure to MC, the physician or other licensed health care professional's opinion should also contain a statement regarding the suitability of the employee to wear the type of respirator assigned.

Furthermore, the employee should be informed by the physician or other licensed health care professional about the cancer risk of MC and about risk factors for heart disease, and the potential for exacerbation of underlying heart disease by exposure to MC through its metabolism to carbon monoxide. Finally, the physician or other licensed health care professional should inform the employer that the employee has been told the results of the medical examination and of any medical conditions which require further explanation or treatment. This written opinion must not contain any information on specific findings or diagnosis unrelated to employee's occupational exposures.

The purpose in requiring the examining physician or other licensed health care professional to supply the employer with a written opinion is to provide the employer with a medical basis to assist the employer in placing employees initially, in assuring that their health is not being impaired by exposure to MC, and to assess the employee's ability to use any required protective equipment.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 97-18-062, § 296-62-07475, filed 9/2/97, effective 12/1/97.]

WAC 296-62-07477 Appendix C.

Questions and Answers

Methylene Chloride Control in Furniture Stripping (Adapted from NIOSH publication No. 93-133)

Introduction

This appendix answers commonly asked questions about the hazards from exposure to methylene chloride. It also describes approaches to controlling methylene chloride exposure during the most common furniture stripping processes. Although these approaches were developed and field tested by the National Institute of Occupational Safety and Health, each setting requires custom installation because of the different air flow interferences at each site.

1. What is the Stripping Solution Base?

The most common active ingredient in paint removers is a chemical called methylene chloride. Methylene chloride is present in the paint remover to penetrate, blister, and finally lift the old finish. Other chemicals in paint removers work to accelerate the stripping process, to retard evaporation, and to act as thickening agents. These other ingredients may include: methanol, toluene, acetone, or paraffin.¹

2. Is Methylene Chloride Bad for Me?

Exposure to methylene chloride may cause short-term health effects or long-term health effects.

Short-Term (Acute) Health Effects

Exposure to high levels of paint removers over short periods of time can cause irritation to the skin, eyes, mucous membranes, and respiratory tracts. Other symptoms of high exposure are dizziness, headache, and lack of coordination. The occurrence of any of these symptoms indicates that you are being exposed to high levels of methylene chloride. At the onset of any of these symptoms, you should leave the work area, get some fresh air, and determine why the levels were high.

A portion of inhaled methylene chloride is converted by the body to carbon monoxide, which can lower the blood's ability to carry oxygen. When the solvent is used properly, however, the levels of carbon monoxide should not be hazardous. Individuals with cardiovascular or pulmonary health problems should check with their physician before using the paint stripper. Individuals experiencing severe symptoms such as shortness of breath or chest pains should obtain proper medical care immediately.¹

Long-Term (Chronic) Health Effects

Methylene chloride has been shown to cause cancer in certain laboratory animal tests. The available human studies do not provide the necessary information to determine whether methylene chloride causes cancer in humans. However, as a result of the animal studies, methylene chloride is considered a potential occupational carcinogen. There is also considerable indirect evidence to suggest that workers exposed to methylene chloride may be at an increased risk of developing ischemic heart disease. Therefore, it is prudent to minimize exposure to solvent vapors.³

3. What does the Methylene Chloride Standard Require?

On January 10, 1997, the Occupational Safety and Health Administration published a new regulation for methylene chloride. The standard establishes an eight-hour time-weighted average exposure limit of 25 parts per million (ppm), as well as a short-term exposure limit of 125 ppm determined from a 15 minute sampling period. That is a reduction from the current WISHA limit of 100 ppm. The standard also sets a 12.5 ppm action level (a level that would trigger periodic exposure monitoring and medical surveillance provisions).² WISHA adopted an identical standard on [date].

The National Institute for Occupational Safety and Health recommends that methylene chloride be regarded as a "potential occupational carcinogen." NIOSH further recommends that occupational exposure to methylene chloride be controlled to the lowest feasible limit. This recommendation was based on the observation of cancers and tumors in both rats and mice exposed to methylene chloride in air.⁵

4. How Can I Be Exposed to Methylene Chloride while Stripping Furniture?

Methylene chloride can be inhaled when vapors are in the air. Inhalation of the methylene chloride vapors is generally the most important source of exposure. Methylene chloride evaporates quicker than most chemicals. The odor threshold of methylene chloride is 300 ppm.⁶ Therefore, once you smell methylene chloride, you are being over-exposed. Pouring, moving, or stirring the chemical will increase the rate of evaporation.

Methylene chloride can be absorbed through the skin either by directly touching the chemical or through your gloves. Methylene chloride can be swallowed if it gets on your hands, clothes, or beard, or if food or drinks become contaminated.

5. How Can Breathing Exposures be Reduced?

Install a Local Exhaust Ventilation System

Local exhaust ventilation can be used to control exposures. Local exhaust ventilation systems capture contaminated air from the source before it spreads into the workers' breathing zone.⁷ If engineering controls are not effective, only a self-contained breathing apparatus equipped with a full face piece and operated in a positive-pressure mode or a supplied-air respirator affords the level of protection. Air-purifying respirators such as gas masks with organic vapor canisters can only be used for escape situations.⁸ These gas masks are not suitable for normal work situations because methylene chloride is poorly absorbed by the canister filtering material.

A local exhaust system consists of the following: a hood, a fan, ductwork, and a replacement air system.^{9,10,11} Two processes are commonly used in furniture stripping: flow-over and dip tanks. For flow-over systems there are two common local exhaust controls for methylene chloride - a slot hood and a down draft hood. A slot hood of different design is most often used for dip tanks. (See Figures 1, 2, and 3.)

The hood is made of sheet metal and connected to the tank. All designs require a centrifugal fan to exhaust the fumes, ductwork connecting the hood and the fan, and a replacement air system to bring conditioned air into the building to replace the air exhausted.

In constructing or designing a slot or down draft hood, use the following data:

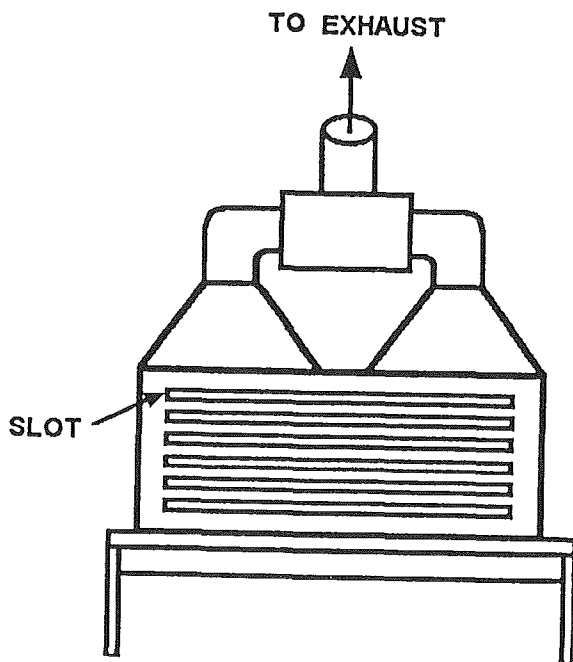


FIGURE 1 -- SLOT HOOD

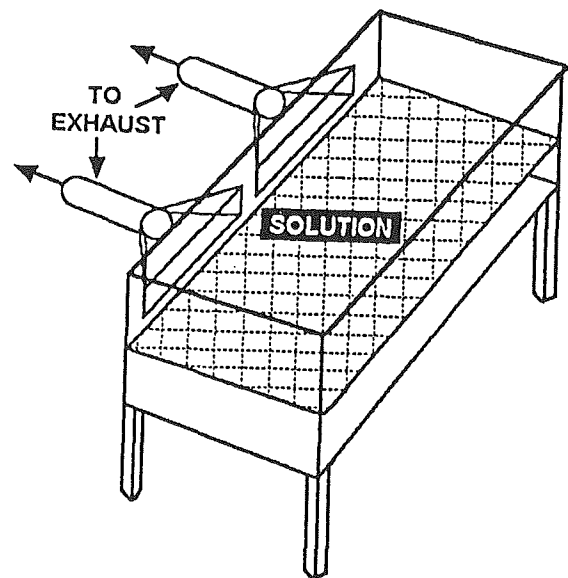


FIGURE 2 -- DOWNDRAFT HOOD

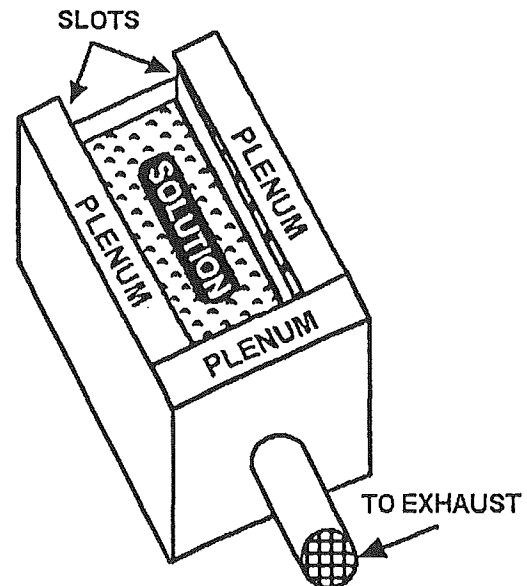


FIGURE 3 -- SLOT HOOD FOR DIP TANK

Safe Work Practices

Workers can lower exposures by decreasing their access to the methylene chloride.¹²

- 1) Turn on dip tank control system several minutes before entering the stripping area.
- 2) Avoid unnecessary transferring or moving of the stripping solution.
- 3) Keep face out of the air stream between the solution-covered furniture and the exhaust system.
- 4) Keep face out of vapor zone above the stripping solution and the dip tank.
- 5) Retrieve dropped items with a long handled tool.
- 6) Keep the solution-recycling system off when not in use. Cover reservoir for recycling system.

- 7) Cover dip tank when not in use.
- 8) Provide adequate ventilation for rinse area.

How Can Skin Exposures Be Reduced?

Skin exposures can be reduced by wearing gloves whenever you are in contact with the stripping solution.¹³

- 1) Two gloves should be worn. The inner glove should be made from polyethylene/ethylene vinyl alcohol (e.g., Silver Shield®, or 4H®). This material, however, does not provide good physical resistance against tears, so an outer glove made from nitrile or neoprene should be worn.
- 2) Shoulder-length gloves will be more protective.
- 3) Change gloves before the break-through time occurs. Rotate several pairs of gloves throughout the day. Let the gloves dry in a warm well ventilated area at least over night before reuse.
- 4) Keep gloves clean by rinsing often. Keep gloves in good condition. Inspect the gloves before use for pin-holes, cracks, thin spots, and stiffer than normal or sticky surfaces.
- 5) Wear a face shield or goggles to protect face and eyes.

6. What Other Problems Can Occur?

Stripping Solution Temperature

Most manufacturers of stripping solution recommend controlling the solution to a temperature of 70°F. This temperature is required for the wax in the solution to form a vapor barrier on top of the solution to keep the solution from evaporating too quickly. If the temperature is too high, the wax will not form the vapor barrier. If it is too cold, the wax will solidify and separate from the solvent causing increased evaporation. Use a belt heater to heat the solution to the correct temperature. Call your solution manufacturer for the correct temperature for your solution.¹⁴

Make-Up Air

Air will enter a building in an amount to equal the amount of air exhausted whether or not provision is made for this replacement. If a local exhaust system is added a make-up or replacement air system must be added to replace the air removed. Without a replacement air system, air will enter the building through cracks causing uncontrollable eddy currents. If the building perimeter is tightly sealed, it will prevent the air from entering and severely decrease the amount exhausted from the ventilation system. This will cause the building to be under negative pressure and decrease the performance of the exhaust system.¹⁵

Dilution Ventilation

With general or dilution ventilation, uncontaminated air is moved through the workroom by means of fans or open windows, which dilutes the pollutants in the air. Dilution ventilation does not provide effective protection to other workers and does not confine the methylene chloride vapors to one area.¹⁶

Phosgene Poisoning from Use of Kerosene Heaters

Do not use kerosene heaters or other open flame heaters while stripping furniture. Use of kerosene heaters in connection with methylene chloride can create lethal or dangerous concentrations of phosgene. Methylene chloride vapor is mixed with the air used for the combustion of kerosene in kerosene stoves. The vapor thus passes through the flames, coming into close contact with carbon monoxide

at high temperatures. Any chlorine formed by decomposition may, under these conditions, react with carbon monoxide and form phosgene.¹⁷

REFERENCES

¹Halogenated Solvents Industry Alliance and Consumer Product Safety Commission [1990]. Stripping Paint from Wood (Pamphlet for consumers on how to strip furniture and precautions to take). Washington DC: Consumer Product Safety Commission.

²*Ibid.*

³NIOSH [1992]. NIOSH Testimony on Occupational Safety and Health Administration's proposed rule on occupational exposure to methylene chloride, September 21, 1992, OSHA Docket No. H-71. NIOSH policy statements. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health.

⁴56 Fed. Reg. 57036 [1991]. Occupational Safety and Health Administration: Proposed rule on occupational exposure to methylene chloride.

⁵NIOSH [1992].

⁶Kirk, R.E. and P.F. Othmer, Eds. [1978]. Encyclopedia of Chemical Technology, 3rd Ed., Vol. 5:690. New York: John Wiley & Sons, Inc.

⁷ACGIH [1988]. Industrial Ventilation: A Manual of Recommended Practice. 20th Ed. Cincinnati, OH: American Conference of Governmental Industrial Hygienists.

⁸NIOSH [1992].

⁹Fairfield, C.L. and A.A. Beasley [1991]. In-depth Survey Report at the Association for Retarded Citizens, Meadowlands, PA. The Control of Methylene Chloride During Furniture Stripping. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health.

¹⁰Fairfield, C.L. [1991]. In-depth Survey Report at the J.M. Murray Center, Cortland, NY. The Control of Methylene Chloride During Furniture Stripping. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health.

¹¹Hall, R.M., K.F. Martinez, and P.A. Jensen [1992]. In-depth Survey Report at Tri-County Furniture Stripping and Refinishing, Cincinnati, OH. The Control of Methylene Chloride During Furniture Stripping. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health.

¹²Fairfield, C.L. and A.A. Beasley [1991]. In-depth Survey Report at the Association for Retarded Citizens, Meadowlands, PA. The Control of Methylene Chloride During Furniture Stripping. Cincinnati, OH: U.S. Department of Health and Human Service, Centers for Disease Control, National Institute for Occupational Safety and Health.

¹³Roder, M. [1991]. Memorandum of March 11, 1991 from Michael Roder of the Division of Safety Research to Cheryl L. Fairfield of the Division of Physical Sciences and Engineering, National Institute for Occupational Safety and Health, Centers for Disease Control, Public Health Service, U.S. Department of Health and Human Services.

¹⁴Kwick Kleen Industrial Solvents, Inc., [1981]. Operations Manual, Kwick Kleen Industrial Solvents, Inc., Vincennes, IN.

¹⁵ACGIH [1988].

¹⁶*Ibid.*

¹⁷Gerritsen, W.B. and C.H. Buschmann [1960]. Phosgene Poisoning Caused by the Use of Chemical Paint Removers containing Methylene Chloride in Ill-Ventilated Rooms Heated by Kerosene Stoves. British Journal of Industrial Medicine 17:187.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-18-062, § 296-62-07477, filed 9/2/97, effective 12/1/97.]

WAC 296-62-075 Air contaminants. (1) An employee's exposure to any substance listed in Table 1 of WAC 296-62-07515 shall be limited in accordance with the requirements of WAC 296-62-07501 through 296-62-07513.

(2) The following definitions are applicable to the limits in Table 1.

(a) Time weighted average (TWA) is the employee's average airborne exposure to any 8-hour work shift of a 40-hour work week which shall not be exceeded.

(b) Short term exposure limit (STEL) is the employee's 15-minute time weighted average exposure which shall not be exceeded at any time during a work day unless another time limit is specified in a parenthetical notation below the limit. If another time period is specified, the time weighted average exposure over that time period shall not be exceeded at any time during the working day.

(c) Ceiling is the employee's exposure which shall not be exceeded during any part of the work day. If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure which shall not be exceeded at any time over a working day.

(d) The terms "substance," "air contaminant," and "material" are equivalent in meaning for WAC 296-62-075 through 296-62-07515.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-075, filed 9/5/97, effective 11/5/97. Statutory Authority: Chapter 49.17 RCW. 89-15-002 (Order 89-06), § 296-62-075, filed 7/6/89, effective 8/7/89; Order 73-3, § 296-62-075, filed 5/7/73.]

WAC 296-62-07501 Airborne contaminants. (1) Permissible exposure limits (PELs) refer to airborne concentrations of substances without regard to the use of respiratory protection and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect. Because of wide variation in individual susceptibility, however, a small percentage of workers may experience discomfort from some substances at concentrations at or below the permissible limit, a smaller percentage may be affected more seriously by aggravation of a preexisting condition or by development of an occupational illness.

(2) Permissible exposure limits refer to time-weighted concentrations for an 8-hour workday within a 40-hour workweek which shall not be exceeded.

(a) The cumulative time-weighted average exposure for an 8-hour work shift shall be computed as follows:

$$E = \frac{C_a T_a + C_b T_b + \dots + C_n T_n}{8}$$

where:

E is the equivalent exposure for the working shift.

C is the concentration during any period of time T where the concentration remains constant.

T is the duration in hours of the exposure at the concentration C.

The value of E shall not exceed the eight-hour time-weighted average (TWA) limit in Table 1 (see WAC 296-62-07515), for the material involved.

(b) To illustrate the formula, assume that substance A has an 8-hour time-weighted average limit of 100 ppm as noted in Table 1 of WAC 296-62-07515. Assume that an employee is subject to the following exposure:

- Two hours exposure at 150 ppm
- Two hours exposure at 75 ppm
- Four hours exposure at 50 ppm

Substituting this information in the formula, we have

$$(2 \times 150 + 2 \times 75 + 4 \times 50) \div 8 = 81.25 \text{ ppm}$$

Since 81.25 ppm is less than 100 ppm, the 8-hour time-weighted average limit, the exposure is acceptable.

(3) Methods of compliance:

(a) To achieve compliance with these standards, the employer shall determine and implement feasible administrative or engineering controls.

(b) When administrative or engineering controls are not feasible to achieve full compliance, they shall nonetheless be used to reduce exposures to the lowest levels achievable by these controls.

(c) Any control equipment or technical measure utilized for the purpose of complying with WAC 296-62-07501(3) must be approved for each particular use by a competent industrial hygienist or other technically qualified person. Whenever respirators are used their use shall comply with WAC 296-62-071 through 296-62-07121.

(d) Upon request, the employer shall prepare and submit a written compliance plan to the director. This plan must include a description of the manner in which compliance will be achieved with respect to cited violations of WAC 296-62-07501(3), and shall include proposed abatement methods, anticipated completion dates, and provision for progress reports to be sent to the department.

(4) An employee's exposure to any substance in Table 1 (see WAC 296-62-07515) which does not have a ceiling or a specified short-term exposure limit (STEL) shall not exceed the generic STEL which is computed by multiplying the applicable eight-hour time-weighted average (TWA) for the substance by the appropriate multiplier listed below.

Eight-hour TWA	Multiplier
PEL > 0-1	(ppm or mg/M ³) x 3
PEL > 1-10	(ppm or mg/M ³) x 2
PEL > 10-100	(ppm or mg/M ³) x 1.5
PEL > 100-1000	(ppm or mg/M ³) x 1.25
PEL > 1000	(ppm or mg/M ³) x 1

(5) Permissible limits are based on the best available information from industrial experience, from experimental human and animal studies, and, when possible, from a combination of the three. The basis on which the values are established may differ from substance to substance; protection against impairment of health may be a guiding factor for some, whereas reasonable freedom from irritation, narcosis, nuisance or other forms of stress may form the basis for others.

(6) The limits based on physical irritation shall be considered no less binding than those based on physical impairment. There is increasing evidence that physical irritation may initiate, promote or accelerate physical impairment through interaction with other chemical or biologic agents.

(7) In spite of the fact that serious injury is not believed likely as a result of exposure to the permissible limit concentrations, the best practice is to maintain concentrations of all atmospheric contaminants as low as is practical.

(8) These limits are intended for use in the practice of industrial hygiene and should be interpreted and applied only by a technically qualified person.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07501, filed 9/5/97, effective 11/5/97. Statutory Authority: Chapter 49.17 RCW. 89-15-002 (Order 89-06), § 296-62-07501, filed 7/6/89, effective 8/7/89. Statutory Authority: RCW 49.17.040 and

49.17.050. 82-03-023 (Order 82-1), § 296-62-07501, filed 1/15/82. Statutory Authority: RCW 49.17.040, 49.17.050 and 49.17.240. 81-16-015 (Order 81-20), § 296-62-07501, filed 7/27/81; 80-11-010 (Order 80-14), § 296-62-07501, filed 8/8/80; Order 73-3, § 296-62-07501, filed 5/7/73.]

WAC 296-62-07510 Total particulate. Total particulate exposure shall not exceed a permissible limit of 10 milligrams per cubic meter (mg/M^3) of air for total dust or 5 milligrams per cubic meter (mg/M^3) for respirable dust. The use of this eight-hour time-weighted-average exposure limit does not preclude the application of other applicable limits in WAC 296-62-075 through 296-62-07515. Nor does it preclude the use of WAC 296-62-060 when substances not specifically listed in Table 1 are found to require a lower limit. This section does, however, limit the combined total concentration of all particulate contaminants whether or not specifically listed in Table 1.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07510, filed 9/5/97, effective 11/5/97. Statutory Authority: Chapter 49.17 RCW. 89-15-002 (Order 89-06), § 296-62-07510, filed 7/6/89, effective 8/7/89. Statutory Authority: RCW 49.17.040, 49.17.050 and 49.17.240. 80-11-010 (Order 80-14), § 296-62-07510, filed 8/8/80.]

WAC 296-62-07515 Control of chemical agents. Chemical agents shall be controlled in such a manner that the workers exposure shall not exceed the applicable limits in WAC 296-62-075 through 296-62-07515.

TABLE 1: LIMITS FOR AIR CONTAMINANTS
Permissible Exposure Limits (PEL)

Substance	CAS ^{i/} Number	TWA		STEL ^{c/}		CEILING		Skin Designation
		ppm ^{a/}	mg/m ^{3b/}	ppm ^{a/}	mg/m ^{3b/}	ppm ^{a/}	mg/m ^{3b/}	
Abate, see Temephos	—	—	—	—	—	—	—	—
Acetaldehyde	75-07-0	100	180	150	270	—	—	—
Acetic acid	64-19-7	10	25	—	—	—	—	—
Acetic anhydride	108-24-7	—	—	—	—	5.0	20	—
Acetone	67-64-1	750	1800	1000	2400	—	—	—
Acetonitrile	75-05-8	40	70	60	105	—	—	—
2-Acetylaminofluorene (see WAC 296-62-073)	53-96-3	—	—	—	—	—	—	—
Acetylene	74-86-2	Simple	Asphyxiant	—	—	—	—	—
Acetylene dichloride (see 1,2-Dichloroethylene)	—	—	—	—	—	—	—	—
Acetylene tetrabromide	79-27-6	1.0	14	—	—	—	—	—
Acetylsalicylic acid (Aspirin)	50-78-2	—	5.0	—	—	—	—	—
Acrolein	107-02-8	0.1	0.25	0.3	0.8	—	—	—
Acrylamide	79-06-1	—	0.03	—	—	—	—	X
Acrylic acid	79-10-7	10	30	—	—	—	—	X
Acrylonitrile (see WAC 296-62-07341)	107-13-1	—	—	—	—	—	—	—
Aldrin	309-00-2	—	0.25	—	—	—	—	X
Allyl alcohol	107-18-6	2.0	5.0	4.0	10	—	—	X
Allyl Chloride	107-05-1	1.0	3.0	2.0	6.0	—	—	—
Allyl glycidyl ether (AGE)	106-92-3	5.0	22	10	44	—	—	—
Allyl propyl disulfide	2179-59-1	2.0	12	3.0	18	—	—	—
alpha-Alumina (see Aluminum oxide)	1344-28-1	—	—	—	—	—	—	—

Total dust			10					
Respirable fraction			5.0					
Aluminum, metal and oxide (as Al)	7429-90-5							
Total dust			10					
Respirable fraction			5.0					
pyro powders			5.0					
welding fumes f/			5.0					
soluble salts			2.0					
alkyls (NOC)			2.0					
Alundum (see Aluminum oxide)								
4-Aminodiphenyl (see WAC 296-62-073)	92-67-1							
2-Aminoethanol (see Ethanolamine)								
2-Aminopyridine	504-29-0	0.5	2.0					
Amitrole	61-82-5		0.2					
Ammonia	7664-41-7	25	18	35	27			
Ammonium chloride, fume	12125-02-9		10		20			
Ammonium sulfamate (Ammate)	7773-06-0							
Total dust			10					
Respirable fraction			5.0					
n-Amyl acetate	628-63-7	100	525					
sec-Amyl acetate	626-38-0	125	650					
Aniline and homologues	62-53-3	2.0	8.0					X
Anisidine (o, p-isomers)	29191-52-4	0.1	0.5					X
Antimony and Compounds (as Sb)	7440-36-0		0.5					
ANTU (alpha Naphthyl thiourea)	86-88-4		0.3					
Argon	7440-37-1	Simple	Asphyxiant					
Arsenic,	7440-38-2		0.2					
Organic compounds (as As)								
Arsenic, Inorganic compounds, (as As) (see WAC 296-62-07347 for applications and exclusions)	7440-38-2		0.2					
Arsine	7784-42-1	0.05	0.2					
Asbestos (see WAC 296-62-077 through 296-62-07753)								
Asphalt (Petroleum fumes)	8052-42-4		5.0					
Atrazine	1912-24-9		5.0					
Azinphos methyl	86-50-0		0.2					X
Barium, soluble compounds (as Ba)	7440-39-3		0.5					
Barium Sulfate	7727-43-7							
Total dust			10.0					
Respirable fraction			5.0					
Benomyl	17804-35-2							
Total dust		0.8	10					
Respirable fraction			5.0					
Benzene, (see WAC 296-62-07523)d/	71-43-2	1.0		5.0				
Benzidine, (see WAC 296-62-073)	92-87-5							
p-Benzoquinone, (see Quinone)								
Benzo(a) pyrene; (see Coal tar pitch volatiles)								
Benzoyl peroxide	94-36-0		5.0					
Benzyl chloride	100-44-7	1.0	5.0					
Beryllium and beryllium	7440-41-7		0.002		0.005		0.025	

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compounds (as Be)								
Biphenyl (see Diphenyl)								
Bismuth telluride, Undoped	1304-82-1							
Total dust			10					
Respirable fraction			5.0					
Bismuth telluride, Se-doped			5.0					
Borates, tetra, sodium salts:								
Anhydrous	1330-43-4		1.0					
Decahydrate	1303-96-4		5.0					
Pentahydrate	12179-04-3		1.0					
Boron oxide	1303-86-2							
Total dust			10					
Boron tribromide	10294-33-4					1.0	10	
Boron trifluoride	7637-07-2					1.0	3.0	
Bromacil	314-40-9	1.0	10					
Bromine	7726-95-6	0.1	0.7	0.3	2.0			
Bromine pentafluoride	7789-30-2	0.1	0.7					
Bromochloromethane, (see Chlorobromethane)								
Bromoform	15-25-2	0.5	5.0					X
Butadiene (1,3-butadiene)	106-99-0	1	2.2	5				
Butane	106-97-8	800	1,900					
Butanethiol (see Butyl mercaptan)								
2-Butanone (Methyl ethyl ketone)	78-93-3	200	590	300	885			
2-Butoxy ethanol (Butyl Cellosolve)	111-76-2	25	120					X
n-Butyl acetate	123-86-4	150	710	200	950			
sec-Butyl acetate	105-46-4	200	950					
tert-Butyl acetate	540-88-5	200	950					
Butyl acrylate	141-32-2	10	55					
n-Butyl alcohol	71-36-3					50	150	X
sec-Butyl alcohol	78-92-2	100	305					
tert-Butyl alcohol	75-65-0	100	300	150	450			
Butylamine	109-73-9					5.0	15	X
tert-Butyl chromate (see CrO ₃)	1189-85-1						0.1	X
n-Butyl glycidyl ether (BGE)	2426-08-6	25	135					
n-Butyl lactate	138-22-7	5.0	25					
Butyl mercaptan	109-79-5	0.5	1.5					
o-sec-Butylphenol	89-72-5	5.0	30					X
p-tert-Butyl-toluene	98-51-1	10	60	20	120			
Cadmium oxide fume, (as Cd) (see WAC 296-62-074)	1306-19-0							
Cadmium dust and salts (as Cd) (see WAC 296-62-074)	7440-43-9							
Calcium arsenate (see WAC 296-62-07347)								
Calcium carbonate	1317-65-3							
Total dust			10					
Respirable fraction			5.0					
Calcium cyanamide	156-62-7		0.5					
Calcium hydroxide	1305-62-0		5.0					
Calcium oxide	1305-78-8		2.0					
Calcium silicate	1344-95-2							
Total dust			10					
Respirable fraction			5.0					
Calcium sulfate	7778-18-9							

Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Camphor (synthetic)	76-22-2	—	2.0	—	—	—	—	—
Caprolactam;	105-60-2	—	—	—	—	—	—	—
Dust	—	—	1.0	—	3.0	—	—	—
Vapor	—	5.0	20	10	40	—	—	—
Captafol (Difolatan)	2425-06-1	—	0.1	—	—	—	—	X
Captan	133-06-2	—	5.0	—	—	—	—	—
Carbaryl (Sevin)	63-25-2	—	5.0	—	—	—	—	—
Carbofuran (Furadon)	1563-66-2	—	0.1	—	—	—	—	—
Carbon black	1333-86-4	—	3.5	—	—	—	—	—
Carbon dioxide	124-38-9	5,000	9,000	30,000	54,000	—	—	—
Carbon disulfide	75-15-0	4.0	12	12	36	—	—	X
Carbon monoxide	630-08-0	35	40	—	—	200 m/	229 m/	—
Carbon tetrabromide	558-13-4	0.1	1.4	0.3	4.0	—	—	—
Carbon tetrachloride	56-23-5	2.0	12.6	—	—	—	—	—
Carbonyl chloride (see Phosgene)	—	—	—	—	—	—	—	—
Carbonyl fluoride	353-50-4	2.0	5.0	5.0	15	—	—	—
Catechol (Pyrocatechol)	120-80-9	5.0	20	—	—	—	—	X
Cellulose (paper fiber)	9004-34-6	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Cesium hydroxide	21351-79-1	—	2.0	—	—	—	—	—
Chlordane	57-74-9	—	0.5	—	—	—	—	X
Chlorinated camphene	8001-35-2	—	0.5	—	1.0	—	—	X
Chlorinated diphenyl oxide	55720-99-5	—	0.5	—	—	—	—	—
Chlorine	7782-50-5	0.5	1.5	1.0	3.0	1.0	3.0	—
Chlorine dioxide	10049-04-4	0.1	0.3	0.3	0.9	—	—	—
Chlorine trifluoride	7790-91-2	—	—	—	—	0.1	0.4	—
Chloroacetaldehyde	107-20-0	—	—	—	—	1.0	3.0	—
a-Chloroacetophenone (Phenacyl chloride)	532-21-4	0.05	0.3	—	—	—	—	—
Chloroacetyl chloride	79-04-9	0.05	0.2	—	—	—	—	—
Chlorobenzene (Monochlorobenzene)	108-90-7	75	350	—	—	—	—	—
o-Chlorobenzylidene malononitrile (OCBM)	2698-41-1	—	—	—	—	0.05	0.4	X
Chlorobromomethane	74-97-5	200	1,050	—	—	—	—	—
2-Chloro-1, 3-butadiene (see beta-Chloroprene)	—	—	—	—	—	—	—	—
Chlorodifluoromethane	75-45-6	1,000	3,500	—	—	—	—	—
Chlorodiphenyl (42% Chlorine) (PCB)	53469-21-9	—	1.0	—	—	—	—	X
Chlorodiphenyl (54% Chlorine) (PCB)	11097-69-1	—	0.5	—	—	—	—	X
1-Chloro-2, 3-epoxypropane, (see Epichlorhydrin)	—	—	—	—	—	—	—	—
2-Chloroethanol (see Ethylene chlorohydrin)	—	—	—	—	—	—	—	—
Chloroethylene (see vinyl chloride)	—	—	—	—	—	—	—	—
Chloroform (Trichloromethane)	67-66-3	2.0	9.78	—	—	—	—	—
1-Chloro-1-nitropropane	600-25-9	2.0	10	—	—	—	—	—
bis-Chloromethyl ether (see WAC 296-62-073)	542-88-1	—	—	—	—	—	—	—
Chloromethyl methyl ether (see Methyl carbomethyl ether)	107-30-2	—	—	—	—	—	—	—
Chloropentafluoroethane	76-15-3	1,000	6,320	—	—	—	—	—
Chloropicrin	76-06-2	0.1	0.7	—	—	—	—	—

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beta-Chloroprene	126-99-8	10	35	—	—	—	—	X
o-Chlorostyrene	2039-87-4	50	285	75	428	—	—	—
o-Chlorotoluene	95-49-8	50	250	—	—	—	—	—
2-Chloro-6-trichloromethyl pyridine (see Nitrapyrin)	1929-82-4	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Chlorpyrifos	2921-88-2	—	0.2	—	—	—	—	X
Chromic acid and chromates (as CrO3)	Varies w/compounds	—	0.1	—	—	—	—	—
Chromium, sol, chromic, chromous salts (as Cr)	7440-47-3	—	0.5	—	—	—	—	—
Chromium (VI) compounds (as Cr)	—	—	0.05	—	—	—	—	—
Chromium Metal and insoluble salts	7440-47-3	—	0.5	—	—	—	—	—
Chromyl chloride	14977-61-8	0.025	0.15	—	—	—	—	—
Chrysene: (see Coal tar pitch volatiles)	—	—	—	—	—	—	—	—
Clopidol	2971-90-6	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Coal Dust (less than 5% SiO2)	—	—	2.0	—	—	—	—	—
Respirable fraction	—	—	—	—	—	—	—	—
Coal dust (greater than or equal to 5% SiO2)	—	—	0.1	—	—	—	—	—
Respirable fraction	—	—	—	—	—	—	—	—
Coal tar pitch volatiles (benzene soluble fraction anthracene, BaP, phenanthrene, acridine, chrysene, pyrene)	65996-93-2	—	0.2	—	—	—	—	—
Cobalt, metal fume & dust, (as Co)	7440-48-4	—	0.05	—	—	—	—	—
Cobalt carbonyl (as Co)	10210-68-1	—	0.1	—	—	—	—	—
Cobalt hydrocarbonyl (as Co)	16842-03-8	—	0.1	—	—	—	—	—
Coke oven emissions (see WAC 296-62-200)	—	—	—	—	—	—	—	—
Copper fume (as Cu)	7440-50-8	—	0.1	—	—	—	—	—
Dusts and mists (as Cu)	—	—	1.0	—	—	—	—	—
Cotton dust (raw) e/	—	—	1.0	—	—	—	—	—
Corundum, (see Aluminum oxide)	—	—	—	—	—	—	—	—
Crag herbicide (Sesone)	136-78-7	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Cresol (all isomers)	1319-77-3	5.0	22	—	—	—	—	X
Crotonaldehyde	123-73-9; 4170-30-3	2.0	6.0	—	—	—	—	—
Crufomate	299-86-5	—	5.0	—	—	—	—	—
Cumene	98-82-8	50	245	—	—	—	—	X
Cyanamide	420-04-2	—	2.0	—	—	—	—	—
Cyanide (as CN)	Varies with Compound	—	5.0	—	—	—	—	X
Cyanogen	460-19-5	10	20	—	—	—	—	—
Cyanogen chloride	506-77-4	—	—	—	—	0.3	0.6	—
Cyclohexane	110-82-7	300	1,050	—	—	—	—	—
Cyclohexanol	108-93-0	50	200	—	—	—	—	X
Cyclohexanone	108-94-1	25	100	—	—	—	—	X
Cyclohexene	110-83-8	300	1,015	—	—	—	—	—
Cyclohexylamine	108-91-8	10	40	—	—	—	—	—
Cyclonite (see RDX)	121-82-4	—	1.5	—	—	—	—	X

Cyclopentadiene	542-92-7	75	200	—	—	—	—	—
Cyclopentane	287-92-3	600	1,720	—	—	—	—	—
Cyhexatin	13121-70-5	—	5.0	—	—	—	—	—
2,4-D (Dichlorophenoxy- acetic acid)	94-75-7	—	10	—	—	—	—	—
DDT (Dichlorodiphenyltri- chloroethane)	50-29-3	—	1.0	—	—	—	—	X
DDVP, Dichlorvos	62-73-7	0.1	1.0	—	—	—	—	X
Decaborane	17702-41-9	0.05	0.3	0.15	0.9	—	—	X
Demeton	8065-48-3	0.01	0.1	—	—	—	—	X
Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone)	123-42-2	50	240	—	—	—	—	—
1, 2-Diaminoethane (see Ethylenediamine)	—	—	—	—	—	—	—	—
Diazinon	333-41-5	—	0.1	—	—	—	—	X
Diazomethane	334-88-3	0.2	0.4	—	—	—	—	—
Diborane	19287-45-7	0.1	0.1	—	—	—	—	—
Dibrom, (see Naled)	—	—	—	—	—	—	—	—
1, 2-Dibromo-3-chloropropane (see WAC 296-62-07345)	96-12-8	—	—	—	—	—	—	—
2-N-Dibutylamino ethanol	102-81-8	2.0	14	—	—	—	—	X
Dibutyl phosphate	107-66-4	1.0	5.0	2.0	10	—	—	—
Dibutyl phthalate	84-74-2	—	5.0	—	—	—	—	—
Dichloroacetylene	7572-29-4	—	—	—	—	0.1	0.4	—
o-Dichlorobenzene	95-50-1	—	—	—	—	50	300	—
p-Dichlorobenzene	106-46-7	75	450	110	675	—	—	—
3, 3'-Dichlorobenzidine (see WAC 296-62-073)	91-94-1	—	—	—	—	—	—	—
Dichlorodifluoromethane	75-71-8	1,000	4,950	—	—	—	—	—
1, 3-Dichloro-5, 5-dimethyl hydantoin	118-52-5	—	0.2	—	0.4	—	—	—
1, 1-Dichloroethane	75-34-3	100	400	—	—	—	—	—
1, 2-Dichloroethane (see Ethylene dichloride)	—	—	—	—	—	—	—	—
1, 2-Dichloroethylene	540-59-0	200	790	—	—	—	—	—
1, 1-Dichloroethylene (see Vinylidene chloride)	—	—	—	—	—	—	—	—
Dichloroethyl ether	111-44-4	5.0	30	10	60	—	—	X
Dichlorofluoromethane	75-43-4	10	40	—	—	—	—	—
Dichloromethane (see Methylene chloride)	—	—	—	—	—	—	—	—
1, 1-Dichloro-1-nitroethane	594-72-9	2.0	10.	10.	—	—	—	—
1, 2-Dichloropropane (see Propylene dichloride)	—	—	—	—	—	—	—	—
Dichloropropene	542-75-6	1.0	5.0	—	—	—	—	X
2, 2-Dichloropropionic acid	75-99-0	1.0	6.0	—	—	—	—	—
Dichlorotetrafluoroethane	76-14-2	1,000	7,000	—	—	—	—	—
Dichlorvos (DDVP)	62-73-7	0.1	1.0	—	—	—	—	X
Dicrotophos	141-66-2	—	0.25	—	—	—	—	X
Dicyclopentadiene	77-73-6	5.0	30	—	—	—	—	—
Dicyclopentadienyl iron Total dust	102-54-5	—	—	—	—	—	—	—
Respirable fraction	—	—	10	—	—	—	—	—
Dieldrin	60-57-1	—	5.0	—	—	—	—	—
Diethanolamine	60-57-1	—	0.25	—	—	—	—	X
Diethylamine	111-42-2	3.0	15	—	—	—	—	—
Diethylamine	109-89-7	10	30	25	75	—	—	—
2-Diethylaminoethanol	100-37-8	10	50	—	—	—	—	X
Diethylene triamine	111-40-0	1.0	4.0	—	—	—	—	X
Diethyl ether (see Ethyl ether)	—	—	—	—	—	—	—	—
Diethyl ketone	96-22-0	200	705	—	—	—	—	—
Diethyl phthalate	84-66-2	—	5.0	—	—	—	—	—

Occupational Health Standards

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Difluorodibromomethane	75-61-6	100	860	—	—	—	—	—
Diglycidyl ether (DGE)	2238-07-5	0.1	0.5	—	—	—	—	—
Dihydroxybenzene (see Hydroquinone)	—	—	—	—	—	—	—	—
Diisobutyl ketone	108-83-8	25	150	—	—	—	—	—
Diisopropylamine	108-18-9	5.0	20	—	—	—	—	X
Dimethoxymethane (see Methylal)	—	—	—	—	—	—	—	—
Dimethyl acetamide	127-19-5	10	35	—	—	—	—	X
Dimethylamine	124-40-3	10	18	—	—	—	—	—
4-Dimethylaminoazobenzene (see WAC 296-62-073)	60-11-7	—	—	—	—	—	—	—
Dimethylaminobenzene (see Xylidene)	—	—	—	—	—	—	—	—
Dimethylaniline (N, N-Dimethylaniline)	121-69-7	5.0	25	10	50	—	—	X
Dimethylbenzene (see Xylene)	—	—	—	—	—	—	—	—
Dimethyl-1, 2-dibromo-2, 2-dichloroethyl phosphate (see Naled)	300-76-5	—	3.0	—	—	—	—	X
Dimethylformamide	68-12-2	10	30	—	—	—	—	X
2, 6-Dimethylheptanone (see Diisobutyl ketone)	—	—	—	—	—	—	—	—
1, 1-Dimethylhydrazine	57-14-7	0.5	1.0	—	—	—	—	X
Dimethyl phthalate	131-11-3	—	5.0	—	—	—	—	—
Dimethyl sulfate	77-78-1	0.1	0.5	—	—	—	—	X
Dinitolmide (3, 5-Dinitro-o-toluamide)	148-01-6	—	5.0	—	—	—	—	—
Dinitrobenzene (all isomers)	(alpha) 528-29-0; (meta) 99-65-0; (para) 100-25-4	0.15	1.0	—	—	—	—	X
Dinitro-o-cresol	534-52-1	—	0.2	—	—	—	—	X
Dinitrotoluene	25321-14-6	—	1.5	—	—	—	—	X
Dioxane (Diethylene dioxide)	123-91-1	25	90	—	—	—	—	X
Dioxathion	78-34-2	—	0.2	—	—	—	—	X
Diphenyl (Biphenyl)	92-52-4	0.2	1.0	—	—	—	—	—
Diphenylamine	122-39-4	—	10	—	—	—	—	—
Diphenylmethane diisocyanate (see Methylene bisphenyl isocyanate (MDI))	—	—	—	—	—	—	—	—
Dipropylene glycol methyl ether	34590-94-8	100	600	150	900	—	—	X
Dipropyl ketone	123-19-3	50	235	—	—	—	—	—
Diquat	85-00-7	—	0.5	—	—	—	—	—
Di-sec, Octyl phthalate (Di-2-ethylhexylphthalate)	117-81-7	—	5.0	—	10	—	—	—
Disulfram	97-77-8	—	2.0	—	—	—	—	—
Disulfoton	298-04-4	—	0.1	—	—	—	—	X
2, 6-Di-tert-butyl-p-cresol	128-37-0	—	10	—	—	—	—	—
Diuron	330-54-1	—	10	—	—	—	—	—
Divinyl benzene	1321-74-0	10	50	—	—	—	—	—
Emery	12415-34-8	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Endosulfan (Thiodan)	115-29-7	—	0.1	—	—	—	—	X
Endrin	72-20-8	—	0.1	—	—	—	—	X
Epichlorhydrin	106-89-8	2.0	8.0	—	—	—	—	X
EPN	2104-64-5	—	0.5	—	—	—	—	X
1, 2-Epoxypropane (see Propylene oxide)	—	—	—	—	—	—	—	—
2, 3-Epoxy-1-propanol (see Glycidol)	—	—	—	—	—	—	—	—
Ethane	—	Simple	Asphyxiant	—	—	—	—	—

Ethanethiol (see Ethyl mercaptan)	—	—	—	—	—	—	—	—
Ethanolamine	141-43-5	3.0	8.0	6.0	15	—	—	—
Ethion	563-12-2	—	0.4	—	—	—	—	X
2-Ethoxyethanol	110-80-5	5.0	19	—	—	—	—	X
2-Ethoxyethyl acetate (Cellosolve acetate)	111-15-9	5.0	27	—	—	—	—	X
Ethyl acetate	141-78-6	400	1,400	—	—	—	—	—
Ethyl acrylate	140-88-5	5.0	20	25	100	—	—	X
Ethyl alcohol (ethanol)	64-17-5	1,000	1,900	—	—	—	—	—
Ethylamine	75-04-07	10	18	—	—	—	—	—
Ethyl amyl ketone (5-Methyl-3-heptanone)	541-85-5	25	130	—	—	—	—	—
Ethyl benzene	100-41-4	100	435	125	545	—	—	—
Ethyl bromide	74-96-4	200	890	250	1,110	—	—	—
Ethyl butyl ketone (3-Heptanone)	106-35-4	50	230	—	—	—	—	—
Ethyl chloride	75-00-3	1,000	2,600	—	—	—	—	—
Ethylene	74-85-1	Simple	Asphyxiant	—	—	—	—	—
Ethylene chlorohydrin	107-07-3	—	—	—	—	1.0	3.0	X
Ethylenediamine	107-15-3	10	25	—	—	—	—	X
Ethylene dibromide	106-93-4	0.1	—	0.5	—	—	—	—
Ethylene dichloride	107-06-2	1.0	4.0	2.0	8.0	—	—	—
Ethylene glycol	107-21-1	—	—	—	—	50	125	—
Ethylene glycol dinitrate	628-96-6	—	—	—	0.1	—	—	X
Ethylene glycol monomethyl ether acetate (Methyl cellosolve acetate)	—	5.0	24	—	—	—	—	X
Ethyleneimine (see WAC 296-62-073)	151-56-4	—	—	—	—	—	—	X
Ethylene oxide (see WAC 296-62-07353)	75-21-8	1.0	2.0	—	—	—	—	—
Ethyl ether	60-29-7	400	1,200	500	1,500	—	—	—
Ethyl formate	109-94-4	100	300	—	—	—	—	—
Ethylidene chloride (see 1, 1-Dichloroethane)	—	—	—	—	—	—	—	—
Ethylidene norbornene	16219-75-3	—	—	—	—	5.0	25	—
Ethyl mercaptan	75-08-1	0.5	1.0	—	—	—	—	—
n-Ethylmorpholine	100-74-3	5.0	23	—	—	—	—	X
Ethyl sec-amyl ketone (5-methyl-3-heptanone)	—	25	130	—	—	—	—	—
Ethyl silicate	78-10-4	10	85	—	—	—	—	—
Fenamiphos	22224-92-6	—	0.1	—	—	—	—	X
Fensulfothion (Dasanit)	115-90-2	—	0.1	—	—	—	—	—
Fenthion	55-38-9	—	0.2	—	—	—	—	X
Ferbam	14484-64-1	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Ferrovandium dust	12604-58-9	—	1.0	—	3.0	—	—	—
Fluorides (as F)	Varies w/compound	—	2.5	—	—	—	—	—
Fluorine	7782-41-4	0.1	0.2	—	—	—	—	—
Fluorotrichloromethane (see Trichlorofluoro methane)	75-69-4	—	—	—	—	1,000	5,600	—
Fonofos	944-22-9	—	0.1	—	—	—	—	X
Formaldehyde (see WAC 296-62-07540)	50-00-0	0.75	—	2.0	—	—	—	—
Formamide	75-12-7	20	30	30	45	—	—	—
Formic acid	64-18-6	5.0	9.0	—	—	—	—	—
Furfural	98-01-1	2.0	8.0	—	—	—	—	X
Furfuryl alcohol	98-00-0	10	40	15	60	—	—	X
Gasoline	8006-61-9	300	900	500	1,500	—	—	—

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Germanium tetrahydride	7782-65-2	0.2	0.6	—	—	—	—	—
Glass, fibrous or dust	—	—	10	—	—	—	—	—
Gluteraldehyde	111-30-8	—	—	—	—	0.2	0.8	—
Glycerin mist	56-81-5	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Glycidol	556-52-5	25	75	—	—	—	—	—
(2, 3-Epoxy-1- propanol)	—	—	—	—	—	—	—	—
Glycol monoethyl ether	—	—	—	—	—	—	—	—
(see 2-Ethoxyethanol)	—	—	—	—	—	—	—	—
Grain dust (oat, wheat, barley)	—	—	10	—	—	—	—	—
Graphite, natural	7782-42-5	—	—	—	—	—	—	—
Respirable dust	—	—	2.5	—	—	—	—	—
Graphite, Synthetic	—	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Guthion	—	—	—	—	—	—	—	—
(see Azinphosmethyl)	—	—	—	—	—	—	—	—
Gypsum	13397-24-5	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Hafnium	7440-58-6	—	0.5	—	—	—	—	—
Helium	—	Simple	Asphyxiant	—	—	—	—	—
Heptachlor	76-44-8	—	0.5	—	—	—	—	X
Heptane (n-heptane)	142-82-5	400	1,600	500	2,000	—	—	—
2-Heptanone,	—	—	—	—	—	—	—	—
(see Methyl n-amyl ketone)	—	—	—	—	—	—	—	—
3-Heptanone	—	—	—	—	—	—	—	—
(see Ethyl butyl ketone)	—	—	—	—	—	—	—	—
Hexachlorobutadiene	87-68-3	0.02	0.24	—	—	—	—	X
Hexachlorocyclopentadiene	77-47-4	0.01	0.1	—	—	—	—	—
Hexachloroethane	67-72-1	1.0	10	—	—	—	—	X
Hexachloronaphthalene	1335-87-1	—	0.2	—	—	—	—	X
Hexafluoroacetone	684-16-2	0.1	0.7	—	—	—	—	X
Hexane	—	—	—	—	—	—	—	—
n-hexane	110-54-3	50	180	—	—	—	—	—
other Isomers	Varies	500	1,800	1,000	3,600	—	—	—
w/compound	—	—	—	—	—	—	—	—
2-Hexanone	591-78-6	5.0	20	—	—	—	—	—
(Methyl-n-butyl ketone)	—	—	—	—	—	—	—	—
Hexone	108-10-1	50	205	75	300	—	—	—
(Methyl isobutyl ketone)	—	—	—	—	—	—	—	—
sec-Hexyl acetate	108-84-9	50	300	—	—	—	—	—
Hexylene Glycol	107-41-5	—	—	—	—	25	125	—
Hydrazine	302-01-2	0.1	0.1	—	—	—	—	X
Hydrogen	—	Simple	Asphyxiant	—	—	—	—	—
Hydrogenated terphenyls	61788-32-7	0.5	5.0	—	—	—	—	—
Hydrogen bromide	10035-10-6	—	—	—	—	3.0	10	—
Hydrogen chloride	7647-01-0	—	—	—	—	5.0	7.0	—
Hydrogen cyanide	74-90-8	—	—	4.7	5.0	—	—	X
Hydrogen fluoride	7664-39-3	—	—	—	—	3.0	2.5	—
Hydrogen peroxide	7722-84-1	1.0	1.4	—	—	—	—	—
Hydrogen selenide (as Se)	7783-07-5	0.05	0.2	—	—	—	—	—
Hydrogen Sulfide	7783-06-4	10	14	15	21	—	—	—
Hydroquinone	123-31-9	—	2.0	—	—	—	—	—
4-Hydroxy-4-methyl-2-pentanone	—	—	—	—	—	—	—	—
(see Diacetone alcohol)	—	—	—	—	—	—	—	—
2-Hydroxypropyl acrylate	999-61-1	0.5	3.0	—	—	—	—	X
Indene	95-13-6	10	45	—	—	—	—	—
Indium and compounds (as In)	7440-74-6	—	0.1	—	—	—	—	—
Iodine	7553-56-2	—	—	—	—	0.1	1.0	—

Iodoform	75-47-8	0.6	10	—	—	—	—	—
Iron oxide dust and fume (as Fe)	1309-37-1	—	—	—	—	—	—	—
Total particulate	—	—	5.0	—	—	—	—	—
Iron pentacarbonyl (as Fe)	13463-40-6	0.1	0.8	0.2	1.6	—	—	—
Iron salts, soluble (as Fe)	Varies	—	1.0	—	—	—	—	—
	w/compound							
Isoamyl acetate	123-92-2	100	525	—	—	—	—	—
Isoamyl alcohol	123-51-3	100	360	125	450	—	—	—
(primary and secondary)								
Isobutyl acetate	110-19-0	150	700	—	—	—	—	—
Isobutyl alcohol	78-83-1	50	150	—	—	—	—	—
Isooctyl alcohol	26952-21-6	50	270	—	—	—	—	X
Isophorone	78-59-1	4.0	23	—	—	5.0	25	—
Isophorone diisocyanate	4098-71-9	0.005	0.045	0.02	—	—	—	X
Isopropoxyethanol	109-59-1	25	105	—	—	—	—	—
Isopropyl acetate	108-21-4	250	950	310	1,185	—	—	—
Isopropyl alcohol	67-63-0	400	980	500	1,225	—	—	—
Isopropylamine	75-31-0	5.0	12	10	24	—	—	—
N-Isopropylaniline	768-52-5	2.0	10	—	—	—	—	X
Isopropyl ether	108-20-3	250	1,050	—	—	—	—	—
Isopropyl glycidyl ether (IGE)	4016-14-2	50	240	75	360	—	—	—
Kaolin								
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Ketene	463-51-4	0.5	0.9	1.5	3.0	—	—	—
Lead inorganic (as Pb)	7439-92-1	—	0.05	—	—	—	—	—
(see WAC 296-62-07521)								
Lead arsenate	3687-31-8	—	0.05	—	—	—	—	—
(see WAC 296-62-07347)								
Lead chromate	7758-97-6	—	0.05	—	—	—	—	—
Limestone	1317-65-3							
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Lindane	58-89-9	—	0.5	—	—	—	—	X
Lithium hydride	7580-67-8	—	0.025	—	—	—	—	—
L.P.G.	68476-85-7	1,000	1,800	—	—	—	—	—
(liquified petroleum gas)								
Magnesite	546-93-0							
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Magnesium oxide fume	1309-48-4	—	—	—	—	—	—	—
Total particulate	—	—	10	—	—	—	—	—
Malathion	121-75-5							
Total dust	—	—	10	—	—	—	—	X
Maleic anhydride	108-31-6	0.25	1.0	—	—	—	—	—
Manganese and compound (as Mn)	7439-96-5	—	—	—	—	—	5.0	—
Manganese tetroxide and fume	7439-96-5	—	1.0	—	3.0	—	—	—
(as Mn)								
Manganese cyclopentadienyl	12079-65-1	—	0.1	—	—	—	—	X
tricarbonyl (as Mn)								
Manganese tetroxide (as Mn)	1317-35-7	—	1.0	—	—	—	—	—
Marble	1317-65-3							
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Mercury (aryl and inorganic)	7439-97-6	—	0.1	—	—	—	—	X
(as Hg)								
Mercury (organo-alkyl compounds)	7439-97-6	—	0.01	—	0.03	—	—	X
(as Hg)								
Mercury (vapor) (as Hg)	7439-97-6	—	0.05	—	—	—	—	X
Mesityl oxide	141-79-7	15	60	25	100	—	—	—
Methacrylic acid	79-41-4	20	70	—	—	—	—	X

Occupational Health Standards

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Methane	—	Simple	Asphyxiant	—	—	—	—	—
Methanethiol (see Methyl mercaptan)	—	—	—	—	—	—	—	—
Methomyl (lannate)	16752-77-5	—	2.5	—	—	—	—	—
Methoxychlor	72-43-5	—	10	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
2-Methoxyethanol (Methyl cellosolve)	109-86-4	5.0	16	—	—	—	—	X
4-Methoxyphenol	150-76-5	—	5.0	—	—	—	—	—
Methyl acetate	79-20-9	200	610	250	760	—	—	—
Methyl acetylene (propyne)	74-99-7	1,000	1,650	—	—	—	—	—
Methyl acetylene-propadiene mixture (MAPP)	—	1,000	1,800	1,250	2,250	—	—	—
Methyl acrylate	96-33-3	10	35	—	—	—	—	X
Methylacrylonitrile	126-98-7	1.0	3.0	—	—	—	—	X
Methylal (Dimethoxy-methane)	109-87-5	1,000	3,100	—	—	—	—	—
Methyl alcohol (methanol)	67-56-1	200	260	250	325	—	—	X
Methylamine	74-89-5	10	12	—	—	—	—	—
Methyl amyl alcohol (see Methyl isobutyl carbinol)	—	—	—	—	—	—	—	—
Methyl n-amyl ketone (2-Heptanone)	110-43-0	50	235	—	—	—	—	—
N-Methyl aniline (see Monomethyl aniline)	—	—	—	—	—	—	—	—
Methyl bromide	74-83-9	5.0	20	—	—	—	—	X
Methyl butyl ketone (see 2-Hexanone)	—	—	—	—	—	—	—	—
Methyl cellosolve (see 2-Methoxyethanol)	109-86-4	5.0	16	—	—	—	—	X
Methyl cellosolve acetate (2-Methoxyethyl acetate)	110-49-6	5.0	24	—	—	—	—	X
Methyl chloride	74-87-3	50	105	100	210	—	—	—
Methyl chloroform (1, 1, 1-trichlorethane)	71-55-6	350	1,900	450	2,450	—	—	—
Methyl chloromethyl ether (see WAC 296-62-073)	107-30-2	—	—	—	—	—	—	—
Methyl 2-cyanoacrylate	137-05-3	2.0	8.0	4.0	16	—	—	—
Methylcyclohexane	108-87-2	400	1,600	—	—	—	—	—
Methylcyclohexanol	25639-42-3	50	235	—	—	—	—	—
Methylcyclohexanone	583-60-8	50	230	75	345	—	—	X
Methylcyclopentadienyl manganese tricarbonyl (as Mn)	12108-13-3	—	0.2	—	—	—	—	X
Methyl demeton	8022-00-2	—	0.5	—	—	—	—	X
Methylene bisphenyl isocyanate (MDI)	101-68-8	—	—	—	—	0.02	0.2	—
4, 4'-Methylene bis (2-chloroaniline (MBOCA)) (see WAC 296-62-073)	101-14-4	0.02	0.22	—	—	—	—	X
Methylene bis (4-cyclohexylisocyanate)	5124-30-1	—	—	—	—	0.01	0.11	—
Methylene chloride	75-09-2	100	—	500	—	—	—	—
4, 4-Methylene dianiline	101-77-9	0.1	0.8	—	—	—	—	X
Methyl ethyl ketone (MEK) (see 2-Butanone)	78-93-3	—	—	—	—	—	—	—
Methyl ethyl ketone peroxide (MEKP)	1338-23-4	—	—	—	—	0.2	1.5	—
Methyl formate	107-31-3	100	250	150	375	—	—	—
5-Methyl-3-heptanone (see Ethyl amyl ketone)	—	—	—	—	—	—	—	—
Methyl hydrazine (see Monomethyl hydrazine)	60-34-4	—	—	—	—	0.2	0.35	X

Methyl iodide	74-88-4	2.0	10	—	—	—	—	X
Methyl isoamyl ketone	110-12-3	50	240	—	—	—	—	—
Methyl isobutyl carbinol	108-11-2	25	100	40	165	—	—	X
Methyl isobutyl ketone (see Hexone)	—	—	—	—	—	—	—	—
Methyl isocyanate	624-83-9	0.02	0.05	—	—	—	—	X
Methyl isopropyl ketone	563-80-4	200	705	—	—	—	—	—
Methyl mercaptan	74-93-1	0.5	1.0	—	—	—	—	—
Methyl methacrylate	80-62-6	100	410	—	—	—	—	—
Methyl parathion	298-00-0	—	0.2	—	—	—	—	X
Methyl propyl ketone (see 2-Pentanone)	—	—	—	—	—	—	—	—
Methyl silicate	684-84-5	1.0	6.0	—	—	—	—	—
alpha-Methyl styrene	98-83-9	50	240	100	485	—	—	—
Mevinphos (see Phosdrin)	—	—	—	—	—	—	—	—
Metribuzin	21087-64-9	—	5.0	—	—	—	—	—
Mica (see Silicates)	—	—	—	—	—	—	—	—
Molybdenum (as Mo)	7439-98-7	—	—	—	—	—	—	—
Soluble compounds	—	—	5.0	—	—	—	—	—
Insoluble compounds	—	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Monocrotophos (Azodrin)	6923-22-4	—	0.25	—	—	—	—	—
Monomethyl aniline	100-61-8	0.5	2.0	—	—	—	—	X
Monomethyl hydrazine	—	—	—	—	—	0.2	0.35	—
Morpholine	110-91-8	20	70	30	105	—	—	X
Naled	300-76-5	—	3.0	—	—	—	—	X
Naphtha (Coal tar)	8030-30-6	100	400	—	—	—	—	X
Naphthalene	91-20-3	10	50	15	75	—	—	—
alpha-Naphthylamine (see WAC 296-62-073)	134-32-7	—	—	—	—	—	—	—
beta-Naphthylamine (see WAC 296-62-073)	91-59-8	—	—	—	—	—	—	—
Neon	7440-01-9	Simple	Asphyxiant	—	—	—	—	—
Nickel carbonyl (as Ni)	13463-39-3	0.001	0.007	—	—	—	—	—
Nickle, (as Ni)	7440-02-0	—	—	—	—	—	—	—
Metal and insoluble compounds	—	—	1.0	—	—	—	—	—
Soluble compounds	—	—	0.1	—	—	—	—	—
Nicotine	54-11-5	—	0.5	—	—	—	—	X
Nitrapyrin (see 2-Chloro-6 trichloromethyl pyridine)	1929-82-4	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Nitric acid	7697-37-2	2.0	5.0	4.0	10	—	—	—
Nitric oxide	10102-43-9	25	30	—	—	—	—	—
p-Nitroaniline	100-01-6	—	3.0	—	—	—	—	X
Nitrobenzene	98-95-3	1.0	5.0	—	—	—	—	X
4-Nitrobiphenyl (see WAC 296-62-073)	92-93-3	—	—	—	—	—	—	—
p-Nitrochlorobenzene	100-00-5	—	0.5	—	—	—	—	X
4-Nitrodiphenyl (see WAC 296-62-073)	—	—	—	—	—	—	—	—
Nitroethane	79-24-3	100	310	—	—	—	—	—
Nitrogen	7727-37-9	Simple	Asphyxiant	—	—	—	—	—
Nitrogen dioxide	10102-44-0	—	—	1.0	1.8	—	—	—
Nitrogen trifluoride	7783-54-2	10	29	—	—	—	—	—
Nitroglycerin	55-63-0	—	—	—	0.1	—	—	X
Nitromethane	75-52-5	100	250	—	—	—	—	—
1-Nitropropane	108-03-2	25	90	—	—	—	—	—
2-Nitropropane	79-46-9	10	35	—	—	—	—	—
N-Nitrosodimethylamine (see WAC 296-62-073)	62-75-9	—	—	—	—	—	—	—

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Nitrotoluene:									
o-isomer	88-72-2	2.0	11	—	—	—	—	—	X
m-isomer	98-08-2	2.0	11	—	—	—	—	—	X
p-isomer	99-99-0	2.0	11	—	—	—	—	—	X
Nitrotrichloromethane (see Chloropicrin)	—	—	—	—	—	—	—	—	—
Nitrous Oxide (Nitrogen oxide)	10024-97-2	50	90	—	—	—	—	—	—
Nonane	111-84-2	200	1,050	—	—	—	—	—	—
Octachloronaphthalene	2234-13-1	—	0.1	—	0.3	—	—	—	X
Octane	111-65-9	300	1,450	375	1,800	—	—	—	—
Oil mist, mineral (particulate)	8012-95-1	—	5.0	—	—	—	—	—	—
Osmium tetroxide (as Os)	20816-12-0	0.0002	0.002	0.0006	0.006	—	—	—	—
Oxalic acid	144-62-7	—	1.0	—	2.0	—	—	—	—
Oxygen difluoride	7783-41-7	—	—	—	—	0.05	0.1	—	—
Ozone	10028-15-6	0.1	0.2	0.3	0.6	—	—	—	—
Paraffin wax fume	8002-74-2	—	2.0	—	—	—	—	—	—
Paraquat (Respirable dust)	4685-14-7	—	0.1	—	—	—	—	—	X
	1910-42-5	—	—	—	—	—	—	—	—
	2074-50-2	—	—	—	—	—	—	—	—
Parathion	56-38-2	—	0.1	—	—	—	—	—	X
Particulate polycyclic aromatic hydrocarbons (see coal tar pitch volatiles)	—	—	—	—	—	—	—	—	—
Particulates not otherwise regulated (see WAC 296-62-07510)	—	—	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—	—
Pentaborane	19624-22-7	0.005	0.01	0.015	0.03	—	—	—	—
Pentachloronaphthalene	1321-64-8	—	0.5	—	—	—	—	—	X
Pentachlorophenol	87-86-5	—	0.5	—	—	—	—	—	X
Pentaerythritol	115-77-5	—	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—	—
Pentane	109-66-0	600	1,800	750	2,250	—	—	—	—
2-Pentanone (methyl propyl ketone)	107-87-9	200	700	250	875	—	—	—	—
Perchloroethylene (tetrachloroethylene)	127-18-4	25	170	—	—	—	—	—	—
Perchloromethyl mercaptan	594-42-3	0.1	0.8	—	—	—	—	—	—
Perchloryl fluoride	7616-94-6	3.0	14	6.0	28	—	—	—	—
Perlite	—	—	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—	—
Petroleum distillates (Naptha) (Rubber Solvent)	—	100	400	—	—	—	—	—	—
Phenol	108-95-2	5.0	19	—	—	—	—	—	X
Phenothiazine	92-84-2	—	5.0	—	—	—	—	—	X
p-Phenylene diamine	106-50-3	—	0.1	—	—	—	—	—	X
Phenyl ether (vapor)	101-84-8	1.0	7.0	—	—	—	—	—	—
Phenyl ether-diphenyl mixture (vapor)	—	1.0	7.0	—	—	—	—	—	—
Phenylethylene, (see Styrene)	—	—	—	—	—	—	—	—	—
Phenyl glycidyl ether (PGE)	122-60-1	1.0	6.0	—	—	—	—	—	—
Phenylhydrazine	100-63-0	5.0	20	10	45	—	—	—	X
Phenyl mercaptan	108-98-5	0.5	2.0	—	—	—	—	—	—
Phenylphosphine	638-21-1	—	—	—	—	0.05	0.25	—	—
Phorate	298-02-2	—	0.05	—	0.2	—	—	—	X
Phosdrin (Mevinphos)	7786-34-7	0.01	0.1	0.03	0.3	—	—	—	X
Phosgene (carbonyl chloride)	75-44-5	0.1	0.4	—	—	—	—	—	—
Phosphine	7803-51-2	0.3	0.4	1.0	1.0	—	—	—	—

Phosphoric acid	7664-38-2	—	1.0	—	3.0	—	—	—
Phosphorus (yellow)	7723-14-0	—	0.1	—	—	—	—	—
Phosphorous oxychloride	10025-87-3	0.1	0.6	—	—	—	—	—
Phosphorus pentachloride	10026-13-8	0.1	1.0	—	—	—	—	—
Phosphorus pentasulfide	1314-80-3	—	1.0	—	3.0	—	—	—
Phosphorus trichloride	7719-12-2	0.2	1.5	0.5	3.0	—	—	—
Phthalic anhydride	85-44-9	1.0	6.0	—	—	—	—	—
m-Phthalodinitrile	626-17-5	—	5.0	—	—	—	—	—
Picloram	1918-02-1	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Picric acid	88-89-1	—	0.1	—	—	—	—	X
Pindone (see Pival)	83-26-1	—	0.1	—	—	—	—	—
(2-Pivalyl-1, 3-indandione)	—	—	—	—	—	—	—	—
Piperazine dihydrochloride	142-64-3	—	5.0	—	—	—	—	—
Pival (see Pindone)	—	—	—	—	—	—	—	—
Plaster of Paris	26499-65-0	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Platinum (as Pt)	7440-06-4	—	—	—	—	—	—	—
Metal	—	—	1.0	—	—	—	—	—
Soluble salts	—	—	0.002	—	—	—	—	—
Polychlorobiphenyls (see Chlorodiphenyls)	—	—	—	—	—	—	—	—
Portland cement	65997-15-1	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Potassium hydroxide	1310-58-3	—	—	—	—	—	2.0	—
Propane	74-98-6	1,000	1,800	—	—	—	—	—
Propargyl alcohol	107-19-7	1.0	2.0	—	—	—	—	X
beta-Propiolactone (see WAC 296-62-073)	57-57-8	—	—	—	—	—	—	—
Propionic acid	79-09-4	10	30	—	—	—	—	—
Propoxur (Baygon)	114-26-1	—	0.5	—	—	—	—	—
n-Propyl acetate	109-60-4	200	840	250	1,050	—	—	—
n-Propyl alcohol	71-23-8	200	500	250	625	—	—	X
n-Propyl nitrate	627-13-4	25	105	40	170	—	—	—
Propylene	—	Simple	Asphyxiant	—	—	—	—	—
Propylene dichloride (1, 2-Dichloropropane)	78-87-5	75	350	110	510	—	—	—
Propylene glycol dinitrate	6423-43-4	0.05	0.3	—	—	—	—	X
Propylene glycol monomethyl ether	107-98-2	100	360	150	540	—	—	—
Propylene imine	75-55-8	2.0	5.0	—	—	—	—	X
Propylene oxide	75-56-9	20	50	—	—	—	—	—
Propyne, (see Methyl acetylene)	—	—	—	—	—	—	—	—
Pyrethrum	8003-34-7	—	5.0	—	—	—	—	—
Pyridine	110-86-1	5.0	15	—	—	—	—	—
Quinone	106-51-4	0.1	0.4	—	—	—	—	—
RDX (see Cyclonite)	—	—	1.5	—	—	—	—	X
Resorcinol	108-46-3	10	45	20	90	—	—	—
Rhodium (as Rh)	7440-16-6	—	—	—	—	—	—	—
Insoluble compounds, Metal fumes and dusts	—	—	0.1	—	—	—	—	—
Soluble compounds, salts	—	—	0.001	—	—	—	—	—
Ronnel	299-84-3	—	10	—	—	—	—	—
Rosin core solder, pyrolysis products (as formaldehyde)	—	—	0.1	—	—	—	—	—
Rotenone	83-79-4	—	5.0	—	—	—	—	—
Rouge	—	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—

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Respirable fraction	—	—	5.0	—	—	—	—	—
Rubber solvent (naphtha)	8002-05-9	100	400	—	—	—	—	—
Selenium compounds (as Se)	7782-49-2	—	0.2	—	—	—	—	—
Selenium hexafluoride (as Se)	7783-79-1	0.05	0.2	—	—	—	—	—
Sesone (see Crag herbicide)	—	—	—	—	—	—	—	—
Silane (see Silicon tetrahydride)	—	—	—	—	—	—	—	—
Silica, amorphous, precipitated and gel	112926-00-8	—	6.0	—	—	—	—	—
Silica, amorphous, diatomaceous earth, containing less than 1% crystalline silica	61790-53-2	—	6.0	—	—	—	—	—
Total dust	—	—	6.0	—	—	—	—	—
Respirable fraction	—	—	3.0	—	—	—	—	—
Silica, crystalline cristobalite, respirable dust	14464-46-1	—	0.05	—	—	—	—	—
Silica, crystalline quartz, respirable dust	14808-60-7	—	0.1 g/ h/	—	—	—	—	—
Silica, crystalline tripoli (as quartz), respirable dust	1317-95-9	—	0.1	—	—	—	—	—
Silica, crystalline tridymite, respirable dust	15468-32-3	—	0.05	—	—	—	—	—
Silica, fused, respirable dust	60676-86-0	—	0.1	—	—	—	—	—
Silicates (less than 1% crystalline silica:								
Mica (Respirable dust)	12001-26-2	—	3.0	—	—	—	—	—
Soapstone, Total dust	—	—	6.0	—	—	—	—	—
Soapstone, Respirable dust	—	—	3.0	—	—	—	—	—
Talc (containing asbestos): use asbestos limit (see WAC 296-62-07517)								
Talc (containing no asbestos), Respirable dust	14807-96-6	—	2.0	—	—	—	—	—
Tremolite (see WAC 296-62-07517)								
Silicon	7440-21-3							
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Silicon Carbide	409-21-2							
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Silicon tetrahydride	7803-62-5	5.0	7.0	—	—	—	—	—
Silver, metal dust and soluble compounds (as Ag)	7440-22-4	—	0.01	—	—	—	—	—
Soapstone (see Silicates)	—	—	—	—	—	—	—	—
Sodium azide (as HN ₃)	26628-22-8	—	—	—	—	0.1	0.3	X
(as NaN ₃)	—	—	—	—	—	0.1	0.3	X
Sodium bisulfite	7631-90-5	—	5.0	—	—	—	—	—
Sodium-2, 4-dichlorophenoxyethyl sulfate (see Crag herbicide)	—	—	—	—	—	—	—	—
Sodium fluoroacetate	62-74-8	—	0.05	—	0.15	—	—	X
Sodium hydroxide	1310-73-2	—	—	—	—	—	2.0	—
Sodium metabisulfite	7681-57-4	—	5.0	—	—	—	—	—
Starch	9005-25-8	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—

Stibine	7803-52-3	0.1	0.5	—	—	—	—	—
Stoddard solvent	8052-41-3	100	525	—	—	—	—	—
Strychnine	57-24-9	—	0.15	—	—	—	—	—
Styrene	100-42-5	50	215	100	425	—	—	—
Subtilisins	9014-01-1	—	—	—	0.00006	—	—	—
					(60 min.)j/	—	—	—
Sucrose	57-50-1	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Sulfotep (see TEDP)	—	—	—	—	—	—	—	X
Sulfur dioxide	7446-09-5	2.0	5.0	5.0	13	—	—	—
Sulfur hexafluoride	2551-62-4	1,000	6,000	—	—	—	—	—
Sulfuric acid	7664-93-9	—	1.0	—	—	—	—	—
Sulfur monochloride	10025-67-9	—	—	—	—	1.0	6.0	—
Sulfur pentafluoride	5714-22-1	—	—	—	—	0.01	0.1	—
Sulfur tetrafluoride	7783-60-0	—	—	—	—	0.1	0.4	—
Sulfuryl fluoride	2699-79-8	5.0	20	10	40	—	—	—
Sulprofos	35400-43-2	—	1.0	—	—	—	—	—
Systox (see Demeton)	—	—	—	—	—	—	—	—
2, 4, 5-T	93-76-5	—	10	—	—	—	—	—
Talc (see Silicates)	—	—	—	—	—	—	—	—
Tantalum	7440-25-7	—	5.0	—	—	—	—	—
Metal and oxide dusts	—	—	—	—	—	—	—	—
TEDP (Sulfotep)	3689-24-5	—	0.2	—	—	—	—	X
Tellurium and compounds (as Te)	13494-80-9	—	0.1	—	—	—	—	—
Tellurium hexafluoride (as Te)	7783-80-4	0.02	0.2	—	—	—	—	—
Temephos	3383-96-8	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
TEPP	107-49-3	0.004	0.05	—	—	—	—	X
Terphenyls	26140-60-3	—	—	—	—	0.5	5.0	—
1, 1, 1, 2-Tetrachloro-2, 2-difluoroethane	76-11-0	500	4,170	—	—	—	—	—
1, 1, 2, 2-Tetrachloro-1, 2-difluoroethane	76-12-0	500	4,170	—	—	—	—	—
1, 1, 2, 2-Tetrachloroethane	79-34-5	1.0	7.0	—	—	—	—	X
Tetrachloroethylene (see Perchloroethylene)	—	—	—	—	—	—	—	—
Tetrachloromethane (see Carbon tetrachloride)	—	—	—	—	—	—	—	—
Tetrachloronaphthalene	1335-88-2	—	2.0	—	—	—	—	X
Tetraethyl lead (as Pb)	78-00-2	—	0.075	—	—	—	—	X
Tetrahydrofuran	109-99-9	200	590	250	735	—	—	—
Tetramethyl lead (as Pb)	75-74-1	—	0.075	—	—	—	—	X
Tetramethyl succinonitrile	3333-52-6	0.5	3.0	—	—	—	—	X
Tetranitromethane	509-14-8	1.0	8.0	—	—	—	—	—
Tetrasodium pyrophosphate	7722-88-5	—	5.0	—	—	—	—	—
Tetryl (2, 4, 6-trinitrophenyl- methylnitramine)	479-45-8	—	1.5	—	—	—	—	X
Thallium (soluble compounds) (as Tl)	7440-28-0	—	0.1	—	—	—	—	X
4, 4-Thiobis (6-tert-butyl-m-cresol)	96-69-5	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Thioglycolic acid	68-11-1	1.0	4.0	—	—	—	—	X
Thionyl chloride	7719-09-7	—	—	—	—	1.0	5.0	—
Thiram (see WAC 296-62-07519)	137-26-8	—	5.0	—	—	—	—	—
Tin (as Sn) Inorganic compounds (except oxides)	7440-31-5	—	2.0	—	—	—	—	—

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Tin, Organic compounds (as Sn)	7440-31-5	—	0.1	—	—	—	—	X
Tin Oxide (as Sn)	21651-19-4	—	2.0	—	—	—	—	—
Titanium dioxide	13463-67-7	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Toulene	108-88-3	100	375	150	560	—	—	—
Toluene-2, 4-diisocyanate (TDI)	584-84-9	0.005	0.04	0.02	0.15	—	—	—
m-Toluidine	108-44-1	2.0	9.0	—	—	—	—	X
o-Toluidine	95-53-4	2.0	9.0	—	—	—	—	X
p-Toluidine	106-49-0	2.0	9.0	—	—	—	—	X
Toxaphene	—	—	—	—	—	—	—	—
(see Chlorinated camphene)	—	—	—	—	—	—	—	—
Tremolite (see Silicates)	—	—	—	—	—	—	—	—
Tributyl phosphate	126-73-8	0.2	2.5	—	—	—	—	—
Trichloroacetic acid	76-03-9	1.0	7.0	—	—	—	—	—
1, 2, 4-Trichlorobenzene	120-82-1	—	—	—	—	5.0	40	—
1, 1, 1-Trichloroethane	—	—	—	—	—	—	—	—
(see Methyl chloroform)	—	—	—	—	—	—	—	—
1, 1, 2-Trichloroethane	79-00-5	10	45	—	—	—	—	—
Trichloroethylene	79-01-6	50	270	200	1,080	—	—	—
Trichlorofluoromethane	75-69-4	—	—	—	—	1,000	5,600	—
Trichloromethane	—	—	—	—	—	—	—	—
(see Chloroform)	—	—	—	—	—	—	—	—
Trichloronaphthalene	1321-65-9	—	5.0	—	—	—	—	X
1, 2, 3-Trichloropropane	96-18-4	10	60	—	—	—	—	X
1, 1, 2-Trichloro-1, 2, 2-trifluoroethane	76-13-1	1,000	7,600	1,250	9,500	—	—	—
Tricyclohexyltin hydroxide	—	—	—	—	—	—	—	—
(see Cyhexatin)	—	—	—	—	—	—	—	—
Triethylamine	121-44-8	10	40	15	60	—	—	—
Trifluorobromomethane	75-63-8	1,000	6,100	—	—	—	—	—
Trimellitic anhydride	552-30-7	0.005	0.04	—	—	—	—	—
Trimethylamine	75-50-3	10	24	15	36	—	—	—
Trimethyl benzene	25551-13-7	25	125	—	—	—	—	—
Trimethyl phosphite	121-45-9	2.0	10	—	—	—	—	—
2, 4, 6-Trinitrophenol	—	—	—	—	—	—	—	—
(see Picric acid)	—	—	—	—	—	—	—	—
2, 4, 6-Trinitrophenyl- methylnitramine	—	—	—	—	—	—	—	—
(see Tetryl)	—	—	—	—	—	—	—	—
2, 4, 6-Trinitrotoluene (TNT)	118-96-7	—	0.5	—	—	—	—	X
Triorthocresyl phosphate	78-30-8	—	0.1	—	—	—	—	X
Triphenyl amine	603-34-9	—	5.0	—	—	—	—	—
Triphenyl phosphate	115-86-6	—	3.0	—	—	—	—	—
Tungsten (as W)	7440-33-7	—	—	—	—	—	—	—
Soluble compounds	—	—	1.0	—	3.0	—	—	—
Insoluble compounds	—	—	5.0	—	10	—	—	—
Turpentine	8006-64-2	100	560	—	—	—	—	—
Uranium (as U)	7440-61-1	—	—	—	—	—	—	—
Soluble compounds	—	—	0.05	—	—	—	—	—
Insoluble compounds	—	—	0.2	—	0.6	—	—	—
n-Valeraldehyde	110-62-3	50	175	—	—	—	—	—
Vanadium (as V2O5)	1314-62-1	—	0.05	—	—	—	—	—
Respirable dust and fume	—	—	—	—	—	—	—	—
Vegetable oil mist	—	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Vinyl acetate	108-05-1	10	30	20	60	—	—	—
Vinyl benzene (see Styrene)	—	—	—	—	—	—	—	—
Vinyl bromide	593-60-2	5.0	20	—	—	—	—	—
Vinyl chloride	75-01-4	—	—	—	—	—	—	—
(see WAC 296-62-07329)	—	—	—	—	—	—	—	—

Vinyl cyanide (see Acrylonitrile)	—	—	—	—	—	—	—	—
Vinyl cyclohexene dioxide	106-87-6	10	60	—	—	—	—	X
Vinyl toluene	25013-15-4	50	240	—	—	—	—	—
Vinylidene chloride (1, 1-Dichloroethylene)	75-35-4	1.0	4.0	—	—	—	—	—
VM & P Naphtha	8032-32-4	300	1,350	400	1,800	—	—	—
Warfarin	81-81-2	—	0.1	—	—	—	—	—
Welding fumes f/ (total particulate)	—	—	5.0	—	—	—	—	—
Wood dust:	—	—	—	—	—	—	—	—
Nonallergenic;	—	—	—	—	—	—	—	—
All soft woods and hard woods except allergenics	—	—	5.0	—	10	—	—	—
Allergenics; (e.g. cedar, mahogany and teak)	—	—	2.5	—	—	—	—	—
Xylenes(Xylol) (o-, m-, p-isomers)	1330-20-7	100	435	150	655	—	—	—
m-Xylene alpha, alpha-diamine	1477-55-0	—	—	—	—	—	0.1	X
Xylidine	1300-73-8	2.0	10	—	—	—	—	X
Yttrium	7440-65-5	—	1.0	—	—	—	—	—
Zinc chloride fume	7646-85-7	—	1.0	—	2.0	—	—	—
Zinc chromate (as CrO3)	Varies w/compound	—	0.05	—	—	—	0.1	—
Zinc oxide	1314-13-2	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Zinc oxide fume	1314-13-2	—	5.0	—	10	—	—	—
Zinc stearate	557-05-1	—	—	—	—	—	—	—
Total dust	—	—	10	—	—	—	—	—
Respirable fraction	—	—	5.0	—	—	—	—	—
Zirconium compounds (as Zr)	7440-67-2	—	5.0	—	10	—	—	—

- Notes: a/ Parts of vapor or gas per million parts of contaminated air by volume at 25°C and 760 mm. Hg. pressure (torr.).
- b/ Milligrams of substance per cubic meter of air. When a numerical entry for a substance is in the mg/m³ column and not in the ppm column, then the number in the mg/m³ column is exact. When numerical entries for a substance are in both the ppm and mg/m³ columns, then the number in the ppm column is exact and the number in the mg/m³ column may be rounded off.
- c/ Duration is for 15 minutes, unless otherwise noted.
- d/ The final benzene standard in WAC 296-62-07523 applies to all occupational exposures to benzene except some sub-segments of industry where exposures are consistently under the action level (i.e., distribution and sale of fuels, sealed containers and pipelines, coke production, oil and gas drilling and production, natural gas processing, and the percentage exclusion for liquid mixtures).
- e/ This 8-hour TWA applies to respirable dust as measured by a vertical elutriator cotton dust sampler or equivalent instrument. The time-weighted average applies to the cotton waste

- processing operations of waste recycling (sorting, blending, cleaning, and willowing) and garretting. See also WAC 296-62-14533 for cotton dust limits applicable to other sectors.
- f/ As determined from breathing-zone air samples.
- g/ Total dust formula for Silica (as quartz) is:
- $$\frac{30\text{mg/m}^3}{\% \text{ SiO}_2 + 3}$$
- h/ Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics:

Aerodynamic diameter (unit_density_sphere)	Percent_passing_selector
2	90
2.5	75
3.5	50
5.0	25
10	0

- Notes: i/ The CAS number is for information only. Enforcement is based on the substance name. For an entry covering more than one metal compound measured as the metal, the CAS number for the metal is given — not CAS numbers for the individual compounds.
- j/ Compliance with the subtilisins PEL is assessed by sampling with a high volume sampler (600-800 liters per minute) for at least 60 minutes.
- m/ Sampling for the carbon monoxide ceiling shall be averaged over 5 minutes but an instantaneous reading over 1500 ppm shall not be exceeded.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07515, filed 9/5/97, effective 11/5/97. Statutory Authority: Chapter 49.17 RCW. 96-17-056, § 296-62-07515, filed 8/20/96, effective 10/15/96; 93-01-067 (Order 92-15), § 296-62-07515, filed 12/11/92, effective 1/15/93; 91-11-070 (Order 91-01), § 296-62-07515, filed 5/20/91, effective 6/20/91; 90-03-029 (Order 89-20), § 296-62-07515, filed 1/11/90, effective 2/26/90; 89-15-002 (Order 89-06), § 296-62-07515, filed 7/6/89, effective 8/7/89; 88-14-108 (Order 88-11), § 296-62-07515, filed 7/6/88; 87-24-051 (Order 87-24), § 296-62-07515, filed 11/30/87. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-16-009 (Order 86-28), § 296-62-07515, filed 7/25/86; 85-01-022 (Order 84-24), § 296-62-07515, filed 12/11/84; 82-13-045 (Order 82-22), § 296-62-07515, filed 6/11/82. Statutory Authority: RCW 49.17.040, 49.17.050 and 49.17.240. 81-16-015 (Order 81-20), § 296-62-07515, filed 7/27/81; 80-11-010 (Order 80-14), § 296-62-07515, filed 8/8/80. Statutory Authority: RCW 49.17.040, 49.17.150 and 49.17.240. 79-08-115 (Order 79-9), § 296-62-07515, filed 7/31/79; Order 73-3, § 296-62-07515, filed 5/7/73.]

WAC 296-62-07711 Regulated areas. (1) General. The employer shall establish a regulated area in work areas where airborne concentrations of asbestos exceed or can reasonably be expected to exceed the permissible exposure limits prescribed in WAC 296-62-07705. All Class I, II and III asbestos work shall be conducted within regulated areas. All other operations covered by this standard shall be conducted within the regulated area where airborne concentrations of asbestos exceed or can reasonably be expected to exceed permissible exposure limits. Regulated areas shall comply with the requirements of subsections (2), (3), (4), (5), (6), (7), and (8) of this section.

(2) Demarcation. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed pursuant to the requirements of WAC 296-62-07721.

(3) Access. Access to regulated areas shall be limited to authorized persons or to persons authorized by the Washington Industrial Safety and Health Act or regulations issued pursuant thereto.

(4) Provision of respirators. Each person entering a regulated area where employees are required in WAC 296-62-07715(1) to wear respirators shall be supplied with and required to use a respirator, selected in accordance with WAC 296-62-07715(2).

(5) Protective clothing. All persons entering a regulated area shall be supplied with and required to wear protective clothing, selected in accordance with WAC 296-62-07717.

(6) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated areas.

(7) Permit-required confined space. The employer shall determine if a permit-required confined space hazard exists and shall take any necessary precautions in accordance with chapter 296-62 WAC Part M.

(8) Competent persons. For construction and shipyard work the employer shall ensure that all asbestos work performed within regulated areas is supervised by a competent person, as defined in WAC 296-62-07703. The duties of the competent person are set out in WAC 296-62-07728.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07711, filed 9/5/97, effective 11/5/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-01-079, § 296-62-07711, filed 12/17/96, effective 3/1/97. Statutory Authority: Chapter 49.17 RCW. 95-04-007, § 296-62-07711, filed 1/18/95, effective 3/1/95; 93-19-142 (Order 93-04), § 296-62-07711, filed 9/22/93, effective 11/1/93; 89-11-035 (Order 89-03), § 296-62-07711, filed 5/15/89, effective 6/30/89; 87-24-051 (Order 87-24), § 296-62-07711, filed 11/30/87. Statutory Authority: RCW 49.17.050(2) and 49.17.040. 87-10-008 (Order 87-06), § 296-62-07711, filed 4/27/87.]

WAC 296-62-07712 Requirements for asbestos activities in construction and shipyard work. (1) Methods of compliance, the following engineering controls and work practices of this section shall be used for construction work defined in WAC 296-155-012 and for all ship repair defined in WAC 296-304-010.

(2) Engineering controls and work practices for all operations covered by this section. The employer shall use the following engineering controls and work practices in all operations covered by this section, regardless of the levels of exposure:

(a) Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM and PACM, except as provided in subsection (10)(b) of this section in the case of roofing material.

(b) Wet methods, or wetting agents, to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup, except where employers demonstrate that the use of wet methods is infeasible due to, for example, the creation of electrical hazards, equipment malfunction, and, in roofing, except as provided in subsection (10)(b) of this section.

(c) Asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet saturated state to prevent the emission of airborne fibers unless the usefulness of the product would be diminished thereby.

(d) Prompt cleanup and disposal of wastes and debris contaminated with asbestos in leak-tight containers except in roofing operations, where the procedures specified in this section apply.

(3) In addition to the requirements of subsection (2) of this section, the employer shall use the following control methods to achieve compliance with the TWA permissible exposure limit and excursion limit prescribed by WAC 296-62-07705:

(a) Local exhaust ventilation equipped with HEPA filter dust collection systems;

(b) Enclosure or isolation of processes producing asbestos dust;

(c) Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;

(d) Use of other work practices and engineering controls that the department can show to be feasible;

(e) Wherever the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the permissible exposure limit and/or excursion limit prescribed in WAC 296-62-07705, the employer shall use them to reduce employee exposure to the lowest levels attainable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of WAC 296-62-07715.

(4) Prohibitions. The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM or PACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

(a) High-speed abrasive disc saws that are not equipped with point or cut ventilator or enclosures with HEPA filtered exhaust air;

(b) Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air;

(c) Dry sweeping, shoveling or other dry cleanup of dust and debris containing ACM and PACM;

(d) Employee rotation as a means of reducing employee exposure to asbestos.

(5) Cleanup.

(a) After completion of asbestos removal, demolition, and renovation operations, all surfaces in and around the work area shall be cleared of any asbestos debris.

(b) Lock-down. Where asbestos has been removed, encapsulant shall be applied to ensure binding of remaining fibers.

(c) The employer shall demonstrate by monitoring that the airborne fiber concentration is below the permissible exposure limits; or, at or below the airborne fiber level existing prior to the start of the removal, demolition, or renovation project; whichever level is lower.

(6) Class I requirements. The following engineering controls and work practices and procedures shall be used:

(a) All Class I work, including the installation and operation of the control system shall be supervised by a competent person as defined in WAC 296-62-07703;

(b) For all Class I jobs involving the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material; for all other Class I jobs, where the employer cannot produce a negative exposure assessment pursuant to WAC 296-62-07709(3), or where employees are working in areas adjacent to the regulation area, while the Class I work is being performed, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

(i) Critical barriers shall be placed over all the openings to the regulated area, except where activities are performed outdoors; or

(ii) The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos

from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible asbestos dust; and perimeter area monitoring showing that clearance levels contained in 40 CFR Part 763, Subpart E, of the EPA Asbestos in Schools Rule are met, or that perimeter area levels, measured by Phase Contrast Microscopy (PCM) are no more than background levels representing the same area before the asbestos work began. The results of such monitoring shall be made known to the employer no later than 24 hours from the end of the work shift represented by such monitoring. Exception: For work completed outdoors where employees are not working in areas adjacent to the regulated areas, (a) of this subsection is satisfied when the specific control methods in subsection (7) of this section are used;

(c) For all Class I jobs, HVAC systems shall be isolated in the regulated area by sealing with a double layer of 6 mil plastic or the equivalent;

(d) For all Class I jobs, impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(e) For all Class I jobs, all objects within the regulated area shall be covered with impermeable dropcloths or plastic sheeting which is secured by duct tape or an equivalent;

(f) For all Class I jobs where the employer cannot produce a negative exposure assessment, or where exposure monitoring shows that a PEL is exceeded, the employer shall ventilate the regulated area to move contaminated air away from the breathing zone of employees toward a HEPA filtration or collection device.

(7) Specific control methods for Class I work. In addition, Class I asbestos work shall be performed using one or more of the following control methods pursuant to the limitations stated below:

(a) Negative pressure enclosure (NPE) systems: NPE systems may be used where the configuration of the work area does not make the erection of the enclosure infeasible, with the following specifications and work practices:

(i) Specifications:

(A) The negative pressure enclosure (NPE) may be of any configuration;

(B) At least 4 air changes per hour shall be maintained in the NPE;

(C) A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the NPE as evidenced by manometric measurements;

(D) The NPE shall be kept under negative pressure throughout the period of its use; and

(E) Air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or collection device.

(ii) Work practices:

(A) Before beginning work within the enclosure and at the beginning of each shift, the NPE shall be inspected for breaches and smoke-tested for leaks, and any leaks sealed.

(B) Electrical circuits in the enclosure shall be deactivated, unless equipped with ground-fault circuit interrupters.

(b) Glove bag systems may be used to remove PACM and/or ACM from straight runs of piping and elbows and

other connections with the following specifications and work practices:

(i) Specifications:

(A) Glove bags shall be made of 6 mil thick plastic and shall be seamless at the bottom.

(B) Glove bags used on elbows and other connections must be designed for that purpose and used without modifications.

(ii) Work practices:

(A) Each glove bag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.

(B) Glove bags shall be smoke-tested for leaks and any leaks sealed prior to use.

(C) Glove bags may be used only once and may not be moved.

(D) Glove bags shall not be used on surfaces whose temperature exceeds 150°F.

(E) Prior to disposal, glove bags shall be collapsed by removing air within them using a HEPA vacuum.

(F) Before beginning the operation, loose and friable material adjacent to the glove bag/box operation shall be wrapped and sealed in two layers of six mil plastic or otherwise rendered intact.

(G) Where system uses attached waste bag, such bag shall be connected to collection bag using hose or other material which shall withstand pressure of ACM waste and water without losing its integrity.

(H) Sliding valve or other device shall separate waste bag from hose to ensure no exposure when waste bag is disconnected.

(I) At least two persons shall perform Class I glove bag removal operations.

(c) Negative pressure glove bag systems. Negative pressure glove bag systems may be used to remove ACM or PACM from piping.

(i) Specifications: In addition to specifications for glove bag systems above, negative pressure glove bag systems shall attach HEPA vacuum systems or other devices to bag during removal.

(ii) Work practices:

(A) The employer shall comply with the work practices for glove bag systems in this section.

(B) The HEPA vacuum cleaner or other device used during removal shall run continually during the operation until it is completed at which time the bag shall be collapsed prior to removal of the bag from the pipe.

(C) Where a separate waste bag is used along with a collection bag and discarded after one use, the collection bag may be reused if rinsed clean with amended water before reuse.

(d) Negative pressure glove box systems: Negative pressure glove boxes may be used to remove ACM or PACM from pipe runs with the following specifications and work practices:

(i) Specifications:

(A) Glove boxes shall be constructed with rigid sides and made from metal or other material which can withstand the weight of the ACM and PACM and water used during removal.

(B) A negative pressure generator shall be used to create negative pressure in the system.

(C) An air filtration unit shall be attached to the box.

(D) The box shall be fitted with gloved apertures.

(E) An aperture at the base of the box shall serve as a bagging outlet for waste ACM and water.

(F) A back-up generator shall be present on site.

(G) Waste bags shall consist of 6 mil thick plastic double-bagged before they are filled or plastic thicker than 6 mil.

(ii) Work practices:

(A) At least two persons shall perform the removal.

(B) The box shall be smoke-tested for leaks and any leaks sealed prior to each use.

(C) Loose or damaged ACM adjacent to the box shall be wrapped and sealed in two layers of 6 mil plastic prior to the job, or otherwise made intact prior to the job.

(D) A HEPA filtration system shall be used to maintain pressure barrier in box.

(e) Water spray process system. A water spray process system may be used for removal of ACM and PACM from cold line piping if, employees carrying out such process have completed a 40-hour separate training course in its use, in addition to training required for employees performing Class I work. The system shall meet the following specifications and shall be performed by employees using the following work practices:

(i) Specifications:

(A) Piping shall be surrounded on 3 sides by rigid framing.

(B) A 360 degree water spray, delivered through nozzles supplied by a high pressure separate water line, shall be formed around the piping.

(C) The spray shall collide to form a fine aerosol which provides a liquid barrier between workers and the ACM and PACM.

(ii) Work practices:

(A) The system shall be run for at least 10 minutes before removal begins.

(B) All removal shall take place within the water barrier.

(C) The system shall be operated by at least three persons, one of whom shall not perform removal, but shall check equipment, and ensure proper operation of the system.

(D) After removal, the ACM and PACM shall be bagged while still inside the water barrier.

(f) A small walk-in enclosure which accommodates no more than two persons (mini-enclosure) may be used if the disturbance or removal can be completely contained by the enclosure with the following specifications and work practices:

(i) Specifications:

(A) The fabricated or job-made enclosure shall be constructed of 6 mil plastic or equivalent.

(B) The enclosure shall be placed under negative pressure by means of a HEPA filtered vacuum or similar ventilation unit.

(C) Change room. A small change room made of 6-mil-thick polyethylene plastic should be contiguous to the mini-enclosure, and is necessary to allow the worker to vacuum off his/her protective coveralls and remove them

before leaving the work area. While inside the enclosure, the worker should wear Tyvek disposable coveralls and use the appropriate HEPA-filtered dual cartridge respiratory protection. The advantages of mini-enclosures are that they limit the spread of asbestos contamination, reduce the potential exposure of bystanders and other workers who may be working in adjacent areas, and are quick and easy to install. The disadvantage of mini-enclosures is that they may be too small to contain the equipment necessary to create a negative-pressure within the enclosure; however, the double layer of plastic sheeting will serve to restrict the release of asbestos fibers to the area outside the enclosure.

(ii) Work practices:

(A) Before use, the mini-enclosure shall be inspected for leaks and smoke-tested to detect breaches, and any breaches sealed.

(B) Before reuse, the interior shall be completely washed with amended water and HEPA-vacuumed.

(C) During use, air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

(8) Alternative control methods for Class I work. Class I work may be performed using a control method which is not referenced in subsection (2)(a) through (3)(e) of this section, or which modifies a control method referenced in subsection (2)(a) through (3)(e) of this section, if the following provisions are complied with:

(a) The control method shall enclose, contain or isolate the processes or source of airborne asbestos dust, or otherwise capture or redirect such dust before it enters the breathing zone of employees.

(b) A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer as defined in WAC 296-62-07703, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria in subsection (6)(b)(ii) of this section. Where the TSI or surfacing material to be removed is 25 linear or 10 square feet or less, the evaluation required in subsection (8)(b) of this section may be performed by a competent person.

(c) Before work which involves the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material is begun using an alternative method which has been the subject of subsection (2)(a) through (3)(e) of this section required evaluation and certification, the employer shall send a copy of such evaluation and certification to the Department of Labor and Industries, Asbestos Certification Program, P.O. Box 44614, Olympia, Washington 98504-4614. The submission shall not constitute approval by WISHA.

(9) Work practices and engineering controls for Class II work.

(a) All Class II work shall be supervised by a competent person as defined in WAC 296-62-07703.

(b) For all indoor Class II jobs, where the employer has not produced a negative exposure assessment pursuant to WAC 296-62-07709(3), or where during the job, changed conditions indicate there may be exposure above the PEL or where the employer does not remove the ACM in a substantially intact state, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

(i) Critical barriers shall be placed over all openings to the regulated area; or

(ii) The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area monitoring or clearance monitoring which meets the criteria set out in subsection (6)(b)(ii) of this section; or

(iii) Impermeable dropcloths shall be placed on surfaces beneath all removal activity.

(c) (Reserved.)

(d) All Class II asbestos work shall be performed using the work practices and requirements set out above in subsection (9)(a) and (b) of this section.

(10) Additional controls for Class II work. Class II asbestos work shall also be performed by complying with the work practices and controls designated for each type of asbestos work to be performed, set out in this paragraph. Where more than one control method may be used for a type of asbestos work, the employer may choose one or a combination of designated control methods. Class II work also may be performed using a method allowed for Class I work, except that glove bags and glove boxes are allowed if they fully enclose the Class II material to be removed.

(a) For removing vinyl and asphalt flooring materials which contain ACM or for which in buildings constructed no later than 1980, the employer has not verified the absence of ACM pursuant to WAC 296-62-07712 (10)(a)(ix). The employer shall ensure that employees comply with the following work practices and that employees are trained in these practices pursuant to WAC 296-62-07722.

(i) Flooring or its backing shall not be sanded.

(ii) Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) shall be used to clean floors.

(iii) Resilient sheeting shall be removed by cutting with wetting of the snip point and wetting during delamination. Rip-up of resilient sheet floor material is prohibited.

(iv) All scraping of residual adhesive and/or backing shall be performed using wet methods.

(v) Dry sweeping is prohibited.

(vi) Mechanical chipping is prohibited unless performed in a negative pressure enclosure which meets the requirements of subsection (7)(a) of this section.

(vii) Tiles shall be removed intact, unless the employer demonstrates that intact removal is not possible.

(viii) When tiles are heated and can be removed intact, wetting may be omitted.

(ix) Resilient flooring material including associated mastic and backing shall be assumed to be asbestos-containing unless an industrial hygienist determines that it is asbestos-free using recognized analytical techniques.

(b) For removing roofing material which contains ACM the employer shall ensure that the following work practices are followed:

(i) Roofing material shall be removed in an intact state to the extent feasible.

(ii) Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards.

(iii) Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.

(iv) When removing built-up roofs with asbestos-containing roofing felts and an aggregate surface using a power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. When removing built-up roofs with asbestos-containing roofing felts and a smooth surface using a power roof cutter, the dust resulting from the cutting operation shall be collected either by a HEPA dust collector or HEPA vacuuming along the cut line, or by gently sweeping and then carefully and completely wiping up the still wet dust and debris left along the cut line. The dust and debris shall be immediately bagged or placed in covered containers.

(v) Asbestos-containing material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist:

(A) Any ACM that is not intact shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift. While the material remains on the roof it shall either be kept wet, placed in an impermeable waste bag, or wrapped in plastic sheeting.

(B) Intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift.

(vi) Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust.

(vii) Roof level heating and ventilation air intake sources shall be isolated or the ventilation system shall be shut down.

(viii) Notwithstanding any other provision of this section, removal or repair of sections of intact roofing less than 25 square feet in area does not require use of wet methods or HEPA vacuuming as long as manual methods which do not render the material nonintact are used to remove the material and no visible dust is created by the removal method used. In determining whether a job involves less than 25 square feet, the employer shall include all removal and repair work performed on the same roof on the same day.

(c) When removing cementitious asbestos-containing siding and shingles or transite panels containing ACM on building exteriors (other than roofs, where subsection (10)(b) of this section applies) the employer shall ensure that the following work practices are followed:

(i) Cutting, abrading or breaking siding, shingles, or transite panels, shall be prohibited unless the employer can

demonstrate that methods less likely to result in asbestos fiber release cannot be used.

(ii) Each panel or shingle shall be sprayed with amended water prior to removal.

(iii) Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.

(iv) Nails shall be cut with flat, sharp instruments.

(d) When removing gaskets containing ACM, the employer shall ensure that the following work practices are followed:

(i) If a gasket is visibly deteriorated and unlikely to be removed intact, removal shall be undertaken within a glove bag as described in subsection (7)(b) of this section.

(ii) (Reserved.)

(iii) The gasket shall be immediately placed in a disposal container.

(iv) Any scraping to remove residue must be performed wet.

(e) When performing any other Class II removal of asbestos-containing material for which specific controls have not been listed in subsection (10) of this section, the employer shall ensure that the following work practices are complied with.

(i) The material shall be thoroughly wetted with amended water prior to and during its removal.

(ii) The material shall be removed in an intact state unless the employer demonstrates that intact removal is not possible.

(iii) Cutting, abrading or breaking the material shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release are not feasible.

(iv) Asbestos-containing material removed, shall be immediately bagged or wrapped, or kept wet until transferred to a closed receptacle, no later than the end of the work shift.

(f) Alternative work practices and controls. Instead of the work practices and controls listed in subsection (10) of this section, the employer may use different or modified engineering and work practice controls if the following provisions are complied with.

(i) The employer shall demonstrate by data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used, that employee exposure will not exceed the PELs under any anticipated circumstances.

(ii) A competent person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

(11) Work practices and engineering controls for Class III asbestos work. Class III asbestos work shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and to bystander employees.

(a) The work shall be performed using wet methods.

(b) To the extent feasible, the work shall be performed using local exhaust ventilation.

(c) Where the disturbance involves drilling, cutting, abrading, sanding, chipping, braking, or sawing of thermal system insulation or surfacing material, the employer shall use impermeable dropcloths, and shall isolate the operation using mini-enclosures or glove bag systems pursuant to subsection (7) of this section or another isolation method.

(d) Where the employer does not produce a "negative exposure assessment" for a job, or where monitoring results show the PEL has been exceeded, the employer shall contain the area using impermeable dropcloths and plastic barriers or their equivalent, or shall isolate the operation using a control system listed in and in compliance with subsection (7) of this section.

(e) Employees performing Class III jobs, which involve the disturbance of thermal system insulation or surfacing material, or where the employer does not produce a "negative exposure assessment" or where monitoring results show a PEL has been exceeded, shall wear respirators which are selected, used and fitted pursuant to provisions of WAC 296-62-07715.

(12) Class IV asbestos work. Class IV asbestos jobs shall be conducted by employees trained pursuant to the asbestos awareness training program set out in WAC 296-62-07722. In addition, all Class IV jobs shall be conducted in conformity with the requirements set out in this section, mandating wet methods, HEPA vacuums, and prompt clean up of debris containing ACM and PACM.

(a) Employees cleaning up debris and waste in a regulated area where respirators are required shall wear respirators which are selected, used and fitted pursuant to provisions of WAC 296-62-07715.

(b) Employers of employees who clean up waste and debris in, and employers in control of, areas where friable thermal system insulation or surfacing material is accessible, shall assume that such waste and debris contain asbestos.

(13) Alternative methods of compliance for installation, removal, repair, and maintenance of certain roofing and pipeline coating materials. Notwithstanding any other provision of this section, an employer who complies with all provisions of subsection (10)(a) and (b) of this section when installing, removing, repairing, or maintaining intact pipeline asphaltic wrap, or roof cements, mastics, coatings, or flashings which contain asbestos fibers encapsulated or coated by bituminous or resinous compounds shall be deemed to be in compliance with this section. If an employer does not comply with all provisions of this subsection (13), or if during the course of the job the material does not remain intact, the provisions of subsection (10) of this section apply instead of this subsection (13).

(a) Before work begins and as needed during the job, a competent person who is capable of identifying asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the au-

thority to take prompt corrective measures to eliminate such hazards, shall conduct an inspection of the worksite and determine that the roofing material is intact and will likely remain intact.

(b) All employees performing work covered by this subsection (13) shall be trained in a training program that meets the requirements of WAC 296-62-07722.

(c) The material shall not be sanded, abraded, or ground. Manual methods which do not render the material nonintact shall be used.

(d) Material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist. All such material shall be removed from the roof as soon as is practicable, but in any event no later than the end of the work shift.

(e) Where roofing products which have been labeled as containing asbestos pursuant to WAC 296-62-07721, installed on nonresidential roofs during operations covered by this subsection (13), the employer shall notify the building owner of the presence and location of such materials no later than the end of the job.

(f) All removal or disturbance of pipeline asphaltic wrap shall be performed using wet methods.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07712, filed 9/5/97, effective 11/5/97; 97-01-079, § 296-62-07712, filed 12/17/96, effective 3/1/97. Statutory Authority: Chapter 49.17 RCW. 89-21-018 (Order 89-10), § 296-62-07712, filed 10/10/89, effective 11/24/89; 89-11-035 (Order 89-03), § 296-62-07712, filed 5/15/89, effective 6/30/89; 87-24-051 (Order 87-24), § 296-62-07712, filed 11/30/87.]

WAC 296-62-07715 Respiratory protection. (1)

General. The employer shall provide respirators, and ensure that they are used, where required by WAC 296-62-077 through 296-62-07753. Respirators shall be used in the following circumstances:

(a) During the interval necessary to install or implement feasible engineering and work practice controls;

(b) In work operations, such as maintenance and repair activities, or other activities for which engineering and work practice controls are not feasible;

(c) In work situations where feasible engineering and work practice controls are not yet sufficient to reduce exposure to or below the permissible exposure limits;

(d) In emergencies;

(e) In all regulated areas, except for construction activities which follow requirements set forth in WAC 296-62-07715 (1)(g);

(f) Whenever employee exposure exceeds the permissible exposure limits;

(g) During the following construction activities:

(i) During all Class I asbestos jobs;

(ii) During all Class II work where the ACM is not removed in a substantially intact state;

(iii) During all Class II and Class III work which is not performed using wet methods, provided, however, that respirators need not be worn during removal of ACM from sloped roofs when a negative exposure assessment has been made and the ACM is removed in an intact state;

(iv) During all Class II and Class III asbestos jobs where the employer does not produce a "negative exposure assessment";

(v) During all Class III jobs where TSI or surfacing ACM or PACM is being disturbed; and

(vi) During all Class IV work performed within regulated areas where employees performing other work are required to wear respirators.

(2) Respirator selection.

(a) Where respirators are used, the employer shall select and provide, at no cost to the employee, the appropriate respirator as specified in Table 1 of this section or in WAC 296-62-07715(2), and shall ensure that the employee uses the respirator provided.

(b) The employer shall select respirators from among those jointly approved as being acceptable for protection by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

(c) The employer shall provide a tight fitting powered, air-purifying respirator in lieu of any negative pressure respirator specified in Table 1 of this section whenever:

(i) An employee chooses to use this type of respirator; and

(ii) This respirator will provide adequate protection to the employee.

(d) The employer shall inform any employee required to wear a respirator under this subsection that the employee may require the employer to provide a powered air purifying respirator in lieu of a negative pressure respirator.

(e) In addition to the selection criterion below, the employer shall provide a half-mask air purifying respirator, other than a disposable respirator, equipped with high efficiency filters whenever the employee performs the following activities: Class II and III asbestos jobs where the employer does not produce a negative exposure assessment; and Class III jobs where TSI or surfacing ACM or PACM is being disturbed.

TABLE 1—RESPIRATORY PROTECTION FOR ASBESTOS FIBERS

Airborne concentration of asbestos or conditions of use	Required respirator. (See Note a.)
Not in excess of 1 f/cc (10 X PEL), or otherwise as required independent of exposure	Half-mask air-purifying respirator other than a disposable respirator, equipped with high efficiency filters. (See Note b.)
Not in excess of 5 f/cc (50 X PEL)	Full facepiece air-purifying respirator equipped with high efficiency filters.
Not in excess of 10 f/cc (100 X PEL)	Any powered air-purifying respirator equipped with high efficiency filters or any supplied-air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1,000 X PEL)	Full facepiece supplied-air respirator operated in pressure demand mode.
Greater than 100 f/cc (1,000 X PEL) or unknown concentration	Full facepiece supplied-air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus or HEPA filter egress cartridges. (See Note c.)

Note:

- a. Respirators assigned for higher environmental concentrations may be used at lower concentrations.
- b. A high-efficiency filter means a filter that is capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers mean aerodynamic diameter or larger.
- c. See subsection (5)(c) of this section for fit testing requirements.

(3) Special respiratory protection requirements.

(a) Unless specifically identified in this subsection, respirator selection for asbestos removal, demolition, and renovation operations shall be in accordance with Table 1 of subsection (2) of this section. The employer shall provide and require to be worn, at no cost to the employee, a full facepiece supplied-air respirator operated in the pressure demand mode equipped with either an auxiliary positive pressure self-contained breathing apparatus or a HEPA filter egress cartridge, to employees engaged in the following asbestos operations:

(i) Inside negative pressure enclosures used for removal, demolition, and renovation of friable asbestos from walls, ceilings, vessels, ventilation ducts, elevator shafts, and other structural members, but does not include pipes or piping systems; or

(ii) Any dry removal of asbestos.

(b) For all Class I work excluded or not specified in (a)(i) and (ii) of this subsection, the employer shall provide a tight-fitting powered air purifying respirator equipped with high-efficiency filters or a full facepiece supplied-air respirator operated in the pressure demand mode equipped with HEPA filter egress cartridges or an auxiliary positive pressure self-contained breathing apparatus for all employees within the regulated area where asbestos work is being performed for which a negative exposure assessment has not been produced and, the exposure assessment indicates the exposure level will not exceed 1 f/cc as an 8-hour time weighted average. A full facepiece supplied-air respirator operated in the pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus, or a HEPA filter egress cartridge, shall be provided under such conditions, if the exposure assessment indicates exposure levels above 1 f/cc as an 8-hour time weighted average.

Exception: In lieu of the supplied-air respirator required by subsection (3) of this section, an employer may provide and require to be worn, at no cost to the employee, a full facepiece supplied-air respirator operated in the continuous flow mode equipped with either an auxiliary positive pressure self-contained breathing apparatus or a back-up HEPA filter egress cartridge where daily and historical personal monitoring data indicates the concentration of asbestos fibers is not reasonably expected to exceed 10 f/cc. The continuous flow respirator shall be operated at a minimum air flow rate of six cubic feet per minute at the facepiece using respirable air supplied in accordance with WAC 296-62-07111.

(4) Respirator program.

(a) Where respiratory protection is used, the employer shall institute a respirator program in accordance with WAC 296-62-071.

(b) The employer shall permit each employee who uses a filter respirator to change the filter elements whenever an

increase in breathing resistance is detected and shall maintain an adequate supply of filter elements for this purpose.

(c) Employees who wear respirators shall be permitted to leave work areas to wash their faces and respirator facepieces whenever necessary to prevent skin irritation associated with respirator use.

(d) No employee shall be assigned to tasks requiring the use of respirators if, based upon his or her most recent examination, an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or other employees will be impaired by the use of a respirator. Such employee shall be assigned to another job or given the opportunity to transfer to a different position whose duties he or she is able to perform with the same employer, in the same geographical area and with the same seniority, status, and rate of pay the employee had just prior to such transfer, if such a different position is available.

(5) Respirator fit testing.

(a) The employer shall ensure that the respirator issued to the employee exhibits the least possible facepiece leakage and that the respirator is fitted properly.

(b) For each employee wearing negative pressure respirators, employers shall perform either quantitative or qualitative face fit tests at the time of initial fitting and at least every six months thereafter. The qualitative fit tests may be used only for testing the fit of half-mask respirators where they are permitted to be worn, and shall be conducted in accordance with WAC 296-62-07739, Appendix C. The tests shall be used to select facepieces that provide the required protection as prescribed in Table 1 of this section.

(c) Any supplied-air respirator facepiece equipped with a back-up HEPA filter egress cartridge shall be quantitatively fit tested with the air supply disconnected at the time of initial fitting and at least every six months thereafter. The quantitative fit tests shall be conducted using the procedures described in WAC 296-62-07739(2), Appendix C, for negative pressure respirators.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07715, filed 9/5/97, effective 11/5/97; 97-01-079, § 296-62-07715, filed 12/17/96, effective 3/1/97. Statutory Authority: Chapter 49.17 RCW. 91-03-044 (Order 90-18), § 296-62-07715, filed 1/10/91, effective 2/12/91; 89-11-035 (Order 89-03), § 296-62-07715, filed 5/15/89, effective 6/30/89; 87-24-051 (Order 87-24), § 296-62-07715, filed 11/30/87. Statutory Authority: RCW 49.17.050(2) and 49.17.040. 87-10-008 (Order 87-06), § 296-62-07715, filed 4/27/87.]

WAC 296-62-07717 Protective work clothing and equipment. (1) Provision and use. If an employee is exposed to asbestos above the permissible exposure limits, or where the possibility of eye irritation exists, or for which a required negative exposure assessment is not produced and for any employee performing Class I operations, the employer shall provide at no cost to the employee and require that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(a) Coveralls or similar full-body work clothing;

(b) Gloves, head coverings, and foot coverings; and

(c) Face shields, vented goggles, or other appropriate protective equipment which complies with WAC 296-24-07801.

(2) Removal and storage.

(a) The employer shall ensure that employees remove work clothing contaminated with asbestos only in change rooms provided in accordance with WAC 296-62-07719(1).

(b) The employer shall ensure that no employee takes contaminated work clothing out of the change room, except those employees authorized to do so for the purpose of laundering, maintenance, or disposal.

(c) Contaminated clothing. Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and be labeled in accordance with WAC 296-62-07721.

(d) Containers of contaminated protective devices or work clothing which are to be taken out of change rooms or the workplace for cleaning, maintenance, or disposal, shall bear labels in accordance with WAC 296-62-07721(6).

(3) Cleaning and replacement.

(a) The employer shall clean, launder, repair, or replace protective clothing and equipment required by this paragraph to maintain their effectiveness. The employer shall provide clean protective clothing and equipment at least weekly to each affected employee.

(b) The employer shall prohibit the removal of asbestos from protective clothing and equipment by blowing or shaking.

(c) Laundering of contaminated clothing shall be done so as to prevent the release of airborne fibers of asbestos in excess of the permissible exposure limits prescribed in WAC 296-62-07705.

(d) Any employer who gives contaminated clothing to another person for laundering shall inform such person of the requirement in (c) of this subsection to effectively prevent the release of airborne fibers of asbestos in excess of the permissible exposure limits.

(e) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with asbestos of the potentially harmful effects of exposure to asbestos.

(f) Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with WAC 296-62-07721.

(4) Inspection of protective clothing for construction and shipyard work.

(a) The competent person shall examine worksuits worn by employees at least once per workshift for rips or tears that may occur during performance of work.

(b) When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the worksuit shall be immediately replaced.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07717, filed 9/5/97, effective 11/5/97; 97-01-079, § 296-62-07717, filed 12/17/96, effective 3/1/97. Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-62-07717, filed 7/20/94, effective 9/20/94; 89-11-035 (Order 89-03), § 296-62-07717, filed 5/15/89, effective 6/30/89; 87-24-051 (Order 87-24), § 296-62-07717, filed 11/30/87. Statutory Authority: RCW 49.17.050(2) and 49.17.040. 87-10-008 (Order 87-06), § 296-62-07717, filed 4/27/87.]

WAC 296-62-07721 Communication of hazards to employees. (1) Communication of hazards to employees. General industry requirements.

(a) Introduction. This section applies to the communication of information concerning asbestos hazards in general industry. Asbestos exposure in industry occurs in a wide variety of industrial and commercial settings. Employees who manufacture asbestos-containing products may be exposed to asbestos fibers. Employees who repair and replace automotive brakes and clutches may be exposed to asbestos fibers. In addition, employees engaged in housekeeping activities in industrial facilities with asbestos product manufacturing operations, and in public and commercial buildings with installed asbestos-containing materials may be exposed to asbestos fibers. It should be noted that employees who perform housekeeping activities during and after construction activities are covered by asbestos construction work requirements in WAC 296-62-077. Housekeeping employees, regardless of industry designation, should know whether building components they maintain may expose them to asbestos. Building owners are often the only and/or best source of information concerning the presence of previously installed asbestos-containing building materials. Therefore they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section.

(b) Installed asbestos-containing material. Employers and building owners are required to treat installed TSI and sprayed-on and troweled-on surfacing materials as ACM for the purposes of this standard. These materials are designated "presumed ACM or PACM," and are defined in WAC 296-62-07703. Asphalt and vinyl flooring installed no later than 1980 also shall be treated as asbestos-containing. The employer or building owner may demonstrate that PACM and flooring materials do not contain asbestos by complying with WAC 296-62-07712 (10)(a)(ix).

(c) Duties of employers and building and facility owners.

(i) Building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the worksite. Employers and building and facility owners shall exercise due diligence in complying with these requirements to inform employers and employees about the presence and location of ACM and PACM.

(ii) Before authorizing or allowing any construction, renovation, remodeling, maintenance, repair, or demolition project, an owner or owner's agent shall perform, or cause to be performed, a good faith inspection to determine whether materials to be worked on or removed contain asbestos. The inspection shall be documented by a written report maintained on file and made available upon request to the director.

(A) The good faith inspection shall be conducted by an accredited inspector.

(B) Such good faith inspection is not required if the owner or owner's agent is reasonably certain that asbestos will not be disturbed by the project or the owner or owner's agent assumes that the suspect material contains asbestos and handles the material in accordance with WAC 296-62-07701 through 296-62-07753.

(iii) The owner or owner's agent shall provide, to all contractors submitting a bid to undertake any construction, renovation, remodeling, maintenance, repair, or demolition project, the written statement either of the reasonable cer-

tainty of nondisturbance of asbestos or of assumption of the presence of asbestos. Contractors shall be provided with the written report before they apply or bid to work.

(iv) Any owner or owner's agent who fails to comply with (c)(ii) and (iii) of this subsection shall be subject to a mandatory fine of not less than two hundred fifty dollars for each violation. Each day the violation continues shall be considered a separate violation. In addition, any construction, renovation, remodeling, maintenance, repair, or demolition which was started without meeting the requirements of this section shall be halted immediately and cannot be resumed before meeting such requirements.

(v) Building and facility owners shall inform employers of employees, and employers shall inform employees who will perform housekeeping activities in areas which contain ACM and/or PACM of the presence and location of ACM and/or PACM in such areas which may be contacted during such activities.

(vi) Upon written or oral request, building or facility owners shall make a copy of the written report required in this section available to the department of labor and industries and the collective bargaining representatives or employee representatives of any employee who may be exposed to any asbestos or asbestos-containing materials. A copy of the written report shall be posted conspicuously at the location where employees report to work.

(vii) Building and facility owners shall maintain records of all information required to be provided pursuant to this section and/or otherwise known to the building owner concerning the presence, location and quantity of ACM and PACM in the building/facility. Such records shall be kept for the duration of ownership and shall be transferred to successive owners.

(2) Communication of hazards to employees. Requirements for construction and shipyard employment activities.

(a) Introduction. This section applies to the communication of information concerning asbestos hazards in construction and shipyard employment activities. Most asbestos-related construction and shipyard activities involve previously installed building materials. Building/vessel owners often are the only and/or best sources of information concerning them. Therefore, they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section. Installed Asbestos Containing Building/Vessel Material: Employers and building/vessel owners shall identify TSI and sprayed or troweled on surfacing materials as asbestos-containing unless the employer, by complying with WAC 296-62-07721(3) determines it is not asbestos containing. Asphalt or vinyl flooring/decking material installed in buildings or vessels no later than 1980 shall also be considered as asbestos containing unless the employer/owner, pursuant to WAC 296-62-07712 (10)(a)(ix) determines it is not asbestos containing. If the employer or building/vessel owner has actual knowledge or should have known, through the exercise of due diligence, that materials other than TSI and sprayed-on or troweled-on surfacing materials are asbestos containing, they shall be treated as such. When communicating information to employees pursuant to this standard, owners and employers shall identify "PACM" as ACM. Additional requirements relating to communication

of asbestos work on multi-employer worksites are set out in WAC 296-62-07706.

(b) Duties of building/vessel and facility owners.

(i) Before work subject to this section is begun, building/vessel and facility owners shall identify the presence, location and quantity of ACM, and/or PACM at the work site. All thermal system insulation and sprayed on or troweled on surfacing materials in buildings/vessels or substrates constructed no later than 1980 shall be identified as PACM. In addition, resilient flooring/decking material installed no later than 1980 shall also be identified as asbestos containing.

(ii) Before authorizing or allowing any construction, renovation, remodeling, maintenance, repair, or demolition project, a building/vessel and facility owner or owner's agent shall perform, or cause to be performed, a good faith inspection to determine whether materials to be worked on or removed contain asbestos. The inspection shall be documented by a written report maintained on file and made available upon request to the director.

(A) The good faith inspection shall be conducted by an accredited inspector.

(B) Such good faith inspection is not required if the building/vessel and facility owner or owner's agent assumes that the suspect material contains asbestos and handles the material in accordance with WAC 296-62-07701 through 296-62-07753 or if the owner or the owner's agent is reasonably certain that asbestos will not be distributed by the project.

(iii) The building/vessel and facility owner or owner's agent shall provide, to all contractors submitting a bid to undertake any construction, renovation, remodeling, maintenance, repair, or demolition project, the written statement either of the reasonable certainty of nondisturbance of asbestos or of assumption of the presence of asbestos. Contractors shall be provided the written report before they apply or bid on work.

(iv) Any building/vessel and facility owner or owners agent who fails to comply with WAC 296-62-07719 (2)(b)(ii) and (iii) shall be subject to a mandatory fine of not less than two hundred fifty dollars for each violation. Each day the violation continues shall be considered a separate violation. In addition, any construction, renovation, remodeling, maintenance, repair, or demolition which was started without meeting the requirements of this section shall be halted immediately and cannot be resumed before meeting such requirements.

(v) Upon written or oral request, building/vessel and facility owner or owner's agent shall make a copy of the written report required in this section available to the department of labor and industries and the collective bargaining representatives or employee representatives of any employee who may be exposed to any asbestos or asbestos-containing materials. A copy of the written report shall be posted conspicuously at the location where employees report to work.

(vi) Building/vessel and facility owner or owner's agent shall notify in writing the following persons of the presence, location and quantity of ACM or PACM, at work sites in their buildings/facilities/vessels.

(A) Prospective employers applying or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing such material;

(B) Employees of the owner who will work in or adjacent to areas containing such material;

(C) On multi-employer worksites, all employers of employees who will be performing work within or adjacent to areas containing such materials;

(D) Tenants who will occupy areas containing such materials.

(c) Duties of employers whose employees perform work subject to this standard in or adjacent to areas containing ACM and PACM. Building/vessel and facility owner or owner's agents whose employees perform such work shall comply with these provisions to the extent applicable.

(i) Before work subject to this standard is begun, building/vessel and facility owner or owner's agents shall determine the presence, location, and quantity of ACM and/or PACM at the work site pursuant to WAC 296-62-07721 (2)(b).

(ii) Before work under this standard is performed employers of employees who will perform such work shall inform the following persons of the location and quantity of ACM and/or PACM present at the work site and the precautions to be taken to insure that airborne asbestos is confined to the area.

(A) Owners of the building/vessel or facility;

(B) Employees who will perform such work and employers of employees who work and/or will be working in adjacent areas;

(iii) Upon written or oral request, a copy of the written report required in this section shall be made available to the department of labor and industries and the collective bargaining representatives or employee representatives of any employee who may be exposed to any asbestos or asbestos-containing materials. A copy of the written report shall be posted conspicuously at the location where employees report to work.

(iv) Within 10 days of the completion of such work, the employer whose employees have performed work subject to this standard, shall inform the building/vessel or facility owner and employers of employees who will be working in the area of the current location and quantity of PACM and/or ACM remaining in the former regulated area and final monitoring results, if any.

(d) In addition to the above requirements, all employers who discover ACM and/or PACM on a work site shall convey information concerning the presence, location and quantity of such newly discovered ACM and/or PACM to the owner and to other employers of employees working at the work site, within 24 hours of the discovery.

(e) No contractor may commence any construction, renovation, remodeling, maintenance, repair, or demolition project without receiving a copy of the written response or statement required by WAC 296-62-07721 (2)(b). Any contractor who begins any project without the copy of the written report or statement shall be subject to a mandatory fine of not less than two hundred fifty dollars per day. Each day the violation continues shall be considered a separate violation.

(3) Criteria to rebut the designation of installed material as PACM.

(a) At any time, an employer and/or building/vessel owner may demonstrate, for purposes of this standard, that PACM does not contain asbestos. Building/vessel owners and/or employers are not required to communicate information about the presence of building material for which such a demonstration pursuant to the requirements of (b) of this subsection has been made. However, in all such cases, the information, data and analysis supporting the determination that PACM does not contain asbestos, shall be retained pursuant to WAC 296-62-07727.

(b) An employer or owner may demonstrate that PACM does not contain asbestos by the following:

(i) Having a completed inspection conducted pursuant to the requirements of AHERA (40 CFR Part 763, Subpart E) which demonstrates that the material is not ACM;

(ii) Performing tests of the material containing PACM which demonstrate that no asbestos is present in the material. Such tests shall include analysis of bulk samples collected in the manner described in 40 CFR 763.86. The tests, evaluation and sample collection shall be conducted by an accredited inspector. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute for Standards and Technology (NIST) or the Round Robin for bulk samples administered by the American Industrial Hygiene Associate (AIHA), or an equivalent nationally recognized Round Robin testing program.

(4) At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain TSI or surfacing ACM and PACM, the building/vessel and facility owner or owner's agent shall post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

(5) Warning signs.

(a) Warning signs that demarcate the regulated area shall be provided and displayed at each location where a regulated area is required. In addition, warning signs shall be posted at all approaches to regulated areas and be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs.

(b) The warning signs required by (a) of this subsection shall bear the following information:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED
IN THIS AREA

(c) The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by (a) of this subsection. Means to ensure employee comprehension may include the use of foreign languages, pictographs, and graphics.

(6) Warning labels.

(a) Warning labels shall be affixed to all products containing asbestos including raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, and to their containers including waste containers. Where feasible, installed asbestos products shall contain a visible label.

(b) Labels shall be printed in large, bold letters on a contrasting background.

(c) The labels shall comply with the requirements of WAC 296-62-05411, and shall include the following information:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
AVOID BREATHING AIRBORNE ASBESTOS FIBERS

(7) The provisions for labels required by subsection (6)(a) of this section or for material safety data sheets required by subsection (8) of this section do not apply where:

(a) Asbestos fibers have been modified by a bonding agent, coating, binder, or other material, provided that the manufacturer can demonstrate that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of fibers of asbestos in excess of the excursion limit will be released; or

(b) Asbestos is present in a product in concentrations less than 0.1 percent by weight.

(8) Material safety data sheets. Employers who are manufacturers or importers of asbestos, or asbestos products shall comply with the requirements regarding development of material safety data sheets as specified in WAC 296-62-05413, except as provided by subsection (7) of this section.

(9) When a building/vessel owner/or employer identifies previously installed PACM and/or ACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain PACM and/or ACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical rooms/areas. Signs required by subsection (5)(a) of this section may be posted in lieu of labels so long as they contain information required for labeling. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07721, filed 9/5/97, effective 11/5/97; 97-01-079, § 296-62-07721, filed 12/17/96, effective 3/1/97. Statutory Authority: Chapter 49.17 RCW. 93-01-005 (Order 92-20), § 296-62-07721, filed 12/2/92, effective 1/15/93; 91-03-044 (Order 90-18), § 296-62-07721, filed 1/10/91, effective 2/12/91; 89-21-018 (Order 89-10), § 296-62-07721, filed 10/10/89, effective 11/24/89; 89-11-035 (Order 89-03), § 296-62-07721, filed 5/15/89, effective 6/30/89; 87-24-051 (Order 87-24), § 296-62-07721, filed 11/30/87.

Statutory Authority: RCW 49.17.050(2) and 49.17.040. 87-10-008 (Order 87-06), § 296-62-07721, filed 4/27/87.]

WAC 296-62-07725 Medical surveillance. (1) General.

(a) Employees covered. The employer shall institute a medical surveillance program for all employees who are or will be exposed to airborne concentrations of fibers of asbestos at or above the permissible exposure limits. Exception.

Employers in the construction or shipyard industries shall institute a medical surveillance program for all employees who for a combined total of 30 or more days per year are engaged in Class I, II, and III work, or are exposed at or above the permissible exposure limit for combined 30 days or more per year; or who are required by the standard to wear negative pressure respirators. For the purpose of this subsection, any day in which an employee engaged in Class II or III work or a combination thereof for one hour or less (taking into account the entire time spent on the removal operation, including cleanup), and, while doing so adheres to the work practices specified in this standard, shall not be counted.

(b) Examination by a physician.

(i) The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee and at a reasonable time and place.

(ii) Persons other than licensed physicians, who administer the pulmonary function testing required by this section, shall complete a training course in spirometry sponsored by an appropriate academic or professional institution.

(2) Preplacement examinations.

(a) Except as provided by WAC 296-62-07725 (1)(a), before an employee is assigned to an occupation exposed to airborne concentrations of asbestos, a preplacement medical examination shall be provided or made available by the employer. Examinations administered using the thirty or more days per year criteria of WAC 296-62-07725 (1)(a) shall be given within ten working days following the thirtieth day of exposure. Examinations must be given prior to assignment of employees to areas where negative-pressure respirators are worn.

(b) All examinations shall include, as a minimum, a medical and work history: A complete physical examination of all systems with special emphasis on the pulmonary, cardiovascular, and gastrointestinal systems; completion of the respiratory disease standardized questionnaire in WAC 296-62-07741, Appendix D, Part 1; a chest roentgenogram (posterior-anterior 14x17 inches); pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV_{1.0}); and any additional tests deemed appropriate by the examining physician. Interpretation and classification of chest roentgenograms shall be conducted in accordance with WAC 296-62-07743, Appendix E.

(3) Periodic examinations.

(a) Periodic medical examinations shall be made available annually.

(b) The scope of the medical examination shall be in conformance with the protocol established in subsection

(2)(b) of this section, except that the frequency of chest roentgenograms shall be conducted in accordance with Table 2 of this section, and the abbreviated standardized questionnaire contained in WAC 296-62-07741, Appendix D, Part 2, shall be administered to the employee.

TABLE 2—FREQUENCY OF CHEST ROENTGENOGRAMS

Years since first exposure	Age of employee		
	15 to 35	35+ to 45	45+
0 to 10	Every 5 years	Every 5 years	Every 5 years.
10+	Every 5 years	Every 2 years	Every 1 year.

(c) If the examining physician determines that any of the examinations should be provided more frequently than specified, the employer shall provide such examinations to affected employees at the frequencies specified by the physician.

(4) Termination of employment examinations.

(a) The employer shall provide, or make available, a termination of employment medical examination for any employee who has been exposed to airborne concentrations of fibers of asbestos at or above the permissible exposure limits.

(b) The medical examination shall be in accordance with the requirements of the periodic examinations stipulated in subsection (3) of this section, and shall be given within thirty calendar days before or after the date of termination of employment.

(5) Recent examinations. No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with subsection (2), (3), or (4) of this section within the past one-year period.

(6) Information provided to the physician. The employer shall provide the following information to the examining physician:

(a) A copy of this standard and Appendices D, E, and H of WAC 296-62-07741, 296-62-07743, and 296-62-07749 respectively.

(b) A description of the affected employee's duties as they relate to the employee's exposure.

(c) The employee's representative exposure level or anticipated exposure level.

(d) A description of any personal protective and respiratory equipment used or to be used.

(e) Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

(7) Physician's written opinion.

(a) The employer shall obtain a written signed opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

(i) The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;

(ii) Any recommended limitations on the employee or upon the use of personal protective equipment such as clothing or respirators;

(iii) A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions resulting from asbestos exposure that require further explanation or treatment; and

(iv) A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

(b) The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

(c) The employer shall provide a copy of the physician's written opinion to the affected employee within thirty days from its receipt.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07725, filed 9/5/97, effective 11/5/97; 97-01-079, § 296-62-07725, filed 12/17/96, effective 3/1/97. Statutory Authority: Chapter 49.17 RCW. 91-03-044 (Order 90-18), § 296-62-07725, filed 1/10/91, effective 2/12/91; 89-11-035 (Order 89-03), § 296-62-07725, filed 5/15/89, effective 6/30/89; 87-24-051 (Order 87-24), § 296-62-07725, filed 11/30/87. Statutory Authority: RCW 49.17.050(2) and 49.17.040. 87-10-008 (Order 87-06), § 296-62-07725, filed 4/27/87.]

WAC 296-62-07728 Competent person. (1) General. For all construction and shipyard work covered by this standard, the employer shall designate a competent person, having the qualifications and authorities for ensuring worker safety and health as required by chapter 296-155 WAC.

(2) Required inspections by the competent person. WAC 296-155-110(9) which requires health and safety prevention programs to provide for frequent and regular inspections on the job sites, materials, and equipment to be made by the competent person, is incorporated.

(3) Additional inspections. In addition, the competent person shall make frequent and regular inspections of the job sites in order to perform the duties set out below in this section. For Class I jobs, on-site inspections shall be made at least once during each work shift, and at any time at employee request. For Class II and III jobs, on-site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employee request.

(4) On all worksites where employees are engaged in Class I or II asbestos work, the competent person designated in accordance with WAC 296-62-07712 shall perform or supervise the following duties, as applicable:

(a) Set up the regulated area, enclosure, or other containment;

(b) Ensure (by on-site inspection) the integrity of the enclosure or containment;

(c) Set up procedures to control entry and exit from the enclosure and/or area;

(d) Supervise all employee exposure monitoring required by this section and ensure that it is conducted as required by WAC 296-62-07709;

(e) Ensure that employees working within the enclosure and/or using glovebags wear protective clothing and respirators as required by WAC 296-62-07715 and 296-62-07717;

(f) Ensure through on-site supervision, that employees set up and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements;

(g) Ensure that employees use the hygiene facilities and observe the decontamination procedures specified in WAC 296-62-07719;

(h) Ensure that through on-site inspection engineering controls are functioning properly and employees are using proper work practices; and

(i) Ensure that notification requirements in WAC 296-62-07721 are met.

(5) Training for competent person.

(a) For Class I and II asbestos work the competent person shall be trained in all aspects of asbestos removal and handling, including: Abatement, installation, removal and handling, the contents of this standard, the identification of asbestos, removal procedures where appropriate, and other practices for reducing the hazard. Such training shall be the certified asbestos supervisor training specified in WAC 296-65-003, 296-65-012, and 296-65-030.

(b) For Class III and IV asbestos work:

(i) The competent person shall be certified as an asbestos supervisor as prescribed in WAC 296-65-012 and 296-65-030 for Class III and IV work involving 3 square feet or 3 linear feet or more of asbestos containing material.

(ii) For Class III and IV asbestos work involving less than 3 square feet or 3 linear feet of asbestos containing material, and asbestos work exempted from certification requirements in chapter 296-65 WAC, the competent person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this standard, and the identification of asbestos. Such training shall include successful completion of a course equivalent in curriculum and training method to the 16-hour Operations and Maintenance course developed by EPA for maintenance and custodial workers (see 40 CFR 763.92 (a)(2)) or its equivalent in stringency, content and length.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-62-07728, filed 9/5/97, effective 11/5/97; 97-01-079, § 296-62-07728, filed 12/17/96, effective 3/1/97.]

WAC 296-62-07761 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-62-11015 Abrasive blasting. Abrasive blasting is covered in the General safety and health standards WAC 296-24-675, Safe practices of abrasive blasting operations (Part H-2).

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 98-02-006, § 296-62-11015, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 91-24-017 (Order 91-07), § 296-62-11015, filed 11/22/91, effective 12/24/91. RCW 49.17.040, 49.17.050, and 49.17.240. 81-16-015 (Order 81-20), § 296-62-11015, filed 7/27/81; 80-11-010 (Order 80-14), § 296-62-11015, filed 8/8/80; Order 73-3, § 296-62-11015, filed 5/7/73.]

WAC 296-62-20017 Medical surveillance. (1) General requirements.

(a) Each employer shall institute a medical surveillance program for all employees who are employed in the regulated areas at least 30 days per year.

(b) This program shall provide each employee covered under subsection (1)(a) of this section with an opportunity for medical examinations in accordance with this section.

(c) The employer shall inform any employee who refuses any required medical examination of the possible health consequences of such refusal and shall obtain a signed statement from the employee indicating that the employee understands the risk involved in the refusal to be examined.

(d) The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and are provided without cost to the employee.

(2) Initial examinations. At the time of initial assignment to a regulated area or upon the institution of the medical surveillance program, the employer shall provide a medical examination including at least the following elements:

(a) A work history and medical history which shall include smoking history and the presence and degree of respiratory symptoms, such as breathlessness, cough, sputum production, and wheezing;

(b) A 14" x 17" posterior-anterior chest x-ray and International Labour Office UICC/Cincinnati (ILO U/C) rating;

(c) Pulmonary function tests including forced vital capacity (FVC) and forced expiratory volume at one second (FEV 1.0) with recording of type of equipment used;

(d) Weight;

(e) A skin examination;

(f) Urinalysis for sugar, albumin, and hematuria; and

(g) A urinary cytology examination.

(3) Periodic examinations.

(a) The employer shall provide the examinations specified in subsections (2)(a)-(f) of this section at least annually for employees covered under subsection (1)(a) of this section.

(b) The employer shall provide the examinations specified in subsection (2)(a) and (c)-(g) of this section at least semi-annually for employees 45 years of age or older or with five or more years employment in the regulated area.

(c) Whenever an employee who is 45 years of age or older or with five or more years employment in the regulated area transfers or is transferred from employment in a regulated area, the employer shall continue to provide the examinations specified in subsections (2)(a) and (c)-(g) of this section semi-annually, as long as that employee is employed by the same employer or a successor employer.

(d) Whenever an employee has not taken the examination specified in subsections (3)(a)-(c) of this section within the six months preceding the termination of employment, the employer shall provide such examinations to the employee upon termination of employment.

(4) Information provided to the physician. The employer shall provide the following information to the examining physician:

(a) A copy of this regulation and its Appendixes;

(b) A description of the affected employee's duties as they relate to the employee's exposure;

(c) The employee's exposure level or anticipated exposure level;

(d) A description of any personal protective equipment used or to be used; and

(e) Information from previous medical examinations of the affected employee which is not readily available to the examining physician.

(5) Physician's written opinion.

(a) The employer shall obtain a written opinion from the examining physician which shall include:

(i) The results of the medical examinations;

(ii) The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure to coke oven emissions;

(iii) Any recommended limitations upon the employee's exposure to coke oven emissions or upon the use of protective clothing or equipment such as respirators; and

(iv) A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further explanation or treatment.

(b) The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure.

(c) The employer shall provide a copy of the written opinion to the affected employee.

[Statutory Authority: RCW 49.17.010, [49.17].040 and [49.17].050. 98-02-030, § 296-62-20017, filed 12/31/97, effective 1/31/98; Order 77-14, § 296-62-20017, filed 7/25/77.]

WAC 296-62-20027 Appendix A—Coke oven emissions substance information sheet.

APPENDIX A

COKE OVEN EMISSIONS SUBSTANCE INFORMATION SHEET

I. SUBSTANCE IDENTIFICATION

- (1) Substance: Coke oven emissions
- (2) Definition: The benzene-soluble fraction of total particulate matter present during the destructive distillation or carbonization of coal for the production of coke.
- (3) Permissible exposure limit: 150 micrograms per cubic meter of air determined as an average over an 8-hour period.
- (4) Regulated areas: Only employees authorized by your employer should enter a regulated area. The employer is required to designate the following areas as regulated areas: the coke oven battery, including topside and its machinery, pushside and its machinery, and the screening station; and the wharf, the beehive ovens and machinery.

II. HEALTH HAZARD DATA

Exposure to coke oven emissions is a cause of lung cancer, and possibly kidney cancer, in humans. Although it does not

have an excess number of skin cancer cases in humans, repeated skin contact with coke oven emissions should be avoided.

III. PROTECTIVE CLOTHING AND EQUIPMENT

- (1) Respirators: Respirators will be provided by your employer for routine use if your employer is in the process of implementing engineering and work practice controls or where engineering and work practice controls are not feasible or insufficient. You must wear respirators for nonroutine activities or in emergency situations where you are likely to be exposed to levels of coke oven emissions in excess of the permissible exposure limit. Until January 20, 1978, the routine wearing of respirators is voluntary. Until that date, if you choose not to wear a respirator you do not have to do so. You must still have your respirator with you and you must still wear it if you are near visible emissions. Since how well your respirator fits your face is very important, your employer is required to conduct fit tests to make sure the respirator seals properly when you wear it. These tests are simple and rapid and will be explained to you during your training sessions.
- (2) Protective clothing: Your employer is required to provide, and you must wear, appropriate, clean, protective clothing and equipment to protect your body from repeated skin contact with coke oven emissions and from the heat generated during the coking process. This clothing should include such items as jacket and pants and flame resistant gloves. Protective equipment should include face shield or vented goggles, protective helmets and safety shoes, insulated from hot surfaces where appropriate.

IV. HYGIENE FACILITIES AND PRACTICES

You must not eat, drink, smoke, chew gum or tobacco, or apply cosmetics in the regulated area, except that drinking water is permitted. Your employer is required to provide lunchrooms and other areas for these purposes.

Your employer is required to provide showers, washing facilities, and change rooms. If you work in a regulated area, you must wash your face, and hands before eating. You must shower at the end of the work shift. Do not take used protective clothing out of the change rooms without your employer's permission. Your employer is required to provide for laundering or cleaning of your protective clothing.

V. SIGNS AND LABELS

Your employer is required to post warning signs and labels for your protection. Signs must be posted in regulated areas. The signs must warn that a cancer hazard is present, that only authorized employees may enter the area, and that no smoking or eating is allowed. In regulated areas where coke oven emissions are above the permissible exposure limit, the signs should also warn that respirators must be worn.

VI. MEDICAL EXAMINATIONS

If you work in a regulated area at least 30 days per year, your employer is required to provide you with a medical examination every year. The medical examination must include a medical history, a chest x-ray; pulmonary function test; weight comparison; skin examination; a urinalysis and a urine cytology exam for the early detection of urinary or lung cancer. When you are either 45 years or older or have 5 or more years employment in the regulated areas, medical examinations are required every 6 months and include an updated work history; an updated medical history; pulmonary function test; weight comparison; skin examination; a urinalysis; and a urine cytology exam. The examining physician will provide a written opinion to your employer containing the results of the medical exams. You should also receive a copy of this opinion.

VII. OBSERVATION OF MONITORING

Your employer is required to monitor your exposure to coke oven emissions and you are entitled to observe the monitoring procedure. You are entitled to receive an explanation of the measurement procedure, observe the steps taken in the measurement procedure, and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, you must also be provided with and must wear the protective clothing and equipment.

VIII. ACCESS TO RECORDS

You or your representative are entitled to records of your exposure to coke oven emissions upon request to your employer. Your medical examination records can be furnished to your physician upon request to your employer.

IX. TRAINING AND EDUCATION

Additional information on all of these items plus training as to hazards of coke oven emissions and the engineering and work practice controls associated with your job will also be provided by your employer.

[Statutory Authority: RCW 49.17.010, [49.17].040 and [49.17].050. 98-02-030, § 296-62-20027, filed 12/31/97, effective 1/31/98; Order 77-14, Appendix A (codified as WAC 296-62-20027), filed 7/25/77.]

WAC 296-62-20029 Appendix B—Industrial hygiene and medical surveillance guidelines.

APPENDIX B

INDUSTRIAL HYGIENE AND MEDICAL SURVEILLANCE GUIDELINES

I. INDUSTRIAL HYGIENE GUIDELINES

- (1) Sampling. (Benzene-Soluble Fraction Total Particulate Matter.)
Samples collected should be full shift (8-hour) samples. Sampling should be done using a personal sampling pump with pulsation damper at a flow rate of 2 liters

per minute. Samples should be collected on 0.8 micrometer pore size silver membrane filters (37 mm diameter) preceded by Gelman glass fiber type A filters encased in three-piece plastic (polystyrene) field monitor cassettes. The cassette face cap should be on and the plug removed. The rotameter should be checked every hour to ensure that proper flow rates are maintained.

A minimum of three full-shift samples should be collected for each job classification on each battery, at least one during the night. If disparate results are obtained for particular job classification, sampling should be repeated. It is advisable to sample each shift on more than one day to account for environmental variables (wind, precipitation, etc.) which may affect sampling. Differences in exposures among different work shifts may indicate a need to improve work practices on a particular shift. Sampling results from different shifts for each job classification should not be averaged. Multiple samples from same shift may be used to calculate an average exposure for a particular job classification.

(2) Analysis.

(a) All extraction glassware is cleaned with dichromic acid cleaning solution, rinsed with tap water, then dionized water, acetone, and allowed to dry completely. The glassware is rinsed with nanograde benzene before use. The Teflon cups are cleaned with benzene then with acetone.

(b) Pre-weigh the 2 ml Perkin-Elmer Teflon cups to one hundredth of a milligram on a Perkin-Elmer autobalance AD 2 Tare weight of the cups is about 50 mg.

(c) Place the silver membrane filter and glass fiber filter into a 15 ml test tube.

(d) Extract with 5 ml of benzene for five minutes in an ultrasonic cleaner.

(e) Filter the extract in 15 ml medium glass fritted funnels.

(f) Rinse test tube and filters with two 1.5 ml aliquots of benzene and filter through the fritted glass funnel.

(g) Collect the extract and two rinses in a 10 ml Kontes graduated evaporative concentrator.

(h) Evaporate down to a 1 ml while rinsing the sides with benzene.

(i) Pipet 0.5 ml into the Teflon cup and evaporate to dryness in a vacuum oven at 40° C for 3 hours.

(j) Weight the Teflon cup and the weight gain is due to the benzene soluble residue in half the sample.

II. MEDICAL SURVEILLANCE GUIDELINES

(1) General.

The minimum requirements for the medical examination for coke oven workers are given in WAC 296-62-20017.

The initial examination is to be provided to all coke oven workers at the time of the initial assignment to a job in the regulated area. The examination includes a 14" x 17" posterior-anterior chest x-ray and a ILO/UC rating to assure some standardization of x-ray reading, pulmonary function tests (FVC and FEV 1.0), weight,

urinalysis, skin examination and a sputum and urinary cytologic examination. These tests are to serve as the baseline for comparing the employee's future test results. Periodic exams are to be performed semiannually only on those employees who are 45 years of age or older or who have worked for 5 or more years in the regulated area and include an updated work history; an updated medical history; pulmonary function test; weight comparison; skin examination; a urinalysis; and a urine cytology exam. The examination contents are minimum requirements, additional tests such as lateral and oblique x-rays or additional pulmonary function tests may be performed if deemed necessary.

(2) Pulmonary function tests.

Pulmonary function tests should be performed in a manner which minimizes subject and operator bias. There has been shown to be learning effects with regard to the results obtained from certain tests, such as FEV 1.0. Best results can be obtained by multiple trials for each subject. The best of three trials or the average of the last three of five trials may be used in obtaining reliable results. The type of equipment used (manufacturer, model, etc.) should be recorded with the results as reliability and accuracy varies and such information may be important in the evaluation of test results. Care should be exercised to obtain the best possible testing equipment.

[Statutory Authority: RCW 49.17.010, [49.17].040 and [49.17].050. 98-02-030, § 296-62-20029, filed 12/31/97, effective 1/31/98; Order 77-14, Appendix B (codified as WAC 296-62-20029), filed 7/25/77.]

Chapter 296-63 WAC

RIGHT TO KNOW FEE ASSESSMENT

WAC

296-63-009 Exemption requests.

WAC 296-63-009 Exemption requests. (1) Employers who do not have hazardous chemicals at their workplace may submit a written request for exemption to the department. Submission of an exemption request does not relieve an employer of his/her obligation to pay the fee assessment until such time as the request is approved. Employers granted exemptions will be removed from the listing of employers to be assessed a fee beginning with the current billing period.

(2) Exemptions shall only be considered for an employer's entire workplace consisting of all activities reported to the department under the same employer identification number.

(3) Each request for exemption must contain the following information:

- (a) Firm name and employer identification number;
- (b) Complete mailing address;
- (c) Complete location (such as street) address;
- (d) A certified statement in the form required by RCW 9A.72.085 that a hazardous chemical survey of the employer's premises has been completed by a qualified person, the identity and qualifications of the person complet-

ing the survey, and that no hazardous chemicals as defined by WAC 296-62-054 through 296-62-05427 are present at the workplace.

(4) The department may schedule an on-site inspection to determine the validity of the exemption request.

(5) The employer shall provide to the department within five working days of receiving a request from the department, any additional information identified by the department as necessary for evaluating the exemption request.

(6) Exemption requests shall be mailed to:

Right to Know Program
Department of Labor and Industries
P.O. Box 44620
Olympia, Washington 98504-4620

[Statutory Authority: RCW 49.70.170 and 49.17.040. 98-02-029, § 296-63-009, filed 12/31/97, effective 1/31/98. Statutory Authority: RCW 49.17.040 and 49.17.050. 86-23-003 (Order 86-38), § 296-63-009, filed 11/6/86.]

Chapter 296-65 WAC

ASBESTOS REMOVAL AND ENCAPSULATION

WAC

- 296-65-001 Purpose and scope.
- 296-65-030 Methods of compliance.

WAC 296-65-001 Purpose and scope. This standard regulates asbestos removal and encapsulation, requires contractor certification, specifies minimum training for supervisors and workers on asbestos projects, requires notification of asbestos projects, and establishes a training course approval program. This standard applies to the removal or encapsulation of any materials containing more than one percent asbestos.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-65-001, filed 9/5/97, effective 11/5/97. Statutory Authority: Chapter 49.17 RCW. 89-21-018 (Order 89-10), § 296-65-001, filed 10/10/89, effective 11/24/89. Statutory Authority: SSB 4209, 1985 c 387, 85-21-080 (Order 85-30), § 296-65-001, filed 10/22/85.]

WAC 296-65-030 Methods of compliance. (1) Before submitting a bid or working on an asbestos abatement project, any person or individual shall obtain an asbestos contractor certificate as provided in WAC 296-65-017 and shall have in its employ at least one certified asbestos supervisor responsible for supervising all asbestos projects undertaken by the contractor.

(2) A certified asbestos supervisor will not be required on asbestos projects involving less than three square feet or three feet of asbestos-containing material unless the surface area of the pipe is greater than three square feet. A certified asbestos supervisor is required for all Class I and II asbestos work in accordance with WAC 296-62-07728 (4)(a).

(3) No employee or other individual is eligible to do work or supervise an asbestos project without being issued a certificate by the department.

(a) Employees performing Class I or Class II asbestos work shall be certified asbestos workers except when excluded in WAC 296-62-07722 (3)(b).

(b) Employees performing Class III or Class IV asbestos work as an asbestos project shall be certified asbestos workers.

Note: Exceptions to certification of asbestos work not considered to be an asbestos project are found in WAC 296-65-003 in the definition of "asbestos project," and in WAC 296-62-07722. If intact asbestos-containing materials or PACM are removed according to the required work practices, controls, respiratory protection, training and related provisions of WAC 296-62-077, certification is not required as specified in the exceptions. If asbestos-containing material or PACM is not intact, or becomes nonintact during removal, the asbestos work is considered as an asbestos project and the certification requirements of chapter 296-65 WAC apply.

(4) No person may assign any employee, contract with, or permit any individual, to remove or encapsulate asbestos in any facility without the project being performed by a certified asbestos worker and under the direct, on-site supervision of a certified asbestos supervisor.

(5) In cases in which an employer conducts an asbestos abatement project in its own facility by its own employees, supervision can be performed in the regular course of a

certified asbestos supervisor's duties. Asbestos workers must have access to certified asbestos supervisors throughout the duration of the project.

(6) Any construction, renovation, remodeling, maintenance, repair, or demolition which was started without meeting the requirements of this section shall be halted immediately and cannot be resumed before meeting such requirements.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-19-014, § 296-65-030, filed 9/5/97, effective 11/5/97; 96-05-056, § 296-65-030, filed 2/16/96, effective 4/1/96. Statutory Authority: Chapter 49.17 RCW. 89-21-018 (Order 89-10), § 296-65-030, filed 10/10/89, effective 11/24/89. Statutory Authority: RCW 49.17.050(2) and 49.17.040. 87-10-008 (Order 87-06), § 296-65-030, filed 4/27/87. Statutory Authority: SSB 4209, 1985 c 387. 85-21-080 (Order 85-30), § 296-65-030, filed 10/22/85.]

Chapter 296-86 WAC

REGULATIONS AND FEES FOR FREIGHT AND PASSENGER ELEVATORS, MANLIFTS, DUMBWAITERS, ESCALATORS, MOVING WALKS, AUTOMOBILE PARKING ELEVATORS, PERSONNEL ELEVATORS, AND OTHER LIFTING DEVICES

WAC

- 296-86-020 Construction and alteration fee.
- 296-86-030 Installation fee for personnel elevators and material hoists.
- 296-86-050 Fee for checking plans for new installations.
- 296-86-060 Annual operating permit fees.
- 296-86-070 Supplemental inspections.
- 296-86-075 Reinspection fees.
- 296-86-080 Fee for inspection of regular elevators being used as temporary personnel elevators.
- 296-86-090 Material lift installation, alteration and relocation fees.

WAC 296-86-020 Construction and alteration fee. The construction and alteration fee schedule (except for material lifts) shall be:

TOTAL COST	FEE
\$250.00 to and including \$1,000	\$ 28.50
\$1,001 to and including \$15,000	
For first \$1,001	40.00
For each additional \$1,000 or fraction	8.00
\$15,001 to and including \$100,000	
For first \$15,001	152.75
For each additional \$1,000 or fraction	5.50
Over \$100,001	
For first \$100,001	641.00
For each additional \$1,000 or fraction	4.50

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-86-020, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-026 (Order 86-5), § 296-86-020, filed 1/10/86. Statutory Authority: RCW 70.87.030. 82-12-005 (Order 82-18), § 296-86-020, filed 5/20/82; Order 70-5, § 296-86-020, filed 6/2/70.]

WAC 296-86-030 Installation fee for personnel elevators and material hoists. The fee for the installation of each personnel elevator and material hoist shall be \$94.00.

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-86-030, filed 5/20/97, effective 6/30/97. Statutory Authority: Chapter 70.87 RCW and RCW 70.87.030. 92-24-065, § 296-86-030, filed 12/1/92, effective 1/1/93.]

Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-026 (Order 86-5), § 296-86-030, filed 1/10/86. Statutory Authority: RCW 70.87.030. 82-12-005 (Order 82-18), § 296-86-030, filed 5/20/82; Order 76-37, § 296-86-030, filed 12/3/76; Order 74-36, § 296-86-030, filed 10/1/74; Order 70-11, § 296-86-030, filed 9/18/70, effective 10/21/70; Order 70-5, § 296-86-030, filed 6/2/70.]

WAC 296-86-050 Fee for checking plans for new installations. The fee for checking plans shall be \$20.75 for each installation.

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-86-050, filed 5/20/97, effective 6/30/97; Order 70-5, § 296-86-050, filed 6/2/70.]

WAC 296-86-060 Annual operating permit fees. Fees for annual operation shall be paid in accordance with the following schedule and no operating permit shall be issued for the operation of a conveyance until such fees have been received.

CONVEYANCE	ANNUAL FEE
Each hydraulic elevator	\$ 73.00
Each cable elevator	\$94.00
	plus \$7.25 for
	each hoistway opening
	in excess of two.
Each cable elevator traveling	
more than 25 ft.	\$10.25 for each 25 ft.
without opening	of travel without openings.
Each sidewalk freight elevator	\$73.00
Each hand power freight elevator	\$47.00
Each hand power manlift	\$47.00
Each incline elevator in other than a	
private residence	\$94.00
Each belt manlift	\$73.00
Each boat launching elevator	\$73.00
Each auto parking elevator	\$73.00
Each escalator	\$73.00
Each moving walk	\$73.00
Each dumbwaiter in other than a private	
residence	\$47.00
Each people mover	\$62.50
Each stair lift in other than a private residence	\$47.00
Each wheel chair lift in other than a private	
residence	\$47.00
Each personnel elevator	\$73.00
Each material hoist	\$73.00
Each casket lift	\$73.00
Each material lift	\$62.50
Each inclined stairway chair lift in	
private residence	\$15.50
Each inclined wheelchair lift in private residence	\$20.75
Each vertical wheelchair lift in private residence	\$26.00
Each inclined elevator at a private residence	\$73.00
Each dumbwaiter in private residence	\$20.75
Each private residence elevator	\$47.00
Each private residence elevator installed with	
variance in other than a private residence	\$73.00

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-86-060, filed 5/20/97, effective 6/30/97. Statutory Authority: Chapter 70.87 RCW. 95-04-005, § 296-86-060, filed 1/18/95, effective 3/1/95. Statutory Authority: Chapter 70.87 RCW and RCW 70.87.030. 92-24-065, § 296-86-060, filed 12/1/92, effective 1/1/93. Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-026 (Order 86-5), § 296-86-060, filed 1/10/86. Statutory Authority: RCW 70.87.030. 82-12-005 (Order 82-18), § 296-86-060, filed 5/20/82; Order 76-37, § 296-86-060, filed 12/3/76; Order 74-36, § 296-86-060, filed 10/1/74; Order 71-16, § 296-86-060, filed 12/7/71;

Order 70-11, § 296-86-060, filed 9/18/70, effective 10/21/70; Order 70-5, § 296-86-060, filed 6/2/70.]

WAC 296-86-070 Supplemental inspections. Any person, firm, corporation or governmental agency may secure supplemental inspections of conveyances by paying to the department a fee of \$269.25 per day plus the standard per diem and mileage allowed by the department to its inspectors.

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-86-070, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-026 (Order 86-5), § 296-86-070, filed 1/10/86. Statutory Authority: RCW 70.87.030. 82-12-005 (Order 82-18), § 296-86-070, filed 5/20/82; Order 76-37, § 296-86-070, filed 12/3/76; Order 74-36, § 296-86-070, filed 10/1/74; Order 70-11, § 296-86-070, filed 9/18/70, effective 10/21/70.]

WAC 296-86-075 Reinspection fees. No fee shall be charged for the yearly inspection or for the initial inspection after installation or alteration. If, however, the conveyance does not meet the requirements of the department, and if another inspection is required to confirm compliance by the person having control over the conveyance with the regulations of the department, then an inspection fee of \$73.00 per conveyance to be inspected shall be charged for the reinspection, and if there is still failure to comply with the rules of the department, a fee of \$94.00 shall be charged for every conveyance requiring a further reinspection. These fees are in addition to the fees charged under WAC 296-86-020 and must be paid before issuance of an operating permit. The department may waive the reinspection fee where, through no fault of the requesting person or agency, or of the person or agency responsible for payment of the reinspection fee, reinspection is not possible; or for other reasons that in justice or equity obviate the necessity of payment of the reinspection fee.

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-86-075, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-026 (Order 86-5), § 296-86-075, filed 1/10/86. Statutory Authority: RCW 70.87.030. 82-12-005 (Order 82-18), § 296-86-075, filed 5/20/82; Order 76-37, § 296-86-075, filed 12/3/76; Order 72-2, § 296-86-075, filed 2/25/72.]

WAC 296-86-080 Fee for inspection of regular elevators being used as temporary personnel elevators. The fee for the inspection and testing of regular elevators for use as temporary personnel elevators shall be \$62.50.

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-86-080, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 70.87.030. 82-12-005 (Order 82-18), § 296-86-080, filed 5/20/82; Order 76-37, § 296-86-080, filed 12/3/76; Order 70-11, § 296-86-080, filed 9/18/70, effective 10/21/70.]

WAC 296-86-090 Material lift installation, alteration and relocation fees. The fees for installing, altering, or relocating a material lift are:

TOTAL COST	FEE
\$250.00 to and including \$1,000	\$ 26.00

\$1,001 to and including \$15,000	
For first \$1,001	\$ 36.50
For each additional \$1,000 or fraction	\$ 7.25
\$15,001 to and including \$100,000	
For first \$15,001	\$ 138.75
For each additional \$1,000 or fraction	\$ 5.00
Over \$100,001	
For first \$100,001	\$ 582.75
For each additional \$1,000 or fraction	\$ 4.00

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-86-090, filed 5/20/97, effective 6/30/97.]

Chapter 296-93 WAC MATERIAL LIFTS

WAC

296-93-010 through 296-93-330 Repealed.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

296-93-010	Scope. [Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-030 (Order 86-9), § 296-93-010, filed 1/10/86. Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-010, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93-140	Car safeties. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-140, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
296-93-020	Hoistway enclosures. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-020, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93-150	Brakes. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-150, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
296-93-030	Hoistway enclosure gates and doors. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-030, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93-160	Ropes and chains—Rope connections, data, and records. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-160, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
296-93-040	Hoistways that do not extend to the lowest area of a building or structure. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-040, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93-170	Controls. [Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-030 (Order 86-9), § 296-93-170, filed 1/10/86. Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-170, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
296-93-050	Driving machines and equipment. [Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-030 (Order 86-9), § 296-93-050, filed 1/10/86. Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-050, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93-190	When material lift pit is provided. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-190, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
296-93-070	Car enclosures. [Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-030 (Order 86-9), § 296-93-070, filed 1/10/86. Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-070, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93-200	Illumination of landings. [Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-030 (Order 86-9), § 296-93-200, filed 1/10/86. Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-200, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
296-93-080	Running clearance. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-080, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93-210	Capacity posting and no-riders sign. [Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-030 (Order 86-9), § 296-93-210, filed 1/10/86. Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-210, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
296-93-090	Car and counterweight guides. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-090, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93-220	Electrical wiring. [Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-030 (Order 86-9), § 296-93-220, filed 1/10/86. Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-220, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
296-93-100	Car loading. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-100, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93-230	Guarding of exposed equipment. [Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-030 (Order 86-9), § 296-93-230, filed 1/10/86. Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-230, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
296-93-120	Car operating and terminal stopping devices and electrical protective devices. [Statutory Authority: RCW 70.87.080, 70.87.090 and 70.87.100. 86-03-030 (Order 86-9), § 296-	296-93-240	Maintenance. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-240, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
		296-93-250	Installation permit. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-250, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
		296-93-260	New installation—Alteration or relocation. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-260, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
		296-93-270	Yearly inspections. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-270, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.
		296-93-280	Operating permit. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-280, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.

296-93-290	Five-year tests. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-290, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93A-290	Under what conditions is a five-year test administered?
296-93-300	When should plans for installations, alterations and relocations be submitted? [Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-93-300, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-300, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.	296-93A-300	When must plans for installations, alterations and relocations be submitted?
296-93-320	Construction, alteration, and relocation fees. [Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-320, filed 4/27/84.] Repealed by 97-11-053, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2).	296-93A-330	Is an annual operating permit required for a material lift?
296-93-330	What is the annual operating permit fee? [Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-93-330, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 70.87.030. 84-10-025 (Order 84-7), § 296-93-330, filed 4/27/84.] Repealed by 97-22-069, filed 11/4/97, effective 12/9/97. Statutory Authority: RCW 70.87.030.		

WAC 296-93-010 through 296-93-330 Repealed.
See Disposition Table at beginning of this chapter.

Chapter 296-93A WAC MATERIAL LIFTS

WAC

296-93A-010	What is the purpose of this chapter?
296-93A-020	How must a hoistway enclosure be built to ensure proper construction and fire safety?
296-93A-030	How must hoistway enclosure gates and doors be constructed?
296-93A-040	What requirements apply to lift hoistways that do not extend to the lowest levels of a building or structure?
296-93A-050	What requirements apply to lift hoist driving machines?
296-93A-070	What car enclosure requirements apply to lifts?
296-93A-080	How much running clearance is permitted between a car sill and a hoistway face?
296-93A-090	What requirements apply to car and counterweight guides?
296-93A-100	How much weight can be placed on a car frame and platform during loading and unloading?
296-93A-120	What requirements apply to car operating devices, terminal stopping devices and electrical protective devices?
296-93A-140	What requirements apply to car safeties?
296-93A-150	What requirements apply to lift brakes?
296-93A-160	What type of ropes, chains and rope connections must be used on a lift?
296-93A-170	What requirements apply to lift control stations?
296-93A-190	How must lift pits be constructed?
296-93A-200	Which lift landings must be illuminated?
296-93A-210	What signs must be posted on landings and lifts?
296-93A-220	What electrical wiring standards apply to the construction of lifts?
296-93A-230	What safety regulations apply to exposed equipment?
296-93A-240	What are the minimum maintenance requirements for lifts?
296-93A-250	Is an installation permit required?
296-93A-260	When are inspections of new installations, alterations or relocations required?
296-93A-270	How frequently will lifts be inspected and tested?
296-93A-280	When is a material lift operating permit required?

WAC 296-93A-010 What is the purpose of this chapter? (1) This chapter defines a "material lift" as a fixed stationary conveyance that:

- (a) Has a car or platform moving in guides;
- (b) Serves two or more floors of a building or structure;
- (c) Has a vertical rise of at least five feet and no more than sixty feet;
- (d) Has a maximum speed of fifty feet per minute;
- (e) Is not part of a conveying system but is an isolated self-contained lift;
- (f) Travels only in an inclined or vertical direction;
- (g) Is operated or supervised by an individual designated by the employer;
- (h) Is installed in a commercial or industrial area not accessible to the general public; and
- (i) Must comply with chapter 296-24 WAC (General safety and health standards).

(2) This chapter attempts to ensure that material lifts will not carry people and that people working near them will not be endangered by their operation or failure. It establishes requirements for the construction, installation, and operation of material lifts. It allows certain conveyances designed solely to transport material and equipment to be constructed to less stringent and costly standards than ASME/ANSI A17.1.

(3) This chapter **does not** apply to conveyances that lack a car (platform) and utilize rollers, belts, tracks, power conveyors, or similar carrying (loading) surfaces. (See ASME/ANSI B20.1.)

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-010, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-020 How must a hoistway enclosure be built to ensure proper construction and fire safety? Generally, hoistway enclosure construction is governed by local codes and ordinances. When not in conflict with a local code requirement, the enclosure must:

- (1) Be built to a height of seven feet above each floor, landing and adjacent stairway tread.
- (2) Extend (adjacent to the counterweights) the full height of the floor and eight inches beyond the counterweight raceway.
- (3) Be constructed of either solid material or material with openings that do not exceed two inches in diameter.

The enclosure must be supported and braced so that it does not deflect more than one inch when subjected to a force of one hundred pounds applied perpendicularly at any point.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-020, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-030 How must hoistway enclosure gates and doors be constructed? Enclosure gates (doors) must be constructed according to the following standards:

(1) Guard the full width of each opening on every landing.

(2) Be built in one of the following styles:

- (a) Vertically sliding.
- (b) Bi-parting.
- (c) Counter-balanced.
- (d) Horizontally swinging.
- (e) Horizontally sliding.

(3) Be constructed of either solid material or material with openings that do not exceed two inches in diameter.

(4) Be constructed with a distance of not more than two and one-half inches between a hoistway gate or hoistway door face and a landing sill edge.

(5) Be designed and guided to withstand (without being broken, permanently deformed, or displaced from their guides or tracks) a one hundred pound lateral pressure applied near their center.

(6) Employ a combination mechanical lock and electrical contact which prevents the operation of the lift when the doors or gates are open.

(7) Construct balanced type vertically sliding gates that extend no more than two inches from the landing threshold and no less than sixty-six inches above it.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-030, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-040 What requirements apply to lift hoistways that do not extend to the lowest levels of a building or structure? If the space directly below the hoistway is accessible, the following requirements must apply:

(1) All lift counterweights must have safeties.

(2) All cars and counterweights must have either spring or oil buffers.

(3) Spring buffers must not fully compress when struck by a car carrying its rated load or by the counterweights when they are moving at the following speeds:

(a) For safeties operated by a governor, the tripping speed of the governor is the maximum striking speed.

(b) For safeties not operated by a governor, one hundred twenty-five percent of the rated speed is the maximum striking speed.

(4) Car and counterweight-buffer supports must be able to withstand any impact upon the buffer (without permanent deformation) while occurring at the following speeds:

(a) For safeties operated by a governor, the tripping speed of the governor at the rated capacity is the maximum impact speed.

(b) For safeties not operated by a governor, one hundred twenty-five percent of the rated speed is the maximum impact speed.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-040, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-050 What requirements apply to lift hoist driving machines? (1) Lift hoist driving machines must be one of the following types:

- (a) Winding drum.
- (b) Traction.
- (c) Direct plunger.

(d) Hydraulic.

(e) Roped or chained hydraulic.

(f) Rack and pinion.

(g) Roller chain drive.

(h) Scissors.

(i) Screw.

(2) Overhead mounted driving machines must either be secured to the top of overhead beams or supported by the floor above. Driving machines cannot be suspended by hooks, cables, chains or similar devices.

(3) For traction machines, the diameter of drive sheaves cannot be less than thirty times the diameter of the hoisting cables. The diameters of all other sheaves cannot be less than twenty-one times this diameter.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-050, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-070 What car enclosure requirements apply to lifts? Lift cars must have their sides enclosed with solid panels or openwork that will reject a two-inch diameter ball. On the car sides where there is no door (gate), the enclosure must extend to a height of at least forty-eight inches from the floor. On the car side next to the counterweight runway, the enclosure must extend vertically to the car top or underside of the car crosshead and horizontally to at least six inches on each side of the runway.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-070, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-080 How much running clearance is permitted between a car sill and a hoistway face? Running clearance between a car sill and a hoistway face must not exceed two inches.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-080, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-090 What requirements apply to car and counterweight guides? Car and counterweight guide rails must be fastened so they will not deflect more than one-eighth inch. They must also be strong enough to withstand, without deformation, the application of a car safety when the car is carrying its rated load and traveling at its rated speed.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-090, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-100 How much weight can be placed on a car frame and platform during loading and unloading? Car frames and platforms must be designed and constructed to withstand the impact of the maximum weight encountered during loading and unloading.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-100, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-120 What requirements apply to car operating devices, terminal stopping devices and electrical protective devices? If electrically operated, such devices must be enclosed. On lifts driven by winding drum machines, there must be a slack rope device employing an

enclosed electric switch (manually reset type) which halts power to the drum and brake when the hoisting rope becomes slack.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-120, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-140 What requirements apply to car safeties? (1) Car safeties must be used on all material lifts which are suspended by wire ropes or chains. They must be able to stop and sustain a car carrying one hundred twenty-five percent of its rated load.

(2) On lifts driven by rack and pinion machines:

(a) Car safeties will consist of a freely rotating safety pinion, an overspeed governor and a safety device which may be mounted on the car.

(b) The rotating pinion driving the overspeed governor will travel on a stationary rack which is vertically mounted in the hoistway.

(c) The governor will actuate the safety device when the downward speed of the car reaches the tripping speed and will bring the car to a gradual stop.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-140, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-150 What requirements apply to lift brakes? On electric lifts, brakes must engage by springs and must release electronically. All brakes must have the ability to stop a car and hold it at rest while the car is carrying one hundred twenty-five percent of its rated load. At least one brake must be mounted on the worm shaft of the driving machine. On indirectly-driven lifts, brakes must engage when the driving mechanism fails.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-150, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-160 What type of ropes, chains and rope connections must be used on a lift? (1) The following general requirements apply:

(a) Iron (low carbon steel) or steel wire ropes with fiber cores must be used to suspend cars and counterweights.

(b) The minimum safety factor for suspension ropes must be six times the manufacturer's rated breaking strength per rope.

(c) The car, the counterweight end of the car and the counterweight wire ropes (or the stationary hitch ends where multiple roping is used) must be fastened so that the looped ends of the turned back portion in the rope sockets are clearly visible. Fastenings must either be:

(i) Individual tapered, babbitted rope sockets; or

(ii) Other types of department approved rope fastenings.

(d) Rope sockets must develop at least eighty percent of the breaking strength of the strongest rope used in the sockets.

(e) U-bolt rope clips (clamps) cannot be used for load fastenings.

(f) A metal or plastic data tag must be securely attached to one of the wire rope fastenings each time the ropes are replaced or reshackled. The data tag must include:

(i) The diameter of the ropes in inches; and

(ii) The manufacturer's rated breaking strength.

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(g) All replacements of wire rope or chain must be in accordance with the lift manufacturer's specifications.

(2) The following requirements apply to specific types of material lifts:

(a) Traction type lifts, must use at least three hoisting ropes.

(b) Lifts suspended by hoisting chains: The owner, operator and installer must comply with the chain manufacturer's specifications for maintenance, inspection, and application.

(c) Lifts using roller chain type lifting chains, must use chains with a six-to-one safety factor based on the ASME/ANSI minimum (not average) chain strength.

(d) Drum type lifts, must use either at least two hoisting ropes or a secondary, as well as, a primary load path to the hoist must be employed. Also, the cable secured to the drum must be at least one and one-half turns around the drum when the carrier is at its extreme limit of travel.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-160, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-170 What requirements apply to lift control stations? Lift control stations must be located out of reach of the lift car. They must have controls which are permanently and clearly labeled by function. The controls must have a stop switch which will halt electrical power to the driving machine and brake. This stop switch must:

(1) Be manually operated; and

(2) Have red operating handles or buttons; and

(3) Be conspicuously and permanently marked "STOP"; and

(4) Clearly indicate the stop and run position.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-170, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-190 How must lift pits be constructed? Lift pits must:

(1) Have noncombustible floors.

(2) Be designed to prevent the entry of ground water into the pit.

(3) Have floors that are approximately level.

(4) Have drains that are not directly connected to sewers.

(5) Provide safe and convenient access to the pit.

(6) Provide an approved ladder for pits deeper than three feet.

(7) Have nonperforated metal guards installed on the open sides of the counterweights where spring, solid or oil type buffers are attached. These guards must:

(a) Extend from a point not more than twelve inches above the pit floor to a point not less than seven feet or more than eight feet above the floor.

(b) Be fastened to a properly reinforced and braced metal frame which will be at least equal in strength and stiffness to No. 14 U.S. gauge sheet steel.

(c) Be omitted on the pit side where compensating chains or ropes are attached to the counterweight.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-190, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-200 Which lift landings must be illuminated? All landings must be illuminated.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-200, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-210 What signs must be posted on landings and lifts? Each lift must have the following two signs:

(1) A "CAPACITY" sign permanently fastened in the lift car and on each landing. This sign must indicate the rated load of the lift in pounds and be made of metal with two-inch high black letters on a yellow background.

(2) A "NO RIDERS" sign conspicuously and permanently fastened on the landing side of all hoistway gates (doors) and in the enclosure of each car. This sign must be made of metal with two-inch high black letters on a red background.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-210, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-220 What electrical wiring standards apply to the construction of lifts? All electrical wiring, installations, and equipment in hoistways and machine rooms must conform to the 1984 edition of the National Electrical Code.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-220, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-230 What safety regulations apply to exposed equipment? Washington Industrial Safety and Health Act standards (WAC 296-24-150) require that guards, to protect against accidental code, must cover all exposed gears, sprockets, sheaves, drums, ropes and chains.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-230, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-240 What are the minimum maintenance requirements for lifts? All owners of lifts described in this chapter, or their designated agent, are responsible for the maintenance of their lifts and parts. Minimum maintenance requirements are:

(1) All lifts described in this chapter, and their parts, must be maintained in a safe condition.

(2) All devices and safeguards required by this chapter must be maintained in good working order.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-240, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-250 Is an installation permit required? Lift installers:

(1) Before erecting, installing, relocating, or altering any material lift must obtain a department permit. (See WAC 296-86-090, Material lift installation, alteration and relocation fees, for the cost of the permit.)

(2) Before erecting, installing, relocating or altering any material lift must complete, in duplicate, a permit application form and receive department approval.

(3) Conspicuously post the permit at the installation site.

Lift installers do not need a permit to perform normal maintenance, repairs and part replacements when the

replacement parts are equivalent to the original parts in material, strength, and design.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-250, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-260 When are inspections of new installations, alterations or relocations required? Inspections are required for each lift installation, alteration or relocation. Inspections must be conducted after the job is completed but before the lift is placed into service. The purpose of the inspection is to determine if the completed job satisfies the requirements of this chapter. The inspection must include testing the lifts safety devices at one hundred twenty-five percent of load capacity.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-260, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-270 How frequently will lifts be inspected and tested? The department's inspectors must inspect and test all material lifts at least once a year. To conduct their inspections and tests, department inspectors have the right, during reasonable hours, to enter into and upon any building or premises. Department inspectors will conduct their inspections and tests according to the requirements of this chapter.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-270, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-280 When is a material lift operating permit required? An operating permit, conspicuously posted near the lift, is required for each material lift operated in Washington state. Lift installers are not required to purchase operating permits while a lift is being erected.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-280, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-290 Under what conditions is a five-year test administered? A five-year test of the lift car and counterweight safety devices must be conducted under the following conditions:

(1) The test will be conducted by qualified people. A qualified person is either the representative of a firm that manufactures, installs or services material lifts or a person approved by the department.

(2) The car and counterweight safety devices must be tested while the car is carrying a capacity load.

(3) A report of the test results must be submitted to the department for approval.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-290, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-300 When must plans for installations, alterations and relocations be submitted? All plans must be submitted, in duplicate, to the department for approval before the installation, alteration, or relocation begins. The department's fee for checking plans is shown in WAC 296-86-050.

[Statutory Authority: RCW 70.87.030. 97-22-069, § 296-93A-300, filed 11/4/97, effective 12/9/97.]

WAC 296-93A-330 Is an annual operating permit required for a material lift? An annual operating permit is required for each material lift in operation. The annual fee is shown in WAC 296-86-060. No operating permit will be issued until this fee has been paid.

[Statutory Authority: RCW 70.87.030, 97-22-069, § 296-93A-330, filed 11/4/97, effective 12/9/97.]

Chapter 296-99 WAC

SAFETY STANDARDS FOR GRAIN HANDLING FACILITIES

WAC

296-99-010	What safety hazards does this chapter require the employer to control?
296-99-015	What grain-handling operations does this chapter cover?
296-99-020	What definitions apply to this chapter?
296-99-025	What are the requirements for an emergency action plan?
296-99-030	What training must an employer provide for employees?
296-99-035	When must an employer issue a hot work permit?
296-99-040	What practices must an employer follow for entry into grain storage structures?
296-99-045	What information must an employer provide to contractors?
296-99-050	What elements must an employer include in the house-keeping program?
296-99-055	What is the maximum allowable grate opening size?
296-99-060	How must filter collectors be installed?
296-99-065	What preventive maintenance program must an employer implement?
296-99-070	How must grain stream processing equipment be equipped?
296-99-075	How many means of emergency escape must an employer provide?
296-99-080	How must continuous-flow bulk raw grain dryers be equipped and installed?
296-99-085	What special requirements apply to inside bucket elevators?
296-99-090	Reserved.
296-99-093	Reserved.
296-99-095	Reserved.

WAC 296-99-010 What safety hazards does this chapter require the employer to control? This chapter directs the employer to control dust fires, explosions and other safety hazards in grain handling facilities including the waterfront dock areas at marine terminals (chapter 296-56 WAC will not apply).

All provisions from chapters 296-24 and 296-62 WAC also apply. If rules in either of these chapters conflict with rules in chapter 296-99 WAC, chapter 296-99 WAC will prevail.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-010, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-010, filed 11/14/88.]

WAC 296-99-015 What grain-handling operations does this chapter cover? (1) WAC 296-99-010 through 296-99-070 apply to:

- Dry grinding operations of soycake;
- Dry corn mills;
- Dust pelletizing plants;

- Feed mills;
- Flour mills;
- Flat storage structures;
- Grain elevators;
- Rice mills; and
- Soybean flaking operations.

(2) WAC 296-99-075, 296-99-080, and 296-99-085 apply only to grain elevators.

(3) Chapter 296-99 WAC does not apply to alfalfa storage or processing operations if they do not use grain products.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-015, filed 11/3/97, effective 1/1/98; 90-03-029 (Order 89-20), § 296-99-015, filed 1/11/90, effective 2/26/90; 88-23-054 (Order 88-25), § 296-99-015, filed 11/14/88.]

WAC 296-99-020 What definitions apply to this chapter? "Choked leg" means excess material buildup that stops the movement of grain and of the bucket elevator. A bucket elevator is not considered choked if it moves and the boot and discharge are clear.

"Flat storage structure" means a grain storage structure that:

- Can not empty by gravity alone;
- Can be entered through an opening at ground level; and
- Must be entered to remove leftover grain.

"Fugitive grain dust" means combustible grain dust particles, accumulated inside storage structures, that are small enough to pass through a U.S. Standard 40 mesh sieve (425 microns or less).

"Grain" means raw and processed grain of cereal grass seeds and grain products handled in facilities within the scope of WAC 296-99-015(1).

"Grain elevator" means a facility in which bulk raw grains are stored by means of elevating machinery for later shipment.

"Hot work" means work that involves electric or gas welding, cutting, brazing or similar heat-producing tasks that could be a source of ignition.

"Inside bucket elevator" means a bucket elevator with the boot and more than twenty percent of the total leg height (above grade or ground level) inside a grain elevator structure. Bucket elevators used inside of rail or truck dump sheds are not considered inside bucket elevators.

"Lagging" means a covering on drive pulleys used to increase the driving friction between the pulley and the belt.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-020, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-020, filed 11/14/88.]

WAC 296-99-025 What are the requirements for an emergency action plan? The employer must develop and implement an emergency action plan that meets the requirements of WAC 296-24-567.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-025, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-025, filed 11/14/88.]

WAC 296-99-030 What training must an employer provide for employees? (1) The employer must train employees:

- (a) Annually; and
- (b) Whenever a new job assignment exposes an employee to a new hazard.

(2) The employer must ensure that employees are trained in the following:

(a) General safety precautions against fires and explosions, including how to recognize and prevent the hazards of excess dust accumulation and ignition sources.

(b) Specific procedures and safety practices for job tasks including, but not limited to:

- Cleaning grinding equipment;
- Clearing choked legs;
- Housekeeping;
- Hot work; and
- Preventive maintenance.

(3) The employer must provide additional training for employees who are assigned special tasks, including but not limited to:

(a) Procedures for grain storage entry according to WAC 296-62-145, confined space entry, and how to:

- Control hazardous energy (lockout/tagout) according to WAC 296-24-110;
- Avoid getting buried by moving grain (engulfment);
- Avoid falling from heights; and
- Prevent mechanical hazards.

(b) How to handle flammable or toxic substances.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-030, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-030, filed 11/14/88.]

WAC 296-99-035 When must an employer issue a hot work permit? (1) Before allowing an employee to start any hot work, the employer must:

(a) Issue to the employee a permit that states that all safety precautions required by WAC 296-24-695 are in place; and

(b) Keep the permit on file until the hot work is complete.

(2) The employer may allow an employee to perform hot work without a permit if:

(a) The employer's representative personally monitors the hot work to prevent employee exposure to injury from either fire or explosion during the entire operation; or

(b) The hot work is done in welding shops authorized by the employer; or

(c) The hot work is done in hot work areas authorized by the employer which are located outside of the grain handling structure.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-035, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-035, filed 11/14/88.]

WAC 296-99-040 What practices must an employer follow for entry into grain storage structures? This section applies to employee entry into all grain storage structures.

(1) The employer must ensure that the practice of walking down grain is prohibited. "Walking down grain" means an employee walks on grain to make it flow within or out from a grain storage structure, or an employee is on moving grain.

(2) The employer must ensure that during the entry and occupation of a storage structure the employee uses:

- A body harness with a lifeline; or
- A boatswain's chair that meets the requirements of Part J-1 of chapter 296-24 WAC whenever:

(a) The employee is exposed to a fall hazard such as when entering from the top or above the level of the stored grain; or

(b) The employee is exposed to an engulfment hazard such as when entering at the level of the stored grain, or while walking or standing on the grain. The lifeline must be rigged so that its position and length will prevent the employee from sinking below waist level.

(3) The employer must ensure that during the occupation of storage structures, including walking or standing on grain, employees are protected from hazards related to:

- Mechanical;
- Electrical;
- Hydraulic; and
- Pneumatic equipment.

By using safeguards, lockout-tagout, or other equally effective means. All provisions for the control of hazardous energy (lockout/tagout) from WAC 296-24-110 apply to this chapter.

(4) The employer must ensure that employees are prohibited from entering any storage structure where a build-up of grain overhead (bridging) or on the sides could fall and bury them.

(5) The employer must ensure, as minimum precautions, that employee entry and occupation of all grain storage structures including flat storage structures is done according to all applicable requirements of WAC 296-62-145, confined space, when the storage structure:

- Has limited or restricted means of entry and exit; and
- Is not designed for continuous employee occupancy.

(6) The employer may allow an employee to perform confined space entry work in grain storage structures without a permit if the employer's representative personally monitors the work to prevent employee exposure to illness or injury from atmospheric hazards during the entire operation.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-040, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-040, filed 11/14/88.]

WAC 296-99-045 What information must an employer provide to contractors? (1) The employer must inform contractors working at the grain handling facility of:

- (a) General safety rules; and
- (b) Specific fire and explosion hazards related to the contractor's work and work area.

(2) The employer must explain the emergency action plan to each contractor.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-045, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-045, filed 11/14/88.]

WAC 296-99-050 What elements must an employer include in the housekeeping program? (1) The employer must develop and enforce a written housekeeping program that:

(a) Establishes frequency and methods for reducing and cleaning up hazardous accumulations of fugitive grain dust;

(b) Identifies priority areas for clean up of hazardous accumulations of fugitive grain dust, including floor areas:

- Within thirty-five feet (10.7 m) of inside bucket elevators;
- Of enclosed grinding equipment; and
- Of enclosed grain dryers located inside the facility; and

(c) Requires that fugitive grain dust is cleaned up immediately whenever accumulations exceed one-eighth inch (.32 cm) at priority housekeeping areas, or provide protection against fire and explosion that is equal to the required clean up.

(2) The employer must prohibit the use of compressed air to blow dust from ledges, walls, and other areas unless all machinery that provides an ignition source in the area is shut down, and all other known potential ignition sources in the area are removed or controlled.

(3) The employer must also ensure that the housekeeping program addresses procedures for removing grain and product spills from work areas. Spills are not considered fugitive grain dust accumulations.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-050, filed 11/3/97, effective 1/1/98; 91-11-070 (Order 91-01), § 296-99-050, filed 5/20/91, effective 6/20/91; 90-03-029 (Order 89-20), § 296-99-050, filed 1/11/90, effective 2/26/90; 88-23-054 (Order 88-25), § 296-99-050, filed 11/14/88.]

WAC 296-99-055 What is the maximum allowable grate opening size? The employer must ensure that receiving-pit feed openings, such as truck or railcar receiving-pits, are covered by grates with maximum openings of two and one-half inches (6.35 cm).

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-055, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-055, filed 11/14/88.]

WAC 296-99-060 How must filter collectors be installed? (1) The employer must ensure that, on a pneumatic dust collection system, each fabric dust filter collector has a monitoring device that will show a pressure drop across the surface of its filter.

(2) The employer must ensure that each filter collector installed after March 30, 1988, is:

(a) Located outside the facility; or

(b) When located inside the facility, protected by an explosion suppression system; or

(c) Isolated by a structure with at least a one hour fire-resistance rating:

- Next to an exterior wall;
- Vented to the outside; and

- The vent and ductwork must resist rupture from intense heat.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-060, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-060, filed 11/14/88.]

WAC 296-99-065 What preventive maintenance program must an employer implement? (1) The employer must implement a written program that covers the requirements of WAC 296-24-110, The control of hazardous energy (lockout/tagout).

(2) The employer must implement preventive maintenance procedures that include the following:

(a) Conducting regularly scheduled inspections for specified machinery.

(b) Preparing written inspection reports kept on file that include:

- The date of each inspection;
- The name of the inspector; and
- The serial number, or other identification of the machinery as described next in (c) of this subsection.

(c) Conducting regularly scheduled inspections and completing immediate repairs of the mechanical equipment and safety controls of the following machinery:

- Grain dryers;
- Grain stream processing equipment;
- Dust collection systems including their filter collectors that malfunction or operate below designed efficiency;
- Overheated bearings; and
- Slipping or misaligned belt drives for inside bucket elevators.

When immediate repairs are not feasible, then the affected machine must be taken out of service.

(d) Performing lubrication and other maintenance according to manufacturers' recommendations or more often when needed, such as when operating records indicate that a more stringent schedule is necessary.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-065, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-065, filed 11/14/88.]

WAC 296-99-070 How must grain stream processing equipment be equipped? The employer must ensure that the following grain stream processing equipment has an effective means of removing ferrous material from the incoming grain:

- Hammer mills;
- Grinders; and
- Pulverizers.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-070, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-070, filed 11/14/88.]

WAC 296-99-075 How many means of emergency escape must an employer provide? The employer must provide the following number of emergency escape means:

Structure	Number of escape means
Galleries (bin decks)	Two

Tunnels of grain elevators constructed after November 14, 1988	Two
Tunnels of grain elevators constructed on or before November 14, 1988	One

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-075, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-075, filed 11/14/88.]

WAC 296-99-080 How must continuous-flow bulk raw grain dryers be equipped and installed? (1) The employer must ensure that all direct-heat grain dryers have automatic controls that:

- (a) Shut off the fuel supply in case of power, flame, or ventilation airflow shut-off; and
 - (b) Stop the grain flow into the dryer if the dryer exhaust gets too hot.
- (2) The employer must ensure that each direct-heat grain dryer installed after March 30, 1988, is:
- (a) Located outside the grain elevator; or
 - (b) When located inside the grain elevator, protected by a fire or explosion suppression system; or
 - (c) Isolated by a structure with at least a one hour fire-resistance rating.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-080, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-080, filed 11/14/88.]

WAC 296-99-085 What special requirements apply to inside bucket elevators? (1) The employer must prohibit joggling of a bucket elevator to free a choked leg.

"Joggling" means to start and stop drive motors repeatedly over short intervals.

(2) The employer must ensure that all belts and lagging purchased after March 30, 1988, are conductive and have a maximum surface electrical resistance of 300 megohms.

(3) The employer must ensure that all bucket elevators have safe access to the head pulley section for inspection of the head pulley, lagging, belt, and discharge throat. The boot section must also have safe access for its clean-out and inspection of the pulley and belt.

(4) The employer must:

- (a) Mount bearings externally to the leg casing; or
- (b) Have vibration and temperature monitoring; or
- (c) Have other means to monitor the condition of bearings mounted inside or partially inside the leg casing.

(5) The employer must ensure that bucket elevators have a motion detection device that will stop the elevator if belt speed is reduced to less than eighty percent of normal operating speed.

(6) The employer must:

- (a) Ensure that bucket elevators have a belt alignment monitoring device that will initiate an alarm to employees when the belt is not tracking properly; or
- (b) Use a system to keep the belt tracking properly.

(7) Subsections (5) and (6) of this section do not apply to grain elevators with a permanent storage capacity of less

than one million bushels, if daily visual inspection is made of bucket movement and belt tracking.

(8) Subsections (4), (5), and (6) of this section do not apply to the following:

- (a) Bucket elevators with an operational fire and explosion suppression system capable of protecting at least the head and boot section of the bucket elevator; or
- (b) Bucket elevators with pneumatic or other dust control systems or methods that keep the dust concentration inside the bucket elevator at least twenty-five percent below the lower explosive limit at all times during operations.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-085, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-085, filed 11/14/88.]

WAC 296-99-090 Reserved.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-090, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-090, filed 11/14/88.]

WAC 296-99-093 Reserved.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-093, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-093, filed 11/14/88.]

WAC 296-99-095 Reserved.

[Statutory Authority: Chapter 49.17 RCW. 97-22-065, § 296-99-095, filed 11/3/97, effective 1/1/98; 88-23-054 (Order 88-25), § 296-99-095, filed 11/14/88.]

Chapter 296-104 WAC

BOARD OF BOILER RULES—SUBSTANTIVE

WAC

296-104-107	Inspection—Which unfired pressure vessels in places of public assembly are subject to these rules?
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296-104-325	Installation—What are the requirements for boiler and pressure vessel supports?
296-104-330	Installation—What are the relief or safety valve requirements when pressure reducing valves are used?
296-104-400	Repealed.
296-104-405	Existing installation—How can the maximum allowable working pressure be established for nonstandard boilers or unfired pressure vessels?
296-104-410	Repealed.
295-104-415	Repealed.

**DISPOSITION OF SECTIONS FORMERLY
CODIFIED IN THIS CHAPTER**

- 296-104-400 Existing installations—Stamping of existing boilers and unfired pressure vessels. [Statutory Authority: RCW 70.79.040. 90-20-029, § 296-104-400, filed 9/24/90, effective 10/25/90; Part VI, § 1, filed 3/23/60.] Repealed by 97-20-109, filed 9/30/97, effective 10/31/97. Statutory Authority: RCW 70.79.030 and 70.79.040.
- 296-104-410 Existing installations—Noncode steel heating boilers. [Part VI, § 3, filed 3/23/60.] Repealed by 97-20-109, filed 9/30/97, effective 10/31/97. Statutory Authority: RCW 70.79.030 and 70.79.040.
- 296-104-415 Existing installations—Noncode cast iron boilers. [Part VI, § 4, filed 3/23/60.] Repealed by 97-20-109, filed 9/30/97, effective 10/31/97. Statutory Authority: RCW 70.79.030 and 70.79.040.

WAC 296-104-107 Inspection—Which unfired pressure vessels in places of public assembly are subject to these rules? All unfired pressure vessels in places of public assembly are subject to these rules except those:

- (1) Less than 1 1/2 cubic feet (11.25 gallon) in volume with a safety valve setting of 150 psi, or less; or
- (2) Less than 6 inches in diameter, and less than 5 cubic feet (37.5 gallon) in volume with a safety valve set at any pressure.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-107, filed 9/30/97, effective 10/31/97.]

WAC 296-104-200 Construction—Standards for new construction. The standards for new construction are the ASME Boiler and Pressure Vessel Code, Sections I, III, IV, VIII, X, and CSD-1 (for boilers with fuel input ratings less than 12,500,000 BTU/hr) 1995 edition, and the ASME/ANSI PVHO-1 (Standard for Pressure Vessels for Human Occupancy), 1987 edition. These codes and standards may be used on or after the date of issue and become mandatory twelve months after adoption by the board as specified in RCW 70.79.050(2). The board recognizes that the ASME Code states that new editions of the code become mandatory on issue and that subsequent addenda become mandatory six months after the date of issue. For nuclear systems, components and parts the time period for addenda becoming mandatory is defined in the Code of Federal Regulations.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-200, filed 9/30/97, effective 10/31/97; 96-21-081, § 296-104-200, filed 10/16/96, effective 11/16/96. Statutory Authority: RCW 70.79.040. 93-12-014, § 296-104-200, filed 5/21/93, effective 6/21/93; 92-11-070, § 296-104-200, filed 5/20/92, effective 6/20/92; 91-11-107, § 296-104-200, filed 5/22/91, effective 6/22/91; 90-04-009, § 296-104-200, filed 1/26/90, effective 2/26/90. Statutory Authority: RCW 70.79.040 and 70.79.050. 86-01-088 (Order 85-26), § 296-104-200, filed 12/19/85. Statutory Authority: RCW 70.79.030 and 70.79.330. 84-11-016 (Order 84-09), § 296-104-200, filed 5/10/84; 82-24-025 (Order 82-36), § 296-104-200, filed 11/23/82, effective 1/1/83. Statutory Authority: RCW 70.79.030. 82-05-003 (Order 82-2), § 296-104-200, filed 2/4/82; 81-12-012 (Order 81-10), § 296-104-200, filed 5/28/81; 81-01-114 (Order 80-28), § 296-104-200, filed 12/24/80; 80-05-065 (Order 80-7), § 296-104-200, filed 4/23/80; 79-05-054 (Order 79-7), § 296-104-200, filed 4/30/79; 78-10-096 (Order 78-19), § 296-104-200, filed 10/3/78; Order 77-23, § 296-104-200, filed 11/8/77; Order 77-9, § 296-104-200, filed 5/26/77; Order 75-35, § 296-104-200, filed 10/29/75; Order 74-37, § 296-104-200, filed 11/8/74; Order 73-1, § 296-104-200, filed 3/22/73; Order 72-17, § 296-104-200, filed 9/28/72; Order 72-11, § 296-104-200, filed 7/7/72; Part IV, § 1, filed 3/23/60.]

WAC 296-104-215 Construction—Nonstandard boilers and unfired pressure vessels. Nonstandard boilers and unfired pressure vessels constructed prior to January 1, 1952, may be used provided they have not been moved from their original setting since January 1, 1952.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-215, filed 9/30/97, effective 10/31/97; 96-21-081, § 296-104-215, filed 10/16/96, effective 11/16/96; Part IV, § 4, filed 3/23/60.]

WAC 296-104-265 Installation—Control and limit devices. All automatically fired steam, vapor, or hot water boilers except boilers having a constant attendant who has no other duties while the boiler is in operation, shall be equipped with an automatic low-water fuel cut-off and an automatic water feeding device. These may be incorporated in one body or may be separate devices. Designs embodying a float and float bowl shall have a vertical straight-away valve drain pipe at lowest point in the water equalizing pipe connection by which the bowl and equalizing pipe can be flushed and the device tested. Immersion units shall be designed so that they may be readily tested at frequent intervals. All boilers installed after June 1989 that are automatically fired low pressure steam heating boilers, small power boilers, and power steam boilers without a constant attendant who has no other duties shall be equipped with two high steam pressure limit controls, one of which shall be provided with a manual reset on the control with the highest setting, and two low-water fuel cut-offs, one of which shall be provided with a manual reset device and independent of the feed water controller. Coil type flash steam boilers may use two high-temperature limit controls, one of which shall be manually reset in the hot water coil section of the boiler instead of the low-water fuel cut-off. Control and limit devices shall be independently connected and electrically wired in series.

All automatically fired hot water supply, low-pressure hot water heating boilers, and power hot water boilers shall be equipped with two high-temperature limit controls, one of which shall be provided with a manual reset on the control with the highest setting, and one low-water fuel cut-off with a manual reset and independent of the feed water controller. For coil type hot water boilers a low-water flow limit control installed in the circulating water line may be used instead of a low-water fuel cut-off. Control and limit devices shall be independently connected and electrically wired in series. All boilers installed or refitted after 1998, with fuel input ratings of less than 12,500,000 BTU/hr which are fired by gas, oil, or a combination of gas or oil shall comply with any additional fuel train requirements defined in ASME CSD-1 where applicable, as adopted in WAC 296-104-200.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-265, filed 9/30/97, effective 10/31/97. Statutory Authority: RCW 70.79.240. 88-01-064 (Order 87-25), § 296-104-265, filed 12/17/87; Part IV, § 14, filed 3/23/60.]

WAC 296-104-270 Installation—What are the requirements for an explosion door? Provide substantial deflectors to divert the blast when explosion doors are located within seven feet of the firing floor or an operating platform.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-270, filed 9/30/97, effective 10/31/97; Part IV, § 15, filed 3/23/60.]

WAC 296-104-300 Installation—When do I need to provide platforms around boilers? Provide platforms allowing safe access to each boiler, when the boiler controls, valves, manholes, or casing openings are over ten feet above the floor.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-300, filed 9/30/97, effective 10/31/97; Part V, § 1, filed 3/23/60.]

WAC 296-104-305 Installation—How many exits are required in boiler rooms? (1) For boiler rooms containing a boiler or a combination of boilers of over 2,000 square feet of heating surface, provide at least two exits on opposite sides of the boiler(s).

(2) Each floor elevation change of 10 feet or more must have two exits from that elevation.

(3) All exits shall meet Washington state building codes or local building codes as applicable.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-305, filed 9/30/97, effective 10/31/97; Part V, § 2, filed 3/23/60.]

WAC 296-104-310 Installation—Where should the discharge from safety valves, blow offs and drains be directed? Direct the discharge from safety valves, blow offs and drains to prevent injury to personnel or property. Run the discharge line outside the building from single or multiple safety valves on boilers with a capacity of 5,000 pounds of steam per hour or more.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-310, filed 9/30/97, effective 10/31/97; Part V, § 3, filed 3/23/60.]

WAC 296-104-320 Installation—What are the requirements for underground installations? Where necessary to install a pressure vessel underground:

(1) It shall be enclosed in a concrete or masonry pit.

(2) If covered the cover shall be removable.

(3) A minimum clearance of 18 inches shall be provided between the pressure vessel proper and the ceiling, adjacent walls, or other structures.

(4) All manhole openings shall have a minimum of 5 feet of clearance from any wall, ceiling, or piping that could prevent a person from entering the pit or vessel.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-320, filed 9/30/97, effective 10/31/97; Part V, § 5, filed 3/23/60.]

WAC 296-104-325 Installation—What are the requirements for boiler and pressure vessel supports? Each boiler or unfired pressure vessel shall be supported by masonry or structural supports of sufficient strength and rigidity to safely support the vessel and its contents. There shall be no excessive vibration in either the vessel or its connecting piping.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-325, filed 9/30/97, effective 10/31/97; Part V, § 6, filed 3/23/60.]

WAC 296-104-330 Installation—What are the relief or safety valve requirements when pressure reducing

valves are used? (1) Where pressure reducing valves are used, one or more relief or safety valve(s) and pressure gauge(s) shall be provided on the low pressure side of the reducing valve. The relief or safety valve(s) shall be located as close as possible to the reducing valve. The combined discharge capacity of the relief valves shall be such that the pressure rating of the lower pressure piping or equipment shall not be exceeded in case the reducing valve sticks open. Discharge lines shall comply with WAC 296-104-310.

(2) The use of hand-controlled bypasses around reducing valves is permissible. The bypass shall not be greater in capacity than the reducing valve unless the piping or equipment is adequately protected by a relief valve(s) or meets the requirements of the high pressure system.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-330, filed 9/30/97, effective 10/31/97; Part V, § 7, filed 3/23/60.]

WAC 296-104-400 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-104-405 Existing installation—How can the maximum allowable working pressure be established for nonstandard boilers or unfired pressure vessels? The maximum allowable working pressure MAWP shall be established as follows:

(1) For nonstandard steel low pressure steam heating boilers the MAWP shall be computed from the formula in subsection (5) of this section not exceeding 15 psi steam.

(2) For nonstandard steel low pressure water heating boilers the MAWP shall be computed from the formula in subsection (5) of this section not exceeding 160 psi.

(3) For nonstandard cast iron low pressure steam heating boilers the MAWP shall not exceed 15 psi steam.

(4) For nonstandard cast iron low pressure water heating boilers the MAWP shall not exceed 30 psi.

(5) For boilers and unfired pressure vessels not listed above, where the original code of construction is unknown, the following formula will be used.

$$\frac{TS \times t \times E}{R \times FS} = MAWP$$

TS = Tensile strength in psi as given in ASME Code, when material cannot be identified use 55,000 for steel and 45,000 for wrought iron.

t = thickness in inches of the thinnest part determined by actual measurement.

E = efficiency of longitudinal joint or ligament, whichever is the least, determined by the rules and formula in the ASME Code. When construction methods are not known welded joint efficiency will be 70%.

R = radius of largest course in inches.

FS = Factor of safety, for boilers shall be a minimum of 5. For boilers with a longitudinal lap seam it shall be a minimum 8. Boilers with a longitudinal lap seam, unless granted a special permit, may only be used at a maximum of 15 psi provided they have passed inspection. The minimum for unfired pressure vessels shall be 4 when less than 20 years old, 4 1/2 when over 20 years old.

[Statutory Authority: RCW 70.79.030 and 70.79.040. 97-20-109, § 296-104-405, filed 9/30/97, effective 10/31/97; Part VI, § 2, filed 3/23/60.]

WAC 296-104-410 Repealed. See Disposition Table at beginning of this chapter.

WAC 296-104-415 Repealed. See Disposition Table at beginning of this chapter.

**Chapter 296-116 WAC
PILOTAGE RULES**

WAC

296-116-010 through 296-116-500 Decodified.

**DISPOSITION OF SECTIONS FORMERLY
CODIFIED IN THIS CHAPTER**

296-116-010	Time and place of meeting. [Statutory Authority: RCW 88.16.035 and 88.16.155. 78-09-057 (Order 78-2, Resolution No. 78-2), § 296-116-010, filed 8/23/78; Order 2-68, § 296-116-010, filed 11/1/68; § 1, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-010.	296-116-081	Rest period. [Statutory Authority: RCW 88.16.035. 79-05-023 (Order 79-2, Resolution No. 79-2), § 296-116-081, filed 4/17/79; Order 73-6, § 296-116-081, filed 5/11/73.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-081.
296-116-020	Special meeting. [Statutory Authority: RCW 88.16.035. 88-09-025 (Order 88-3, Resolution No. 88-3), § 296-116-020, filed 4/14/88. Statutory Authority: RCW 88.16.035 and 88.16.155. 78-09-057 (Order 78-2, Resolution No. 78-2), § 296-116-020, filed 8/23/78; Order 2-68, § 296-116-020, filed 11/1/68; § 2, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-020.	296-116-082	Limitations on new pilots. [Statutory Authority: RCW 88.16.035 and 88.16.105. 93-09-016, § 296-116-082, filed 4/14/93, effective 5/15/93. Statutory Authority: RCW 88.16.105. 92-24-056, § 296-116-082, filed 11/30/92, effective 12/31/92; 92-08-051, § 296-116-082, filed 3/26/92, effective 4/26/92; 89-18-063 (Order 89-6, Resolution No. 89-6), § 296-116-082, filed 9/1/89, effective 10/2/89; 89-11-060 (Order 89-5, Resolution No. 89-5), § 296-116-082, filed 5/18/89. Statutory Authority: RCW 88.16.035. 80-03-081 (Order 79-6, Resolution No. 79-6), § 296-116-082, filed 3/4/80.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-082.
296-116-030	Emergency meeting. [Statutory Authority: RCW 88.16.035. 88-09-026 (Order 88-4, Resolution No. 88-4), § 296-116-030, filed 4/14/88. Statutory Authority: RCW 88.16.035 and 88.16.155. 78-09-057 (Order 78-2, Resolution No. 78-2), § 296-116-030, filed 8/23/78; Order 2-68, § 296-116-030, filed 11/1/68; § 3, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-030.	296-116-083	Examination review and appeal procedures. [Statutory Authority: RCW 88.16.035. 88-10-038 (Order 88-10, Resolution No. 88-10), § 296-116-083, filed 5/3/88.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-083.
296-116-050	Records. [Order 2-68, § 296-116-050, filed 11/1/68; § 5, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-050.	296-116-085	Association bylaws. [Statutory Authority: RCW 88.16.035. 82-13-087 (Order 82-10-049, Resolution No. 82-10-049), § 296-116-085, filed 6/23/82; Order 76-12, § 296-116-085, filed 4/22/76.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-085.
296-116-060	Personnel. [Statutory Authority: RCW 88.16.035 and 88.16.155. 78-09-057 (Order 78-2, Resolution No. 78-2), § 296-116-060, filed 8/23/78; Order 2-68, § 296-116-060, filed 11/1/68; § 6, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-060.	296-116-110	Details and requirements of annual license fee payment, physical examination report and reinstatement application. [Statutory Authority: RCW 88.16.090. 93-07-076, § 296-116-110, filed 3/18/93, effective 4/18/93. Statutory Authority: RCW 88.16.035. 92-08-050, § 296-116-110, filed 3/26/92, effective 4/26/92; 80-03-081 (Order 79-6, Resolution No. 79-6), § 296-116-110, filed 3/4/80; Order 2-68, § 296-116-110, filed 11/1/68; § 11, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-110.
296-116-070	Collection of fees. [Statutory Authority: RCW 88.16.090. 97-06-105, § 296-116-070, filed 3/5/97, effective 4/5/97. Statutory Authority: RCW 88.16.035. 88-14-063 (Order 88-13, Resolution No. 88-13), § 296-116-070, filed 7/1/88. Statutory Authority: RCW 88.16.090. 85-15-032 (Order 85-1, Resolution No. 85-1), § 296-116-070, filed 7/12/85; 84-11-056 (Order 84-4, Resolution No. 84-4), § 296-116-070, filed 5/18/84. Statutory Authority: RCW 88.16.035. 82-24-010 (Order 82-8, Resolution No. 82-8), § 296-116-070, filed 11/18/82; 79-11-063 (Order 79-5, Resolution No. 79-5), § 296-116-070, filed 10/18/79. Statutory Authority: RCW 88.16.035 and 88.16.155. 78-09-057 (Order 78-2, Resolution No. 78-2), § 296-116-070, filed 8/23/78; Order 2-68, § 296-116-070, filed 11/1/68; § 7, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-070.	296-116-115	Sanctions for drug and alcohol offenders. [Statutory Authority: RCW 88.16.100(4). 90-23-081, § 296-116-115, filed 11/20/90, effective 12/21/90.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-115.
296-116-075	Qualifications for pilot applicants. [Statutory Authority: RCW 88.16.090(2). 92-15-064, § 296-116-075, filed 7/14/92, effective 8/14/92. Statutory Authority: RCW 88.16.035(2). 90-17-094, § 296-116-075, filed 8/20/90, effective 9/20/90. Statutory Authority: RCW 88.16.090. 82-15-026 (Order 82-6, Resolution No. 82-6), § 296-116-075, filed 7/14/82.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-075.	296-116-120	Job description—Physical examination—Health requirements. [Statutory Authority: RCW 88.16.090(6) and 88.16.100(4). 90-24-019, § 296-116-120, filed 11/28/90, effective 12/29/90. Statutory Authority: RCW 88.16.090(6). 90-13-065, § 296-116-120, filed 6/18/90, effective 7/19/90. Statutory Authority: RCW 88.16.090. 88-09-027 (Order 88-5, Resolution No. 88-5), § 296-116-120, filed 4/14/88; 85-15-033 (Order 85-2, Resolution No. 85-2), § 296-116-120, filed 7/12/85. Statutory Authority: RCW 88.16.035 and 88.16.090(6). 80-16-005 (Resolution No. 79-5), § 296-116-120, filed 10/23/80. Statutory Authority: RCW 88.16.035. 79-11-063 (Order 79-5, Resolution No. 79-5), § 296-116-120, filed 10/18/79;
296-116-080	Licensing of pilots. [Statutory Authority: RCW 88.16.035(2). 92-14-070, § 296-116-080, filed 6/26/92, effective 7/27/92. Statutory Authority: RCW 88.16.090(2). 90-23-080, § 296-116-080, filed 11/20/90, effective 12/21/90. Statutory Authority: RCW 88.16.090.		

- Order 73-6, § 296-116-120, filed 5/11/73; Order 2-68, § 296-116-120, filed 11/1/68; § 12, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-120.
- 296-116-140 Limitations. [Order 2-68, § 296-116-140, filed 11/1/68.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-140.
- 296-116-150 Registration of operators. [Order 2-68, § 296-116-150, filed 11/1/68; § 15, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-150.
- 296-116-170 Pilotage station. [Order 2-68, § 296-116-170, filed 11/1/68; § 17, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-170.
- 296-116-175 Tariff proposals. [Statutory Authority: RCW 88.16.035. 87-19-100 (Order 87-1, Resolution No. 87-1), § 296-116-175, filed 9/17/87.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-175.
- 296-116-185 Tariffs, and pilotage rates for the Grays Harbor pilotage district. [Statutory Authority: RCW 88.16.035. 96-14-062, § 296-116-185, filed 6/28/96, effective 8/1/96; 95-13-054, § 296-116-185, filed 6/16/95, effective 8/1/95; 94-05-006, § 296-116-185, filed 2/3/94, effective 3/6/94; 93-13-055, § 296-116-185, filed 6/16/93, effective 7/17/93; 93-03-080, § 296-116-185, filed 1/19/93, effective 2/19/93; 92-14-069, § 296-116-185, filed 6/26/92, effective 7/27/92; 91-08-008, § 296-116-185, filed 3/26/91, effective 4/26/91; 90-09-013, § 296-116-185, filed 4/6/90, effective 5/7/90; 89-08-042 (Order 89-3, Resolution No. 89-3), § 296-116-185, filed 3/31/89; 88-05-043 (Order 88-2, Resolution No. 88-2), § 296-116-185, filed 2/17/88, effective 3/21/88. Statutory Authority: RCW 88.16.035(4). 87-01-081 (Orders 86-9 and 86-10, Resolution Nos. 86-9 and 86-10), § 296-116-185, filed 12/19/86; 85-02-048 (Order 84-5, Resolution No. 84-5), § 296-116-185, filed 12/31/84; 83-15-012 (Order 83-3, Resolution No. 83-3), § 296-116-185, filed 7/12/83; 82-08-016 (Order 82-1, Resolution No. 82-1), § 296-116-185, filed 3/29/82; 81-07-009 (Order 81-1, Resolution No. 81-1), § 296-116-185, filed 3/6/81; 80-03-081 (Order 79-6, Resolution No. 79-6), § 296-116-185, filed 3/4/80; Order 2-68, § 296-116-185, filed 11/1/68.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-185.
- 296-116-200 Duties of pilots. [Statutory Authority: Chapter 88.16 RCW. 97-06-106, § 296-116-200, filed 3/5/97, effective 4/5/97; Order 73-6, § 296-116-200, filed 5/11/73; Order 2-68, § 296-116-200, filed 11/1/68; § 20, effective 11/25/58.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-200.
- 296-116-205 Vessel certification. [Statutory Authority: RCW 88.16.035. 82-13-087 (Order 82-10-049, Resolution No. 82-10-049), § 296-116-205, filed 6/23/82; 79-11-063 (Order 79-5, Resolution No. 79-5), § 296-116-205, filed 10/18/79. Statutory Authority: RCW 88.16.035 and 88.16.155. 78-09-057 (Order 78-2, Resolution No. 78-2), § 296-116-205, filed 8/23/78.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-205.
- 296-116-2051 Vessel certification form. [Statutory Authority: RCW 88.16.155(7). 92-08-052, § 296-116-2051, filed 3/26/92, effective 4/26/92. Statutory Authority: RCW 88.16.035 and 88.16.155. 83-16-032 (Order 83-4, Resolution No. 83-4), § 296-116-2051, filed 7/28/83. Statutory Authority: RCW 88.16.155. 79-11-097 (Order 79-6, Resolution No. 79-6), § 296-116-2051, filed 10/29/79. Statutory Authority: RCW 88.16.035 and 88.16.155. 78-09-057 (Order 78-2, Resolution No. 78-2), § 296-116-2051, filed 8/23/78.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-2051.
- 296-116-300 Pilotage rates for the Puget Sound pilotage district. [Statutory Authority: RCW 88.16.035. 96-12-017, § 296-116-300, filed 5/29/96, effective 7/1/96; 95-12-018, § 296-116-300, filed 5/30/95, effective 7/1/95; 94-12-044, § 296-116-300, filed 5/27/94, effective 7/1/94; 93-12-133, § 296-116-300, filed 6/2/93, effective 7/3/93; 92-14-007, § 296-116-300, filed 6/19/92, effective 7/20/92; 91-11-074, § 296-116-300, filed 5/20/91, effective 6/20/91; 90-20-116, § 296-116-300, filed 10/2/90, effective 11/2/90; 90-08-095, § 296-116-300, filed 4/4/90, effective 5/5/90; 89-08-041 (Order 89-2, Resolution No. 89-2), § 296-116-300, filed 3/31/89. Statutory Authority: RCW 88.16.050. 88-05-039 (Order 88-1, Resolution No. 88-1), § 296-116-300, filed 2/16/88, effective 3/18/88. Statutory Authority: RCW 88.16.035(4). 87-01-081 (Orders 86-9 and 86-10, Resolution Nos. 86-9 and 86-10), § 296-116-300, filed 12/19/86; 86-19-066 (Order 86-6, Resolution No. 86-6), § 296-116-300, filed 9/16/86; 86-02-035 (Order 86-1, Resolution No. 86-1), § 296-116-300, filed 12/30/85; 85-02-048 (Order 84-5, Resolution No. 84-5), § 296-116-300, filed 12/31/84; 84-04-006 (Order 84-1, Resolution No. 84-1), § 296-116-300, filed 1/20/84; 83-17-055 (Order 83-6, Resolution No. 83-6), § 296-116-300, filed 8/17/83; 82-13-065 (Order 82-4, Resolution No. 82-4), § 296-116-300, filed 6/16/82. Statutory Authority: RCW 88.16.035. 81-12-017 (Order 81-2, Resolution No. 81-2), § 296-116-300, filed 5/29/81; 80-06-084 (Order 80-1, Resolution No. 80-1), § 296-116-300, filed 5/28/80. Statutory Authority: RCW 88.16.035(4). 79-07-033 (Order 79-4, Resolution No. 79-4), § 296-116-300, filed 6/19/79. Statutory Authority: Chapter 88.16 RCW and 1977 ex. sess. c 337, §§ 1 and 4. 78-02-008 (Order 78-1), § 296-116-300, filed 1/6/78, effective 2/10/78; Order 77-18, § 296-116-300, filed 9/20/77, effective 11/1/77; Order 76-24, § 296-116-300, filed 7/22/76; Order 75-3, § 296-116-300, filed 2/10/75; Order 74-2, § 296-116-300, filed 1/8/74; Order 73-8, § 296-116-300, filed 6/20/73 and Emergency Order 73-10, filed 7/19/73, effective 8/14/73; Order 70-7, § 296-116-300, filed 7/16/70; 7/25/67; 2/18/64; 10/29/62; 12/28/60; 3/23/60.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-300.
- 296-116-315 Retirement disbursements. [Statutory Authority: RCW 88.16.035. 91-06-033, § 296-116-315, filed 2/26/91, effective 3/29/91.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-315.
- 296-116-35001 Exemption from provisions of WAC 197-10-800. [Order 76-14, § 296-116-350 (codified as WAC 296-116-35001), filed 5/6/76.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-35001.
- 296-116-360 Exempt vessels. [Statutory Authority: RCW 88.16.070. 93-07-077, § 296-116-360, filed 3/18/93, effective 4/18/93; 90-20-039, § 296-116-360, filed 9/25/90, effective 10/26/90; 88-09-015 (Order 88-6, Resolution No. 88-6), § 296-116-360, filed 4/13/88.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-360.
- 296-116-370 System of specified disciplinary or corrective actions. [Statutory Authority: RCW 88.16.100. 88-14-062 (Order 88-14, Resolution No. 88-14), § 296-116-370, filed 7/1/88.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-370.
- 296-116-400 Procedure for request by steamship company or agent that certain pilots not be assigned to certain vessels for specific safety reasons. [Statutory Authority: RCW 88.16.035. 88-09-016 (Order 88-7, Resolution No. 88-7), § 296-116-400, filed 4/13/88.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-400.
- 296-116-410 Definition of Grays Harbor pilotage district. [Statutory Authority: RCW 88.16.050. 88-09-017 (Order 88-8, Resolution No. 88-8), § 296-116-410, filed 4/13/88.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-410.
- 296-116-420 Summary/temporary license suspension. [Statutory Authority: RCW 88.16.100. 88-10-040 (Order 88-12, Resolution No. 88-12), § 296-116-420, filed 5/3/88.] Decodified by 97-08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-420.
- 296-116-500 Tug escort requirements for oil tankers. [Statutory Authority: RCW 88.16.190(2). 94-07-079, § 296-116-500, filed 3/16/94, effective 4/16/94.] Decodified by 97-

08-042, filed 3/28/97, effective 3/28/97. Recodified as 363-116-500.

WAC 296-116-010 through 296-116-500 Decodified.
See Disposition Table at beginning of this chapter.

Chapter 296-126 WAC

STANDARDS OF LABOR FOR THE PROTECTION OF THE SAFETY, HEALTH AND WELFARE OF EMPLOYEES FOR ALL OCCUPATIONS SUBJECT TO CHAPTER 49.12 RCW

WAC
296-126-140 Repealed.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

296-126-140 Appeal procedures. [Order 74-9, § 296-126-140, filed 3/13/74, effective 4/15/74.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.

WAC 296-126-140 Repealed. See Disposition Table at beginning of this chapter.

Chapter 296-128 WAC MINIMUM WAGES

WAC
296-128-535 Are professional computer employees exempt from the Washington Minimum Wage Act?

WAC 296-128-535 Are professional computer employees exempt from the Washington Minimum Wage Act? (1) Any employee who is a computer system analyst, computer programmer, software engineer, software developer or other similarly skilled worker will be considered a "professional employee" and will be exempt from the minimum wage and overtime provisions of the Washington Minimum Wage Act if:

(a) Their primary duty is of one of the following:

(i) Applying systems analysis techniques and procedures to determine hardware, software, or system functional specifications for any user of such services; or

(ii) Following user or system design specifications to design, develop, document, analyze, create, test or modify any computer system, application or program, including prototypes; or

(iii) Designing, documenting, testing, creating or modifying computer systems, applications or programs for machine operation systems; or

(iv) Any combination of the above primary duties whose performance requires the same skill level; and

(b) Their rate of pay is at least \$27.63 per hour.

(2) **This professional exemption only applies to highly skilled employees who:**

(a) Possess a high degree of theoretical knowledge and understanding of computer system analysis, programming and software engineering; and

(b) Have the ability to practically apply that theoretical knowledge and understanding to highly specialized computer fields; and

(c) Generally attain the necessary level of expertise and skill to qualify for an exemption through a combination of education and experience in the field; and

(d) Consistently exercise discretion and judgment in the application of their special knowledge as opposed to performing purely mechanical or routine tasks; and

(e) Engage in work that is predominantly intellectual and inherently varied in character as opposed to work that is routinely mental, manual, mechanical, or physical.

(3) While many employees who qualify for this exemption hold a bachelor's or higher degree, **no degree is required for this exemption.**

(4) This professional exemption **does not apply to:**

(a) Trainees or employees in entry level positions learning to become proficient in computer systems analysis, programming and software engineering; or

(b) Employees in computer systems analysis, programming and software engineering positions who have not attained a level of skill and expertise which allows them to generally work independently and without close supervision; or

(c) Employees engaged in the operation of computers; or

(d) Employees engaged in the manufacture, repair or maintenance of computer hardware and related equipment; or

(e) Employees covered by a collective bargaining agreement.

[Statutory Authority: RCW 49.46.010 (5)(c). 98-02-027, § 296-128-535, filed 12/31/97, effective 2/1/98.]

Chapter 296-129 WAC

INDUSTRIAL WELFARE COMMITTEE APPEAL PROCEDURES

WAC
296-129-020 through 296-129-040 Repealed.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

296-129-020 Appeal briefs. [Order 74-9, § 296-129-020, filed 3/13/74, effective 4/15/74.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.

296-129-030 Appeal briefs—Contents. [Order 74-9, § 296-129-030, filed 3/13/74, effective 4/15/74.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.

296-129-040 Record on appeal. [Order 74-9, § 296-129-040, filed 3/13/74, effective 4/15/74.] Repealed by 97-17-064, filed 8/18/97, effective 9/18/97.

WAC 296-129-020 through 296-129-040 Repealed.
See Disposition Table at beginning of this chapter.

**Chapter 296-150C WAC
COMMERCIAL COACHES**

WAC

- 296-150C-0040 Will you keep my manufacturing information confidential?
 296-150C-0100 What happens if I disagree with your decision regarding my compliance with this chapter?
 296-150C-3000 Commercial coach fees.

WAC 296-150C-0040 Will you keep my manufacturing information confidential? We will only release manufacturing information such as design plans, specifications, and test results according to the requirements of the Public Records Act (see RCW 42.17.310 (1)(h)) unless we are ordered to do so by a court or otherwise required by law.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150C-0040, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150C-0040, filed 10/23/96, effective 11/25/96.]

WAC 296-150C-0100 What happens if I disagree with your decision regarding my compliance with this chapter? (1) If we determine that you are in violation of this chapter, you will receive a notice of noncompliance. (See WAC 296-150C-0560.)

(2) If you disagree with our decision, you can send us a written request for a hearing, stating why you disagree.

(3) After we receive your hearing request, we will:

(a) Schedule a hearing within thirty days after we receive your request.

(b) Notify you of the time, date, and place for the hearing. If you fail to appear, your case will be dismissed.

(c) Hear your case.

(d) Send you written notice of our decision.

If you disagree with our decision, you may appeal it under the Administrative Procedure Act (chapter 34.05 RCW).

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150C-0100, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150C-0100, filed 10/23/96, effective 11/25/96.]

WAC 296-150C-3000 Commercial coach fees.

WAC 296-150C-3000 COMMERCIAL COACH FEES	
INITIAL FILING FEE	\$26.00
DESIGN PLAN FEES	
INITIAL FEE-MASTER DESIGN	\$177.50
INITIAL FEE-ONE YEAR DESIGN	\$73.00
RENEWAL FEE	\$31.25
RESUBMIT FEE	\$62.00
ADDENDUM	\$62.00
PLANS APPROVED BY PROFESSIONALS	\$36.50
DEPARTMENT INSPECTION FEES	
INSPECTION/REINSPECTION*	\$52.00
TRAVEL (PER HOUR)*	\$52.00
PER DIEM**	
HOTEL***	
MILEAGE**	
RENTAL CAR***	
PARKING***	
AIRFARE***	
DEPARTMENT AUDIT FEES	
AUDIT (PER HOUR)*	\$52.00
TRAVEL (PER HOUR)*	\$52.00
PER DIEM**	
HOTEL***	
MILEAGE**	
RENTAL CAR***	
PARKING***	
AIRFARE***	
INSIGNIA FEES	
FIRST SECTION	\$15.50
EACH ADDITIONAL SECTION	\$10.25
ALTERATION	\$26.00
REISSUED-LOST/DAMAGED	\$10.25
FIELD TECHNICAL SERVICE FEE (PER HOUR)	\$52.00
* Minimum charge of 1 hour for inspection; time spent greater than 1 hour is charged in 1/2 hour increments	
** Per state guidelines.	
***Actual charges incurred.	

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-150C-3000, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150C-3000, filed 10/23/96, effective 11/25/96.]

**Chapter 296-150F WAC
FACTORY-BUILT HOUSING AND COMMERCIAL
STRUCTURES**

WAC

- 296-150F-0040 Will you keep my manufacturing information confidential?
- 296-150F-0100 What happens if I disagree with your decision regarding my compliance with this chapter?
- 296-150F-3000 Factory-built housing and commercial structure fees.

WAC 296-150F-0040 Will you keep my manufacturing information confidential? We will only release manufacturing information such as design plans, specifications, and test results according to the requirements of the Public Records Act (see RCW 42.17.310 (1)(h)) unless we are ordered to do so by a court or otherwise required by law.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150F-0040, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150F-0040, filed 10/23/96, effective 11/25/96.]

WAC 296-150F-0100 What happens if I disagree with your decision regarding my compliance with this chapter? (1) If we determine you are in violation of this chapter, you will receive a notice of noncompliance.

(2) If you disagree with our decision, you can send us a written request for a hearing, stating why you disagree.

(3) After we receive your hearing request, we will:

(a) Schedule a hearing within thirty days after we receive your request.

(b) Notify you of the time, date, and place for the hearing. If you fail to appear, your case will be dismissed.

(c) Hear your case.

(d) Send you written notice of our decision.

If you disagree with our decision, you may appeal it under the Administrative Procedure Act (chapter 34.05 RCW).

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150F-0100, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150F-0100, filed 10/23/96, effective 11/25/96.]

WAC 296-150F-3000 Factory-built housing and commercial structure fees.

WAC 296-150F-3000 FACTORY-BUILT HOUSING AND COMMERCIAL STRUCTURE FEES	
INITIAL FILING FEE	\$36.50
DESIGN PLAN FEES	
INITIAL FEE-MASTER DESIGN (CODECYCLE)	\$177.50
INITIAL FEE-ONE YEAR DESIGN	\$104.25
RENEWAL FEE	\$36.50
RESUBMIT FEE	\$52.00
ADDENDUM	\$52.00
PLANS APPROVED BY PROFESSIONALS	\$36.50
DEPARTMENT INSPECTION FEES	
INSPECTION (PER HOUR)*	\$52.00
TRAVEL (PER HOUR)*	\$52.00
PER DIEM**	
HOTEL***	
MILEAGE**	
RENTAL CAR***	
PARKING***	
AIRFARE***	
NLEA CHARGE	\$21.75
DEPARTMENT AUDIT FEES	
AUDIT (PER HOUR)*	\$52.00
TRAVEL (PER HOUR)*	\$52.00
PER DIEM**	
HOTEL***	
MILEAGE**	
RENTAL CAR***	
PARKING***	
AIRFARE***	
INSIGNIA FEES	
FIRST SECTION	\$146.00
EACH ADDITIONAL SECTION	\$14.50
REISSUED-LOST/DAMAGED	\$36.50
TEMPORARY INSIGNIA FEES	
FIRST SECTION	\$146.00
EACH ADDITIONAL SECTION	\$14.50
REPLACEMENT FOR TEMPORARY INSIGNIA	\$36.50
FIELD TECHNICAL SERVICE FEE (PER HOUR)	\$52.00
* Minimum charge of 1 hour for inspection; time spent greater than 1 hour is charged in 1/2 hour increments	
** Per state guidelines.	
*** Actual charges incurred.	

**Chapter 296-150M WAC
MANUFACTURED HOMES**

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-150F-3000, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150F-3000, filed 10/23/96, effective 11/25/96.]

- WAC
- 296-150M-0040 Will you keep my manufacturing information confidential?
 - 296-150M-0100 What happens if I disagree with your decision regarding my compliance with the federal standards, ANSI, or this chapter?
 - 296-150M-3000 Manufactured home fees.

WAC 296-150M-0040 Will you keep my manufacturing information confidential? We will only release manufacturing information such as design plans for structural alterations according to the requirements of the Public Records Act (see RCW 42.17.310 (1)(h)) unless we are ordered to do so by a court or otherwise required by law.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150M-0040, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150M-0040, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-0100 What happens if I disagree with your decision regarding my compliance with the federal standards, ANSI, or this chapter? (1) If we determine that you are in violation with the federal standards, ANSI A225.1, or this chapter, you will receive a notice of noncompliance.

(2) If you disagree with our decision, you can submit a written request for a hearing, stating why you disagree.

(3) After we receive your hearing request, we will:

(a) Schedule a hearing within thirty days after we receive your request.

(b) Notify you of the time, date, and place for the hearing. If you fail to appear, your case will be dismissed.

(c) Hear your case.

(d) Send you written notice of our decision.

If you disagree with our decision, you may appeal it under the Administrative Procedure Act (chapter 34.05 RCW).

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150M-0100, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150M-0100, filed 10/23/96, effective 11/25/96.]

WAC 296-150M-3000 Manufactured home fees.

WAC 296-150M-3000 MANUFACTURED HOME FEES	
INITIAL FILING FEE	\$26.00
DESIGN PLAN	
STRUCTURAL ALTERATION-MASTER DESIGN (CODE CYCLE)	\$104.25
STRUCTURAL ALTERATION-ONE YEAR DESIGN	\$73.00
RENEWAL FEE	\$31.25
RESUBMITAL	\$52.00
ADDENDUM	\$52.00
DEPARTMENT INSPECTION FEES	
INSPECTION/REINSPECTION (PER HOUR) *	\$52.00
INSIGNIA FEES	
ALTERATION	\$26.00
REISSUED-LOST/DAMAGED	\$15.50
FIELD TECHNICAL SERVICE FEES (PER HOUR) *	\$52.00
IPIA	
DEPARTMENT AUDIT FEES	
PER SECTION (ONE TIME ONLY)	\$24.00
INCREASED FREQUENCY VISITS (PER HOUR) *	\$52.00
REINSPECTION (PER HOUR) *	\$52.00
NOTE: Local jurisdictions may have other fees that apply.	
* Minimum charge of 1 hour for inspection; time spent greater than 1 hour is charged in 1/2 hour increments.	

[Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-150M-3000, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150M-3000, filed 10/23/96, effective 11/25/96.]

Chapter 296-150P WAC
RECREATIONAL PARK TRAILERS

WAC

296-150P-0010	Authority, purpose, and scope.
296-150P-0020	What definitions apply to this chapter?
296-150P-0030	How is this chapter enforced?
296-150P-0040	Will you keep my manufacturing information confidential?
296-150P-0060	Who handles consumer complaints about recreational park trailers?
296-150P-0100	What happens if I disagree with the department's decision regarding my compliance with this chapter and ANSI?
296-150P-0110	Do you have an advisory board to address recreational park trailer issues?
296-150P-0120	Where can I obtain technical assistance regarding recreational park trailers?
296-150P-0130	Do you allow recreational park trailers to be displayed without an insignia?
296-150P-0200	Who should obtain recreational park trailer insignia?
296-150P-0210	How do I obtain insignia information and the forms you require?
296-150P-0220	How do I obtain insignia based on state-plan approval?
296-150P-0250	How do I replace lost or damaged insignia?
296-150P-0280	What other identification is required?
296-150P-0290	When and where should the insignia and the identification label be attached to the recreational park trailer?
296-150P-0300	What is required to obtain insignia based on state-plan approval?
296-150P-0310	What is required after I am approved as a state-plan manufacturer?
296-150P-0320	How do I apply for design-plan approval?
296-150P-0330	What is required for comprehensive design-plan approval?
296-150P-0340	What happens if you approve my design plan?
296-150P-0350	If my design plan is not approved, how much time do I have to submit a correct plan?
296-150P-0400	What constitutes an acceptable quality control program/manual for state-plan insignia?
296-150P-0410	How do I apply to have my quality control manual approved?
296-150P-0420	What happens if my quality control manual is approved?
296-150P-0440	Do I need approval to change my design plan or quality control manual after I receive state-plan approval?
296-150P-0450	When does state-plan insignia approval expire?
296-150P-0600	When does a manufacturer, individual builder, or a dealer need to request a recreational park trailer inspection?
296-150P-0610	How do I request a recreational park trailer inspection and what documentation is required?
296-150P-0620	What happens if my recreational park trailer passes inspection?
296-150P-0630	What happens if my recreational park trailer does not pass inspection?
296-150P-0640	Am I charged if I request an inspection but I am not prepared?
296-150P-0700	What does our annual quality control program audit for state-plan insignia include?
296-150P-0710	Can you withdraw my state-plan insignia approval?
296-150P-0720	What happens if my state-plan insignia approval is withdrawn?
296-150P-1000	Who needs approval to alter a recreational park trailer?
296-150P-1010	Must I purchase a separate insignia for an alteration?
296-150P-1020	How do I apply for alteration approval and obtain the alteration insignia?
296-150P-2000	Must state-plan manufacturers notify you if they manufacture at more than one location?
296-150P-2010	Must state-plan manufacturers notify you if they change a business name or address?

296-150P-2020	Must state-plan manufacturers notify you of a change in business ownership?
296-150P-2030	Must state-plan manufacturers notify you of their Washington dealers?
296-150P-3000	Recreational park trailer fees.

WAC 296-150P-0010 Authority, purpose, and scope. (1) This chapter is authorized by RCW 43.22.335 through 43.22.434 and covers the requirements for:

(a) Obtaining state-plan status if you manufacture recreational park trailers for sale or lease in Washington state.

(b) Obtaining state-plan insignia if you manufacture recreational park trailers for sale or lease in Washington state.

(2) This chapter applies to:

(a) Manufacturers, dealers and individuals who build for sale, sell, or lease recreational park trailers in Washington state; and

(b) Manufacturers, dealers, and individuals who alter recreational park trailers for sale or lease in Washington state.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0010, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0020 What definitions apply to this chapter? "Alteration" is the replacement, addition, modification, or removal of any equipment or material that affects the fire and life safety provisions, structural system, plumbing systems, fuel systems and equipment or electrical systems of a recreational park trailer.

The following changes are not considered alterations for purposes of this chapter:

- Repairs with approved parts;
- Modification of a fuel-burning appliance according to the terms of its listing; and
- Adjustment and maintenance of equipment.

"Alteration insignia" is an insignia which indicates a recreational park trailer alteration was approved by the department.

"ANSI" is the American National Standards Institute, Inc., and the institute's rules applicable to recreational park trailers. For the purposes of this chapter, references to ANSI mean ANSI A119.5 Recreational Park Trailers, 1997 edition.

"Approved" is approved by the department of labor and industries.

"Audit" by the department is the department inspection of a manufacturer's quality control procedures, comprehensive plans, and recreational park trailers.

"Comprehensive design plan" consists of the design plans and copies of drawings such as:

- Floor plans relating to fire and life safety, structural, electrical, plumbing, liquefied petroleum (LP) and/or natural gas systems and appliances and air conditioning systems, if applicable to the plan of each recreational park trailer.
- Plumbing line drawings which describe the size, length and location of gas piping lines, liquid and body waste lines, liquid and body waste tanks, and potable water tanks.
- Electrical drawings. (See WAC 296-150P-0330.)

"Consumer" is a person or organization who buys or leases recreational park trailers.

"Dealer" is a person or organization whose business is offering recreational park trailers for sale or lease.

"Department" is the department of labor and industries. The department may be referred to as "we" or "us" in this chapter. Note: You may contact us at: Department of Labor and Industries, Specialty Compliance, PO Box 44430, Olympia, WA 98504-4430.

"Equipment" is all material, appliances, fixtures, and accessories used in the manufacture or alteration of recreational park trailers.

"Manual" is a reference containing instructions, procedures, responsibilities and other information used to implement and maintain the quality control program of a recreational park trailer manufacturer.

"National Electrical Code" 1996 edition is the electrical code required for ANSI A119.5 compliance.

"Recreational park trailer" is a trailer-type unit that is primarily designed to provide temporary living quarters for recreational, camping or seasonal use, that meets the following criteria:

- Built on a single chassis, mounted on wheels;
- Having a gross trailer area not exceeding 400 square feet (37.15 square meters) in the set-up mode; and
- Certified by the manufacturer as complying with ANSI A119.5.

"Quality control" is the plan and method for ensuring that the manufacture, fabrication, assembly, installation, storing, handling, and use of materials complies with this chapter and ANSI.

"State-plan insignia" is an insignia which is obtained under the state design-plan approval process.

"System" is a part of a recreational park trailer that is designed to serve a particular function such as plumbing, electrical, heating, mechanical or structural system.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0020, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0030 How is this chapter enforced?

(1) We enforce this chapter through the state-plan insignia approval process (see WAC 296-150P-0300 through 296-150P-0720).

(2) Recreational park trailer inspections occur where the recreational park trailers are manufactured, sold, or leased. We conduct inspections during normal work hours or at other reasonable times. We may require you to remove a part of the recreational park trailer in order to conduct our inspection.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0030, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0040 Will you keep my manufacturing information confidential? We will only release manufacturing information, such as design plans, specifications, test results, and manuals, according to the Public Records Act (see RCW 42.17.310 (1)(h)) unless we are ordered to do so by a court or otherwise required by law.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0040, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0060 Who handles consumer complaints about recreational park trailers? (1) Consumers may file complaints with us, if they have reason to believe a manufacturer and/or dealer is in violation of this chapter and ANSI.

(2) The complaint should be in writing and describe the items that may not comply with this chapter and ANSI.

(3) After we receive the complaint, we will send the manufacturer and/or the dealer a copy of the complaint. The manufacturer and/or dealer has thirty days to respond to the complaint.

(4) If we decide an inspection is warranted and specific code violation(s) are found during the inspection, the manufacturer or dealer is charged for the inspection.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0060, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0100 What happens if I disagree with the department's decision regarding my compliance with this chapter and ANSI? (1) If we determine that you are in violation of this chapter and ANSI, you will receive a notice of noncompliance and we may withdraw your certification. (See WAC 296-150P-0710.)

(2) If you disagree with our decision, you can send us a written request for a hearing, stating why you disagree.

(3) After we receive your hearing request, we will:

(a) Schedule a hearing within thirty days after we receive your request.

(b) Notify you of the time, date, and place for the hearing. If you fail to appear, your case will be dismissed.

(c) Hear your case.

(d) Send you written notice of our decision.

If you disagree with our decision, you may appeal it under the Administrative Procedure Act (chapter 34.05 RCW).

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0100, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0110 Do you have an advisory board to address recreational park trailer issues? The factory assembled structures (FAS) board advises us on issues relating to plumbing, heating, electrical, installation, alterations, inspections, and rules for recreational park trailers. (See RCW 43.22.420.)

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0110, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0120 Where can I obtain technical assistance regarding recreational park trailers? We provide field technical service to recreational park trailer manufacturers for an hourly fee (see WAC 296-150P-3000). Field technical service may include an evaluation, consultation, plan examination, interpretation, and clarification of technical data relating to the application of our rules. It does not include inspections.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0120, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0130 Do you allow recreational park trailers to be displayed without an insignia? We allow one recreational park trailer to be displayed without an insignia, if you:

(1) Get written approval from us in advance of displaying the unit; we should receive your written request at least thirty days prior to display of the unit. Your request must include:

- (a) The model and serial number of the unit;
- (b) The location where the unit will be displayed; and
- (c) The date(s) the unit will be displayed.

(2) Are licensed in Washington state through the department of licensing;

- (3) Have your approval letter available at the display;
- (4) Place three visible signs on the display unit:

- (a) One at the main entry door;
- (b) One inside the front of the unit; and
- (c) One inside the back of the unit.

The signs must read: NOT FOR SALE - DISPLAY ONLY.

The letters on the sign must be one inch or higher.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0130, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0200 Who should obtain recreational park trailer insignia? (1) If you manufacture recreational park trailers to be sold or leased in Washington, you must purchase a state-plan insignia for each recreational park trailer.

(2) Individuals that build recreational park trailers to sell or lease in Washington must purchase an insignia.

(3) If you have a recreational park trailer with a state-plan insignia and you plan to alter or have another person alter it, you must obtain an alteration insignia from us.

Note: You do not need to purchase our insignia if you manufacture recreational park trailers in Washington for sale outside the state.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0200, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0210 How do I obtain insignia information and the forms you require? Upon request, we will provide you with a packet of information that includes required forms and fee schedule for obtaining the state-plan insignia. Our address is noted in the definition of department.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0210, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0220 How do I obtain insignia based on state-plan approval? (1) If you are approved to purchase insignia based on state-plan approval, you may purchase the insignia by submitting the insignia application with the required fees. (See WAC 296-150P-3000.)

(2) The application must include:

(a) A signed statement from you certifying that you are manufacturing your units according to your approved design plans and your quality control program; and

(b) A list of the approved design plans against which you will apply the insignia.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0220, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0250 How do I replace lost or damaged insignia? (1) If an insignia is lost or damaged after it is placed on a recreational park trailer and you are the manufacturer or owner, you must notify us in writing immediately.

(2) Your notification should include the following information:

- (a) Your name, address, and telephone number;
- (b) The recreational park trailer serial number;
- (c) The insignia number and design-plan approval number, if applicable; and
- (d) The required fee. (See WAC 296-150P-3000.)

(3) If we can determine that your unit previously had an insignia, we will attach the insignia to your recreational park trailer once we receive your insignia fee. (See WAC 296-150P-3000.)

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0250, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0280 What other identification is required? Every new recreational park trailer manufactured, offered for sale or lease, or sold or leased in Washington must also have a vehicle identification number (VIN) label in compliance with the Federal Department of Transportation (DOT) safety standards.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0280, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0290 When and where should the insignia and the identification label be attached to the recreational park trailer? (1) Insignia must be attached to the finished recreational park trailer before it leaves the approved manufacturer's location.

(2) The state-plan insignia must be attached adjacent to the main door, on the strike side of the door, at least twelve inches above the floor line. The strike side of the door is opposite the hinge side of the door.

(3) The alteration insignia must be attached next to the certification insignia.

(4) The identification number (VIN) label must be attached on the recreational park trailer as required by the Federal Department of Transportation. Any other identification label must be attached next to the certification insignia or on the exterior front half of the left side of the recreational park trailer, at least six inches above the floor line.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0290, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0300 What is required to obtain insignia based on state-plan approval? If you want to obtain insignia based on state-plan approval, you must:

(1) Have your design plan and quality control manual approved by us; and

(2) Pass a quality control program audit which includes a random inspection of your recreational park trailers.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0300, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0310 What is required after I am approved as a state-plan manufacturer? Once you have obtained approval as a state-plan manufacturer:

(1) You are required to submit comprehensive design plans to us for approval;

(2) You can inspect your own recreational park trailer based upon your quality control manual specifications; and

(3) You are subject to a semiannual audit at your manufacturing location(s).

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0310, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0320 How do I apply for design-plan approval? Upon request, we will send you a design-plan approval request form.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0320, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0330 What is required for comprehensive design-plan approval? If you are the manufacturer applying for state-plan approval:

(1) You must submit two sets of comprehensive design plans (do not send originals) to us for approval. Design plans must be accompanied by the initial filing fee, if appropriate, and the design-plan fee. (See WAC 296-150P-3000.)

(2) Your comprehensive design plan must indicate compliance with the appropriate ANSI standards in the following plans and drawings:

(a) Floor plans relating to fire and life safety, electrical, plumbing, liquefied petroleum (LP) and/or natural gas systems and appliances, and air conditioning systems, if applicable, of each recreational park trailer.

(b) Plumbing line drawings which describe the size, length and location of gas piping lines, liquid and body waste lines, liquid and body waste tanks, and potable water tanks.

(c) Electrical drawings.

(d) Structural drawings showing compliance with ANSI A119.5, Chapter 5.

Note: We will provide a check list with detailed requirements for each type of plan upon request.

(3) Current comprehensive design plans must be available at each manufacturing location.

(4) You must have an approved quality control manual. (See WAC 296-150P-0400, 296-150P-0410.)

Note: You do not need a quality control manual if you are an individual asking us to inspect a recreational park trailer.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0330, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0340 What happens if you approve my design plan? (1) Your design plan will be approved if it complies with the requirements of this chapter and ANSI.

(2) We will send you an approved copy of the design plan with the approval number.

(3) You must keep copies of the approved design plan for all models produced at the manufacturing location.

(4) If your design plan is not approved, you will be notified in writing of plan deficiencies. You may send a corrected design plan to us.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0340, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0350 If my design plan is not approved, how much time do I have to submit a correct plan? (1) You have ninety days to correct and resubmit your original design plan and send us the resubmittal fee once we notify you of plan deficiencies. After ninety days, your initial design plan is returned to you.

(2) If you submit your corrected design plan after ninety days, you must send the initial design-plan fee instead of the resubmittal fee. (See WAC 296-150R-3000.)

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0350, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0400 What constitutes an acceptable quality control program/manual for state-plan insignia? Your quality control program must implement your approved quality control manual. The quality control manual must provide instructions, procedures, and assign responsibilities to assure quality control requirements are met when the recreational park trailers are manufactured. The minimum quality control manual requirements are:

(1) An organization chart which identifies quality assurance positions and describes quality control responsibilities and accountability for the following plant personnel: General manager, plant production manager, plant foreperson, lead persons, production, quality control, sales, engineering, purchasing, and receiving staff;

(2) A method to distribute all comprehensive design plans and installation instructions or other documentation that ensures all products used are installed correctly in all recreational park trailer models produced at each manufacturing location;

(3) Procedures for maintaining the quality assurance of each recreational park trailer model;

(4) Drawings and procedures displaying manufacturing processes including a schematic plant layout;

(5) Descriptions of production stations, including surgehold stations, on-site or off-site repair-rework locations, and off-line construction sites. Descriptions should identify by station and location the work, tests, or inspections performed and the job title of the person performing the quality control review;

(6) Inspection and equipment maintenance instructions, including jig maintenance, check-off lists, and other documentation verifying quality control performance and accountability;

(7) Coordination of staff duties ensuring smooth transition of manufacturing responsibilities during the shift change;

(8) Instructions regarding the identification, control, and handling of damaged goods or materials that do not comply with existing rules and ANSI;

(9) Information about recreational park trailer material storage and environmental control including protection from the weather and the elimination of scrap and age-dated materials which have exceeded their life;

(10) Verification that testing equipment is properly calibrated and that your gauges are accurate;

(11) Information about production line testing which includes descriptions of procedures, test equipment, and the location of each test. The information should demonstrate accountability for test completion, for rework and repair, and for retesting;

(12) Instructions, procedures, descriptions, and responsibilities for insignia storage, security, application, and inventory;

(13) Procedures for mixed production lines, for variable production rates, for new or substitute personnel, and for new or changed inspections and tests;

(14) Instructions, procedures, and responsibilities for keeping recreational park trailer records which include the unit serial number, model, plan approval number, dealer location or destination, insignia number, inspection, and test results;

(15) Information about your quality control training program; and

(16) Procedures for introducing new designs, models, materials and equipment to staff that ensures products are built according to the standards and the manufacturer's instructions.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0400, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0410 How do I apply to have my quality control manual approved? We will provide the form and instructions upon request.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0410, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0420 What happens if my quality control manual is approved? (1) Your quality control manual will be approved if it meets the requirements of this chapter and ANSI.

(2) We will send you an approved copy of your quality control manual.

(3) If your quality control manual is not approved, you will be notified in writing of the deficiencies. You may send us a corrected quality control manual.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0420, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0440 Do I need approval to change my design plan or quality control manual after I receive state-plan approval? (1) Once you have received state-plan approval and you want to change your design plan or quality control manual, we must approve the changes/addenda.

(2) You should send design plan or quality control manual changes to us thirty days before you want the changes/addenda to take effect.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0440, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0450 When does state-plan insignia approval expire? (1) As a state-plan manufacturer, your approval for insignia is based upon approval of your design plan and quality control manual. Design plans are considered approved until a new ANSI code edition is adopted or unless revisions to ANSI prior to code changes would not support our design-plan approval.

(2) If, after the new ANSI code edition is adopted, your design plan and quality control manual remain identical (you may change the model name or designation) to your original design plan, you only need to submit the new plan fee and the plan approval request. **(Do not send plans.)**

Note: ANSI codes are normally adopted for a three-year period.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0450, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0600 When does a manufacturer, individual builder, or a dealer need to request a recreational park trailer inspection? If you are a manufacturer, individual builder, or a dealer, you must request a recreational park trailer inspection by us:

(1) If you have approval of your design plan and quality control manual and need to complete the state-plan process;

(2) If you are making a recreational park trailer alteration which must be inspected and approved by us; or

(3) If you are correcting a violation which must be inspected and approved by us.

Note: An individual who is building a recreational park trailer to own, sell, or lease must obtain an identification number from the state patrol prior to our issuance of certification insignia.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0600, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0610 How do I request a recreational park trailer inspection and what documentation is required? (1) Complete an inspection application which can be obtained from us.

(2) Send the completed application, application fee, and inspection fee to us prior to the date you would like an inspection performed. (See WAC 296-150P-3000.)

(3) During the inspection, have your approved design plans, specifications, and test results available for our inspector.

(4) A recreational park trailer inspection will be completed in two or more phases. The "cover" inspection during the construction of the unit before the electrical, plumbing, mechanical, heating, and structural systems are covered. The final inspection takes place after the recreational park trailer is complete.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0610, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0620 What happens if my recreational park trailer passes inspection? (1) If your recreational park trailer passes inspection and you have met the other requirements of this chapter and ANSI, you will be approved to purchase state-plan insignia from us.

(2) If you send your insignia application and fee to us prior to the inspection, we will attach your insignia when we approve the recreational park trailer.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0620, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0630 What happens if my recreational park trailer does not pass inspection? (1) If your recreational park trailer does not pass inspection, you will receive a notice of noncompliance.

(2) You have ten days after receiving the notice of noncompliance to send us a written response explaining how you will correct the violation(s) and prevent its reoccurrence.

(3) You are not allowed to move, sell or lease a recreational park trailer until:

- (a) You correct the violation(s);
- (b) We inspect and approve the correction(s); and
- (c) You pay the inspection fee and the insignia fee, if required. (See WAC 296-150P-3000.)

(4) If you fail to make the corrections, the sale or lease of your recreational park trailer is prohibited by RCW 43.22.340 until the corrections are made.

Note: You will be allowed to return a recreational park trailer to the manufacturing location or to another location for correction with our approval.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0630, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0640 Am I charged if I request an inspection but I am not prepared? (1) If you ask us to inspect recreational park trailers within Washington state but are not prepared when we arrive, you must pay the minimum inspection fee and travel.

(2) If you ask us to inspect recreational park trailers outside Washington state but are not prepared when we arrive, you must pay the minimum inspection fee, travel, and per diem expenses.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0640, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0700 What does our annual quality control program audit for state-plan insignia include? (1) During your annual audit for state-plan insignia, we will review your quality control program and randomly inspect your recreational park trailer.

(2) If our audit indicates that you are complying with the requirements of this chapter and ANSI, you may purchase state-plan insignia.

(3) If we discover a quality control program deficiency or a recreational park trailer violation during our audit, you will receive a notice of noncompliance and cannot purchase state-plan insignia until the deficiency or violation is corrected.

(a) You can correct the deficiency or violation during the audit; or

(b) You have fourteen days after receiving the notice of noncompliance to send us a written response explaining your correction of the deficiency or violation; and

(c) You are subject to a follow-up audit.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0700, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0710 Can you withdraw my state-plan insignia approval? Should you fail to meet the requirements of this chapter or ANSI after you have been approved to purchase state-plan insignia, we will withdraw your certification.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0710, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-0720 What happens if my state-plan insignia approval is withdrawn? If your state-plan insignia approval is withdrawn because you have failed to comply with this chapter and ANSI:

(1) You must return any issued but unused insignia to us; and

(2) You cannot sell or lease recreational park trailers in Washington.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-0720, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-1000 Who needs approval to alter a recreational park trailer? Any alteration by a manufacturer, dealer, or individual to a recreational park trailer with state-certified insignia must be approved by us before the alteration is made. "Alteration" is defined in WAC 296-150P-0020.

Note: We may remove your insignia if you alter or have someone alter a recreational park trailer without our approval.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-1000, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-1010 Must I purchase a separate insignia for an alteration? You are required to purchase an alteration insignia from us.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-1010, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-1020 How do I apply for alteration approval and obtain the alteration insignia? (1) To apply for alteration approval and the alteration insignia, you must:

(a) Complete an alteration permit form and an application for alteration insignia. We will provide the forms.

(b) Submit the completed forms, with the inspection fee and altered recreational park trailer insignia fee, to us. (See WAC 296-150P-3000.)

(2) Our recreational park trailer inspection of the alteration will be in two or more phases. The "cover" inspection during the alteration of the unit before the electrical, plumbing, mechanical, heating, structural or other systems are covered. The final inspection takes place after the alteration inspection is complete.

(3) Once we approve your alteration, we will attach the alteration insignia.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-1020, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-2000 Must state-plan manufacturers notify you if they manufacture at more than one location? (1) We must approve each recreational park

trailer manufacturing location producing units for sale or lease in Washington state.

(2) You must send us the following information for each manufacturing location when you are certified:

- (a) Company name;
- (b) Mailing and physical address;
- (c) Phone and FAX number if available;
- (d) Type of recreational park trailer(s) manufactured;
- (e) Contact person for plan review; and
- (f) Contact person for plant audit.

(3) You must update the information as it changes.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-2000, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-2010 Must state-plan manufacturers notify you if they change a business name or address?

(1) If you are moving your business from an approved manufacturing location, the new location must be approved before shipping units from that location for sale or lease in Washington state.

(2) You must notify us in writing prior to a change of business name or address.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-2010, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-2020 Must state-plan manufacturers notify you of a change in business ownership? (1) When a recreational park trailer manufacturing business changes ownership, the new owner must notify us in writing immediately.

(2) A new owner may continue to manufacture recreational park trailers using approved design plans or comprehensive design plans according to this chapter.

(3) The department will perform an audit of the manufacturer after the ownership change to ensure you are meeting the requirements of this chapter and ANSI.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-2020, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-2030 Must state-plan manufacturers notify you of their Washington dealers?

(1) You must send us the following information about yourself and each of your Washington dealers when you are certified:

- (a) Dealership name;
- (b) Mailing and physical address;
- (c) Phone and FAX number if available;
- (d) Type of recreational park trailer(s); and
- (e) Contact person.

(2) You must update this information as it changes.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-2030, filed 7/31/97, effective 12/1/97.]

WAC 296-150P-3000 Recreational park trailer fees.

WAC 296-150P-3000 RECREATIONAL PARK TRAILER FEES	
STATE PLAN	
INITIAL FILING FEE	\$26.00
DESIGN PLAN	
NEW PLAN REVIEW FEE	\$73.00
RESUBMIT FEE	\$52.00
ADDENDUM	\$52.00
STATE PLAN/MANUAL FEES	
INITIAL APPROVAL	\$10.25
RESUBMITTAL	\$52.00
ADDENDUM	\$52.00
DEPARTMENT AUDIT FEES	
AUDIT (PER HOUR)*	\$52.00
TRAVEL (PER HOUR)*	\$52.00
PER DIEM**	
HOTEL***	
MILEAGE**	
RENTAL CAR***	
PARKING***	
AIRFARE***	
DEPARTMENT INSPECTION FEES	
INSPECTION (PER HOUR)*	\$52.00
TRAVEL (PER HOUR)*	\$52.00
PER DIEM**	
HOTEL***	
MILEAGE**	
RENTAL CAR***	
PARKING***	
AIRFARE***	
INSIGNIA FEES	
STATE CERTIFIED	\$10.00
ALTERATION	\$26.00
REISSUED-LOST/DAMAGED	\$10.00
FIELD TECHNICAL SERVICE FEE (PER HR.)	\$52.00
*Minimum charge of 1 hour for inspection; time spent greater than 1 hour is charged in 1/2 hour increments.	
**Per state guidelines.	
***Actual charges incurred.	

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150P-3000, filed 7/31/97, effective 12/1/97.]

Chapter 296-150R WAC
RECREATIONAL VEHICLES

WAC

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296-150R-2000	Must state-plan and self-certified manufacturers notify you if they manufacture at more than one location?
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296-150R-3000	Recreational vehicle fees.

WAC 296-150R-0010 Authority, purpose, and scope. (1) This chapter is authorized by RCW 43.22.335 through 43.22.434 and covers the requirements for:

(a) Obtaining state-plan or self-certified status if you manufacture recreational vehicles for sale or lease in Washington state.

(b) Obtaining state-plan or self-certified insignia if you manufacture recreational vehicles for sale or lease in Washington state.

(2) This chapter applies to:

(a) Manufacturers, dealers and individuals who build for sale, sell, or lease recreational vehicles in Washington state; and

(b) Manufacturers, dealers, and individuals who alter recreational vehicles for sale or lease in Washington state.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0010, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0010, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0020 What definitions apply to this chapter? "Alteration" is the replacement, addition, modification, or removal of any equipment or material that affects the fire and life safety provisions, plumbing systems, fuel systems and equipment or electrical systems of a recreational vehicle.

The following changes are not considered alterations for purposes of this chapter:

- Repairs with approved parts;

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• Modification of a fuel burning appliance according to the terms of its listing; and

- Adjustment and maintenance of equipment.

"Alteration insignia" is an insignia which indicates a vehicle alteration was approved by the department.

"ANSI" is the American National Standards Institute, Inc., and the institute's rules applicable to recreational vehicles. For the purposes of this chapter, references to ANSI mean ANSI A119.2 Recreational Vehicles, 1996 edition.

"Approved" is approved by the department of labor and industries.

"Audit" by the department can be either a comprehensive audit or a performance audit. A comprehensive audit is the department inspection of a manufacturer's quality control procedures, comprehensive plans, and vehicles. A performance audit is the department's review of the manufacturer's audit performed by the industry association or other independent auditor.

"Comprehensive design plan" consists of the design plans and copies of drawings such as:

- Floor plans relating to fire and life safety, electrical, plumbing, liquefied petroleum (LP) and/or natural gas systems and appliances and air conditioning systems, if applicable to the plan of each vehicle.

- Plumbing line drawings which describe the size, length and location of gas piping lines, liquid and body waste lines, liquid and body waste tanks, and potable water tanks.

- Electrical drawings. (See WAC 296-150R-0330 and 296-150R-0820.)

"Consumer" is a person or organization who buys or leases recreational vehicles.

"Dealer" is a person or organization whose business is offering recreational vehicles for sale or lease.

"Department" is the department of labor and industries. The department may be referred to as "we" or "us" in this chapter. Note: You may contact us at: Department of Labor and Industries, Specialty Compliance, PO Box 44430, Olympia, WA 98504-4430.

"Equipment" is all material, appliances, fixtures, and accessories used in the manufacture or alteration of recreational vehicles or park trailers.

"Manual" is a reference containing instructions, procedures, responsibilities and other information used to implement and maintain the quality control program of a recreational vehicle manufacturer.

"National Electrical Code" 1996 edition is the electrical code required for ANSI A119.2 compliance.

"Quality control" is the plan and method for ensuring that the manufacture, fabrication, assembly, installation, storing, handling, and use of materials complies with this chapter and ANSI.

"Recreational vehicle" is a vehicular type unit primarily designed as temporary living quarters for recreational camping, travel, or seasonal use that either has its own motive power or is mounted on, or towed by, another vehicle. Recreational vehicles include: Camping trailers, fifth-wheel trailers, motor homes, travel trailers, and truck campers.

"Self-certification insignia" is an insignia which is obtained under the self-certification approval process.

"State-plan insignia" is an insignia which is obtained under the state design-plan approval process.

"System" is a part of a recreational vehicle that is designed to serve a particular function such as plumbing, electrical, heating, or mechanical system.

"Vehicle" for the purposes of this chapter, is a recreational vehicle.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0020, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0020, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0030 How is this chapter enforced?

(1) We enforce this chapter through:

(a) The state plan insignia approval process (see WAC 296-150R-0300 through 296-150R-0720); or

(b) The self-certification insignia approval process (see WAC 296-150R-0800 through 296-150R-0930).

(2) Vehicle inspections occur where the recreational vehicles are manufactured, sold, or leased. We conduct inspections during normal work hours or at other reasonable times. We may require you to remove a part of the recreational vehicle in order to conduct our inspection.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0030, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0030, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0040 Will you keep my manufacturing information confidential? We will only release manufacturing information, such as design plans, specifications, test results, and manuals, according to the Public Records Act (see RCW 42.17.310 (1)(h)) unless we are ordered to do so by a court or otherwise required by law.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0040, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0040, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0060 Who handles consumer complaints about recreational vehicles? (1) Consumers may file complaints with us, if they have reason to believe a manufacturer and/or dealer is in violation of this chapter and ANSI.

(2) The complaint should be in writing and describe the items that may not comply with this chapter and ANSI.

(3) After we receive the complaint, we will send the manufacturer and/or the dealer a copy of the complaint. The manufacturer and/or dealer has thirty days to respond to the complaint.

(4) If we decide an inspection is warranted and specific code violation(s) are found during the inspection, the manufacturer or dealer is charged for the inspection.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0060, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0060, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0100 What happens if I disagree with the department's decision regarding my compliance with this chapter and ANSI? (1) If we determine that you are in violation of this chapter and ANSI, you will receive a notice of noncompliance and we may withdraw your certification. (See WAC 296-150R-0710, 296-150R-0920.)

(2) If you disagree with our decision, you can send us a written request for a hearing, stating why you disagree.

(3) After we receive your hearing request, we will:

(a) Schedule a hearing within thirty days after we receive your request.

(b) Notify you of the time, date, and place for the hearing. If you fail to appear, your case will be dismissed.

(c) Hear your case.

(d) Send you written notice of our decision.

If you disagree with our decision, you may appeal it under the Administrative Procedure Act (chapter 34.05 RCW).

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0100, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0100, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0110 Do you have an advisory board to address recreational vehicle issues? The factory assembled structures (FAS) board advises us on issues relating to plumbing, heating, electrical, installation, alterations, inspections, and rules for recreational vehicles. (See RCW 43.22.420.)

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0110, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0110, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0120 Where can I obtain technical assistance regarding recreational vehicles? We provide field technical service to recreational vehicle manufacturers for an hourly fee (see WAC 296-150R-3000). Field technical service may include an evaluation, consultation, plan examination, interpretation, and clarification of technical data relating to the application of our rules. It does not include inspections.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0120, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0120, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0130 Do you allow recreational vehicles to be displayed without an insignia? We allow one recreational vehicle to be displayed without an insignia, if you:

(1) Get written approval from us in advance of displaying the unit; we should receive your written request at least thirty days prior to display of the unit. Your request must include:

(a) The model and serial number of the unit;

(b) The location where the unit will be displayed; and

(c) The date(s) the unit will be displayed.

(2) Are licensed in Washington state through the department of licensing;

- (3) Have your approval letter available at the display;
 (4) Place three visible signs on the display unit:
 (a) One at the main entry door;
 (b) One inside the front of the unit; and
 (c) One inside the back of the unit.

The signs must read: *Not For Sale - Display Only.*

The letters on the sign must be one inch or higher.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0130, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0130, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0200 Who should obtain recreational vehicle insignia? (1) If you manufacture recreational vehicles to be sold or leased in Washington, you must purchase either a state-plan or self-certified insignia for each vehicle.

(2) Individuals that build recreational vehicles to sell or lease in Washington must purchase an insignia.

(3) If you have a vehicle with either a state-plan or self-certified insignia and you plan to alter or have another person alter it, you must obtain an alteration insignia from us.

Note: You do not need to purchase our insignia if you manufacture recreational vehicles in Washington for sale outside the state.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0200, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0200, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0250 How do I replace lost or damaged insignia? (1) If an insignia is lost or damaged after it is placed on a recreational vehicle and you are the manufacturer or owner, you must notify us in writing immediately.

(2) Your notification should include the following information:

- (a) Your name, address, and telephone number;
 (b) The vehicle identification number or serial number and model;
 (c) The insignia number and design-plan approval number, if applicable; and
 (d) The required fee. (See WAC 296-150R-3000.)

(3) If we can determine that your unit previously had an insignia, we will attach the insignia to your vehicle once we receive your insignia fee. (See WAC 296-150R-3000.)

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0250, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0250, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0280 What other vehicle identification is required? Every *new* recreational vehicle manufactured, offered for sale or lease, or sold or leased in Washington must also have a vehicle identification number (VIN)

label in compliance with the Federal Department of Transportation (DOT) safety standards.

Note: Truck campers do not require a vehicle identification number (VIN). They have a manufacturer's serial number.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0280, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0280, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0400 What constitutes an acceptable quality control program/manual for state-plan insignia? Your quality control program must implement your approved quality control manual. The quality control manual must provide instructions, procedures, and assign responsibilities to assure quality control requirements are met when vehicles are manufactured. The minimum quality control manual requirements are:

(1) An organization chart which identifies quality assurance positions and describes quality control responsibilities and accountability for the following plant personnel: General manager, plant production manager, plant foreperson, lead persons, production, quality control, sales, engineering, purchasing, and receiving staff;

(2) A method to distribute all comprehensive design plans and installation instructions or other documentation that ensures all products used are installed correctly in all recreational vehicle models produced at each manufacturing location;

(3) Procedures for maintaining the quality assurance of each vehicle model;

(4) Drawings and procedures displaying manufacturing processes including a schematic plant layout;

(5) Descriptions of production stations, including surge-hold stations, on-site or off-site repair-rework locations, and off-line construction sites. Descriptions should identify by station and location the work, tests, or inspections performed and the job title of the person performing the quality control review;

(6) Inspection and equipment maintenance instructions, including jig maintenance, check-off lists, and other documentation verifying quality control performance and accountability;

(7) Coordination of staff duties ensuring smooth transition of manufacturing responsibilities during the shift change;

(8) Instructions regarding the identification, control, and handling of damaged goods or materials that do not comply with existing rules and ANSI;

(9) Information about recreational vehicle material storage and environmental control including protection from the weather and the elimination of scrap and age-dated materials which have exceeded their life;

(10) Verification that testing equipment is properly calibrated and that your gauges are accurate;

(11) Information about production line testing which includes descriptions of procedures, test equipment, and the location of each test. The information should demonstrate accountability for test completion, for rework and repair, and for retesting;

(12) Instructions, procedures, descriptions, and responsibilities for insignia storage, security, application, and inventory;

(13) Procedures for mixed production lines, for variable production rates, for new or substitute personnel, and for new or changed inspections and tests;

(14) Instructions, procedures, and responsibilities for keeping vehicle records which include the unit serial number, model, plan approval number, dealer location or destination, insignia number, inspection, and test results;

(15) Information about your quality control training program; and

(16) Procedures for introducing new designs, models, materials and equipment to staff that ensures products are built according to the standards and the manufacturer's instructions.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0400, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0400, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0640 Am I charged if I request an inspection but I am not prepared? (1) If you ask us to inspect recreational vehicles within Washington state but are not prepared when we arrive, you must pay the minimum inspection fee and travel.

(2) If you ask us to inspect recreational vehicles outside Washington state but are not prepared when we arrive, you must pay the minimum inspection fee, travel, and per diem expenses.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0640, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0640, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-0850 What constitutes an acceptable quality control program/manual for self-certification? Your quality control program must implement your approved quality control manual. The quality control manual must provide instructions, procedures, and assign responsibilities to assure quality control expectations are met when vehicles are manufactured. The minimum quality control manual requirements are:

(1) An organization chart which identifies quality assurance positions and describes quality control responsibilities and accountability for the following plant personnel: General manager, plant production manager, plant foreperson, lead persons, production, quality control, sales, engineering, purchasing and receiving staff;

(2) A method to distribute all comprehensive design plans and installation instructions or other documentation that ensures all products used are installed correctly in all recreational vehicle models produced at each manufacturing location;

(3) Procedures for maintaining the quality assurance of each vehicle model;

(4) Drawings and procedures displaying manufacturing processes including a schematic plant layout;

(5) Descriptions of production stations, including surge-hold stations, on-site or off-site repair-rework locations, and off-line construction sites. Descriptions should identify by station and location the work, tests, or inspections performed and the job title of the person performing the quality control review;

(6) Inspection and equipment maintenance instructions, including jig maintenance, check-off lists, and other documentation verifying quality control performance and accountability;

(7) Coordination of staff duties ensuring smooth transition of manufacturing responsibilities during the shift change;

(8) Instructions regarding the identification, control, and handling of damaged goods or materials that do not comply with existing rules and ANSI;

(9) Information about recreational vehicle material storage and environmental control including protection from the weather and the elimination of scrap and age-dated materials which have exceeded their life;

(10) Verification that testing equipment is properly calibrated and that your gauges are accurate;

(11) Information about production line testing which includes descriptions of procedures, test equipment, and the location of each test. The information should demonstrate accountability for test completion, for rework and repair, and for retesting;

(12) Instructions, procedures, descriptions, and responsibilities for insignia storage, security, application, and inventory;

(13) Procedures for mixed production lines, for variable production rates, for new or substitute personnel, and for new or changed inspections and tests;

(14) Instructions, procedures, and responsibilities for keeping vehicle records which include the unit serial number, model, plan approval number (if applicable), dealer location or destination, insignia number, inspection, and test results;

(15) Information about your quality control training program;

(16) Procedures for introducing new designs, models, materials and equipment to staff that ensures products are built according to the standards and the manufacturer's instructions; and

(17) Written authorization as required in WAC 296-150R-0800(5).

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-0850, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-0850, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-1000 Who needs approval to alter a recreational vehicle? (1) Any alteration by a manufacturer, dealer, or individual to a vehicle with state-certified insignia must be approved by us before the alteration is made. "Alteration" is defined in WAC 296-150R-0020.

(2) Any alteration by a manufacturer, dealer, or individual to a vehicle with self-certified insignia after it leaves the manufacturer's location must be approved by us before the alteration is made.

Note: We may remove your insignia if you alter or have someone alter a vehicle without our approval.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-1000, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-1000, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-2000 Must state-plan and self-certified manufacturers notify you if they manufacture at more than one location? (1) We must approve each recreational vehicle manufacturing location producing units for sale or lease in Washington state.

(2) You must send us the following information for each manufacturing location when you are certified:

- (a) Company name;
 - (b) Mailing and physical address;
 - (c) Phone and FAX number if available;
 - (d) Type of recreational vehicle(s) manufactured;
 - (e) Contact person for plan review; and
 - (f) Contact person for plant audit.
- (3) You must update the information as it changes.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-2000, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-2000, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-2020 Must state-plan and self-certified manufacturers notify you of a change in business ownership? (1) When a recreational vehicle manufacturing business changes ownership, the new owner must notify us in writing immediately.

(2) A new owner may continue to manufacture vehicles using approved design plans or comprehensive design plans according to this chapter.

(3) The department will perform a comprehensive audit of the manufacturer after the ownership change to ensure you are meeting the requirements of this chapter and ANSI.

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-2020, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-2020, filed 10/23/96, effective 11/25/96.]

WAC 296-150R-3000 Recreational vehicle fees.

WAC 296-150R-3000 RECREATIONAL VEHICLE FEES			
STATE PLAN		SELF CERTIFICATION	
INITIAL FILING FEE	\$26.00	INITIAL FILING FEE	\$26.00
DESIGN PLAN		DESIGN PLAN	
NEW PLAN REVIEW FEE	\$73.00	NEW PLAN REVIEW FEE (ONE TIME FEE)	\$73.00
RESUBMIT FEE	\$52.00	RESUBMIT FEE	\$52.00
ADDENDUM	\$52.00	ADDENDUM	\$52.00
STATE PLAN/MANUAL FEES		SELF CERTIFICATION/MANUAL FEES	
INITIAL APPROVAL	\$10.25	INITIAL APPROVAL	\$10.25
RESUBMITTAL	\$52.00	RESUBMITTAL	\$52.00
ADDENDUM	\$52.00	ADDENDUM	\$52.00
DEPARTMENT AUDIT FEES		DEPARTMENT AUDIT FEES	
AUDIT (PER HOUR) *	\$52.00	AUDIT (PER HOUR) *	\$52.00
TRAVEL (PER HOUR) *	\$52.00	TRAVEL (PER HOUR) *	\$52.00
PER DIEM **		PER DIEM **	
HOTEL ***		HOTEL ***	
MILEAGE **		MILEAGE	
RENTAL CAR ***		RENTAL CAR ***	
PARKING ***		PARKING ***	
AIRFARE ***		AIRFARE ***	
DEPARTMENT INSPECTION FEES		DEPARTMENT INSPECTION FEES	
INSPECTION (PER HOUR) *	\$52.00	INSPECTION (PER HOUR) *	\$52.00
TRAVEL (PER HOUR) *	\$52.00	TRAVEL (PER HOUR) *	\$52.00
PER DIEM **		PER DIEM **	
HOTEL ***		HOTEL ***	
MILEAGE **		MILEAGE **	
RENTAL CAR ***		RENTAL CAR ***	
PARKING ***		PARKING ***	
AIRFARE ***		AIRFARE ***	
INSIGNIA FEES		INSIGNIA FEES	
STATE CERTIFIED	\$10.00	SELF CERTIFIED	\$10.00
ALTERATION	\$26.00	ALTERATION	\$26.00
REISSUED-LOST/DAMAGED	\$10.00	REISSUED-LOST/DAMAGED	\$10.00
FIELD TECHNICAL SERVICE FEE (PER HR.)	\$52.00		
* Minimum charge of 1 hour for inspection; time spent greater than 1 hour is charged in 1/2 hour increments			
** Per state guidelines.			
*** Actual charges incurred.			

[Statutory Authority: RCW 43.22.340 and 43.22.420. 97-16-043, § 296-150R-3000, filed 7/31/97, effective 12/1/97. Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-150R-3000, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 43.22.340, [43.22.]355, [43.22.]360, [43.22.]432, [43.22.]440 and [43.22.]480. 96-21-146, § 296-150R-3000, filed 10/23/96, effective 11/25/96.]

**Chapter 296-155 WAC
SAFETY STANDARDS FOR CONSTRUCTION
WORK**

WAC

296-155-527 Appendix A to WAC 296-155-525.

WAC 296-155-527 Appendix A to WAC 296-155-525. Due to crane design configuration to maintain mobility, sheave diameters and rope, design factors are limited. Because of these limited design parameters, inspection to detect deterioration in accordance with subsections below and timely replacement are essential.

(1) Frequent inspection.

(a) All running ropes in service should be visually inspected once each working day. A visual inspection shall consist of observation of all rope which can reasonably be expected to be in use during the day's operations. These visual observations should be concerned with discovering gross damage, such as listed below, which may be an immediate hazard:

(i) Distortion of the rope such as kinking, crushing, unstranding, birdcaging, main strand displacement, or core protrusion. Loss of rope diameter in a short rope length or unevenness of outer strands should provide evidence that the rope or ropes must be replaced.

(ii) General corrosion.

(iii) Broken or cut strands.

(iv) Number, distribution and type of visible broken wires. (See subsection below for further guidance.)

(v) Core failure in rotation resistant ropes. When such damage is discovered the rope shall be either removed from service or given an inspection as detailed in periodic inspection.

(b) Care shall be taken when inspecting sections of rapid deterioration such as flange points, crossover points and repetitive pickup points on drums.

(c) Care shall be taken when inspecting certain ropes such as the following:

(i) Rotation resistant ropes, because of their higher susceptibility to damage and increased deterioration when working on equipment with limited design parameters. The internal deterioration of rotation resistant ropes may not be readily observable.

(ii) Boom hoist ropes, because of the difficulties of inspection and the important nature of these ropes.

(2) Periodic inspection.

(a) The inspection frequency shall be determined by a qualified person and shall be based on such factors as expected rope life as determined by experience on the particular installation or similar installations, severity of environment, percentage of capacity lifts, frequency rates of operation, and exposure to shock loads. Inspections need not be at equal calendar intervals and should be more frequent as the rope approaches the end of its useful life. This inspection shall be performed at least annually.

(b) Periodic inspections shall be performed by a qualified person. This inspection shall cover the entire length of rope. Only the surface wires of the rope need be inspected. No attempt should be made to open the rope. Any deterioration resulting in an appreciable loss of original strength, such as described below, shall be noted and determination made as to whether further use of the rope would constitute a hazard:

(i) Points listed in subsection (1) of this section (Frequent inspection).

(ii) Reduction of rope diameter below nominal diameter due to loss of core support, internal or external corrosion, or wear of outside wires.

(iii) Severely corroded or broken wires at end connections.

(c) Care shall be taken when inspecting sections of rapid deterioration, such as the following:

(i) Sections in contact with saddles, equalizer sheaves, or other sheaves where rope travel is limited;

(ii) Sections of the rope at or near terminal ends where corroded or broken wires may protrude.

(3) Rope replacement.

(a) No precise rules can be given for determination of the exact time for replacement of rope, since many variable factors are involved. Continued use in this respect depends largely upon good judgment by an appointed or authorized

person in evaluating remaining strength in a used rope after allowance for deterioration disclosed by inspection. Continued rope operations depends upon this remaining strength.

(b) Conditions such as the following shall be sufficient reason for questioning continued use of the rope or increasing the frequency of inspection:

(i) In running ropes, six randomly distributed broken wires in one lay or three broken wires in one strand in one lay (for special conditions relating to rotation resistant rope refer to paragraph 5-3.2.1.1 (d)(1)(b) ANSISASME B30.5 1989).

(ii) One outer wire broken at the point of contact with the core of the rope which has worked its way out of the rope structure and protrudes or loops out from the rope structure. Additional inspection of this section is required.

(iii) Wear of one-third the original diameter of outside individual wires.

(iv) Kinking, crushing, birdcaging, or any other damage resulting in distortion of the rope structure.

(v) Evidence of any heat damage from any cause.

(vi) Reductions from nominal diameter of more than:

(A) 1/64 in. (0.4 mm) for diameters up to and including 5/16 in. (8.0 mm);

(B) 1/32 in. (0.8 mm) for diameters 3/8 in. (9.5 mm) to and including 1/2 in. (13.0 mm);

(C) 3/64 in. (1.2 mm) for diameters 9/16 in. (14.5 mm) to and including 3/4 in. (19.0 mm);

(D) 1/16 in. (1.6 mm) for diameters 7/8 in. (22.0 mm) to and including 1 1/8 in. (29.0 mm);

(E) 3/32 in. (2.4 mm) for diameters 1 1/4 in. (32.0 mm) to and including 1 1/2 in. (38.0 mm).

(vii) In standing ropes, more than two broken wires in one lay in sections beyond end connections or more than one broken wire at an end connection.

(c) Replacement rope shall have a strength rating at least as great as the original rope furnished or recommended by the crane manufacturer. Any deviation from the original size, grade, or construction shall be specified by a rope manufacturer, the crane manufacturer or a qualified person.

(d) Rope not in regular use. All rope which has been idle for a period of a month or more due to shutdown or storage of a crane on which it is installed shall be given an inspection before it is placed in service. This inspection shall be for all types of deterioration and shall be performed by an appointed or authorized person.

(e) Inspection records:

(i) Frequent inspection; no records required.

(ii) Periodic inspection: In order to establish data as a basis for judging the proper time for replacement, a dated report of rope condition at each periodic inspection shall be kept on file. This report shall cover points of deterioration. If the rope is replaced only that part need be recorded.

(f) A long-range inspection program should be established and should include records on the examination of ropes removed from service so that a relationship can be established between visual observation and actual condition of the internal structure.

(4) Rope maintenance.

(a) Rope should be stored to prevent damage or deterioration.

(b) Unreeling or uncoiling of rope shall be done as recommended by the rope manufacturer and with care to avoid kinking or inducing a twist.

(c) Before cutting a rope, seizings shall be placed on each side of the place where the rope is to be cut to prevent unlaying of the strands. On preformed rope, one seizing on each side of the cut is required. On nonpreformed ropes of 7/8 in. (22 mm) diameter or smaller, two seizings on each side of the cut are required, and for nonpreformed rope of 1 in. (26 mm) diameter or larger, three seizings on each side of the cut are required.

(d) During installation, care should be exercised to avoid dragging of the rope in dirt or around objects which will scrape, nick, crush, or induce sharp bends in it.

(e) Rope should be maintained in a well lubricated condition. It is important that lubricant applied as part of a maintenance program shall be compatible with the original lubricant, and to this end, the rope manufacturer should be consulted; lubricant applied shall be of the type which does not hinder visual inspection. Those sections of rope which are located over sheaves or otherwise hidden during inspection and maintenance procedures require special attention when lubricating rope. The object of rope lubrication is to reduce internal friction and to prevent corrosion.

(f) When an operating rope shows greater wear at well-defined localized areas than on the remainder of the rope, rope life can be extended (in cases where a reduced rope length is adequate) by cutting off a section at the worn end, and thus shifting the wear to different areas of the rope.

(5) Operating near electric power lines:

(a) Cranes shall be operated so that no part of the crane or load enters into the danger zone.

Exceptions: The danger zone may be entered if the electrical distribution and transmission lines have been de-energized and visibly grounded at the point of work; or the danger zone may be entered if insulating barriers (not a part of nor an attachment to the crane) have been erected to prevent physical contact with the lines.

(i) For lines rated 50 kV. or below, minimum clearance between the lines and any part of the crane or load (including handling appendages) shall be 10 feet (3 m).

(ii) Caution shall be exercised when working near overhead lines because they can move horizontally or vertically due to wind, moving the danger zone to new positions.

(iii) While in transit with no load and boom lowered, the clearance shall be as specified in WAC 296-155-525 (3)(e).

(iv) A qualified signal person shall be assigned to observe the clearance when the crane moves to within a boom's length of the limits specified in WAC 296-155-525 (3)(e). The operator is not in the best position to judge distance between the power line and the crane or its protuberances.

(b) If cage-type boom guards, insulating links, or proximity warning devices are used on cranes, such devices shall not be a substitute for the requirements of WAC 296-155-525 (3)(e), even if such devices are required by law or regulation. In view of the complex, invisible, and lethal nature of the electrical hazard involved, and to lessen the potential of false security, limitations of such devices, if

used, shall be understood by operating personnel and tested in the manner and intervals prescribed by the manufacturer of the device. Compliance with WAC 296-155-525 (3)(e) is the recommended practice of this regulation in determining permissible proximity of the crane and its protuberances, including load, to electrical power lines.

(c) Before the commencement of operations near electrical lines, the person responsible for the job shall notify the owners of the lines or their authorized representatives, provide them with all pertinent information, and request their cooperation.

(d) Any overhead wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities verify that it is not an energized line.

(e) Exceptions to this procedure, if approved by the owner of the electrical lines, may be granted by the administrative or regulatory authority if the alternate procedure provides protection and is set forth in writing.

(f) Durable signs shall be installed at the operator's station and on the outside of the crane warning that electrocution or serious bodily injury may occur unless a minimum clearance of 10 feet (3 m) is maintained between the crane or the load being handled and energized power lines. Greater clearances are required because of higher voltage as stated in WAC 296-155-525 (3)(e). These signs shall be revised when local jurisdiction requires greater clearances.

(6) Site preparation and erection.

(a) All load bearing foundations, supports, and rail tracks shall be constructed or installed to support the crane loads and to transmit them to the soil or other support medium. In addition to supporting vertical load, foundations and supports, rail supports excepted, should be designed to provide a moment resisting overturning equal to a minimum of 150% of the maximum crane overturning moment.

(b) Rails should be level and straight, unless specifically designed for curves or grades, and properly spaced for the crane trucks in accordance with the manufacturer's specifications. The track and support system should have sufficient rigidity to limit dynamic oscillations and deviations from plumb.

(c) Rails shall be securely attached to the supporting surface in a manner capable of resisting the horizontal and vertical loads specified by the manufacturer. When applicable, provisions should be made for thermal expansion and contraction.

(d) Splices in rail tracks (bolted or welded) shall have smooth joints.

(e) When required, a designated portion of the track should be arranged and constructed as an out-of-service parking area complete with means needed for supporting the crane against storm wind effects and anchoring it against unwanted movement along the track; the parking track should be in place before erection commences.

(f) Rails shall be electrically grounded when they carry cranes electrically powered from an outside source.

(g) Both ends of all tracks shall be provided with stops or buffers adjusted for simultaneous contact with both sides of the travel base.

(h) When more than one crane will be operating on a run of track, particular consideration should be given to the number and disposition of parking areas.

(i) The hazard of earthquake effects appropriated to the site or zone should be considered.

(j) The crane manufacturer shall provide maximum resulting loads at the base of the crane, or wheel loads, for use in design of the supports.

(7) General erection requirements.

(a) When cranes are erected, the manufacturer's or a qualified person's written erection instructions and a list of the weights of each component to be erected shall be at the site.

(b) Cranes shall be erected in accordance with the crane manufacturer's or a qualified person's recommendations. Erection shall be performed under the supervision of a qualified person.

(c) Procedures shall be established before erection work commences to implement the erection instructions and to adapt them to the particular needs of the site. The need for temporary guying and bracing during erection shall be established.

(d) Before crane components are erected, they shall be visually inspected for damage. Damaged members shall not be erected until repaired in accordance with the manufacturer's or qualified person's instructions, or replaced.

(e) Slings and lifting accessories shall be selected and arranged to avoid damaging or marring crane members during erection.

(f) Wind velocity at the site at the time of erection should be considered as a limiting factor that could require suspending the erection operation.

(g) Crane towers shall be erected plumb to a tolerance that is specified by the manufacturer.

(h) Cranes required to weathervane when out-of-service shall be installed with clearance for the boom and superstructure to swing a full 360° arc without striking a fixed object or other crane.

[Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-11-055, § 296-155-527, filed 5/20/97, effective 8/1/97; 95-17-036, § 296-155-527, filed 8/9/95, effective 9/25/95.]

Chapter 296-200 WAC

**Contractor certificate of registration renewals—
Security—Insurance**

WAC

296-200-005 through 296-200-900 Repealed.

**DISPOSITION OF SECTIONS FORMERLY
CODIFIED IN THIS CHAPTER**

- 296-200-005 Purpose of chapter. [Statutory Authority: RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-005, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-015 Definitions. [Statutory Authority: Chapter 18.27 RCW. 86-19-086 (Order 86-31), § 296-200-015, filed 9/17/86. Statutory Authority: RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-015, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.

- 296-200-025 Initial application for registration and renewal of registration. [Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-200-025, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.27.020 and 18.27.070. 83-16-059 (Order 83-21), § 296-200-025, filed 8/2/83. Statutory Authority: RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-025, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-035 Length of registration period. [Statutory Authority: RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-035, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-040 Suspension of contractor's registration. [Statutory Authority: RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-040, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-050 Change in business structure, name, or address. [Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-200-050, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.27.020 and 18.27.070. 83-16-059 (Order 83-21), § 296-200-050, filed 8/2/83. Statutory Authority: RCW 18.27.040, 42.17.290 and 42.17.300. 82-18-026 (Order 82-26), § 296-200-050, filed 8/25/82. Statutory Authority: RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-050, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-060 Cancelling surety bonds and insurance policies. [Statutory Authority: RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-060, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-070 Refund of security deposited with the section. [Statutory Authority: RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-070, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-080 Filing suit against a contractor. [Statutory Authority: Chapter 18.27 RCW. 86-19-086 (Order 86-31), § 296-200-080, filed 9/17/86. Statutory Authority: RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-080, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-090 Collection of judgments. [Statutory Authority: RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-090, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-100 Priority for payment of judgments. [Statutory Authority: RCW 18.27.040. 82-24-057 (Order 82-35), § 296-200-100, filed 12/1/82; 81-21-001 (Order 81-25), § 296-200-100, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-110 Verification of registration number by a city, town, or county. [Statutory Authority: RCW 18.27.125. 93-23-043, § 296-200-110, filed 11/12/93, effective 12/13/93.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-111 Verification of nonoriginal registration card by city, town, or county. [Statutory Authority: RCW 18.27.125. 93-23-043, § 296-200-111, filed 11/12/93, effective 12/13/93.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-112 Liability to cities, towns, and counties for failure to verify contractor registration. [Statutory Authority: RCW 18.27.125. 93-23-043, § 296-200-112, filed 11/12/93, effective 12/13/93.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-300 Procedures for issuance of notices of infraction. [Statutory Authority: Chapter 18.27 RCW. 86-19-086 (Order 86-

- 31), § 296-200-300, filed 9/17/86. Statutory Authority: RCW 18.27.040, 18.27.200 and 18.106.020. 84-12-018 (Order 84-08), § 296-200-300, filed 5/25/84.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-310 Service on employee of a contractor. [Statutory Authority: RCW 18.27.040, 18.27.200 and 18.106.020. 84-12-018 (Order 84-08), § 296-200-310, filed 5/25/84.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-320 Mailing copy of notice of infraction to contractor. [Statutory Authority: Chapter 18.27 RCW. 86-19-086 (Order 86-31), § 296-200-320, filed 9/17/86. Statutory Authority: RCW 18.27.040, 18.27.200 and 18.106.020. 84-12-018 (Order 84-08), § 296-200-320, filed 5/25/84.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-330 Issuance of notices of infraction under RCW 18.27.100 or 18.27.200. [Statutory Authority: Chapter 18.27 RCW. 86-19-086 (Order 86-31), § 296-200-330, filed 9/17/86.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-340 Right to contested hearing—Place to file. [Statutory Authority: Chapter 18.27 RCW. 87-07-003 (Order 87-08), § 296-200-340, filed 3/5/87; 86-19-086 (Order 86-31), § 296-200-340, filed 9/17/86.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-350 Administrative law judge shall preside in contested hearings. [Statutory Authority: Chapter 18.27 RCW. 87-07-003 (Order 87-08), § 296-200-350, filed 3/5/87; 86-19-086 (Order 86-31), § 296-200-350, filed 9/17/86.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-360 Representation by counsel. [Statutory Authority: Chapter 18.27 RCW. 86-19-086 (Order 86-31), § 296-200-360, filed 9/17/86.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-370 Contested cases—Notice—Hearing—Summary orders—Informal disposition—Record—Findings of fact. [Statutory Authority: Chapter 18.27 RCW. 87-07-003 (Order 87-08), § 296-200-370, filed 3/5/87; 86-19-086 (Order 86-31), § 296-200-370, filed 9/17/86.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-380 Contested cases—Evidence. [Statutory Authority: Chapter 18.27 RCW. 86-19-086 (Order 86-31), § 296-200-380, filed 9/17/86.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-390 Administration of appeals. [Statutory Authority: Chapter 18.27 RCW. 86-19-086 (Order 86-31), § 296-200-390, filed 9/17/86.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-400 Fines. [Statutory Authority: Chapter 18.27 RCW. 86-19-086 (Order 86-31), § 296-200-400, filed 9/17/86.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-410 Infraction—Dismissal, when. [Statutory Authority: Chapter 18.27 RCW. 86-19-086 (Order 86-31), § 296-200-410, filed 9/17/86.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.
- 296-200-900 What fees does the department charge contractors for issuance, renewal and reinstatement of certificates of registration? [Statutory Authority: RCW 70.87.030, 18.27.070, [18.27.]075, 43.22.350, [43.22.]355, [43.22.]434 and [43.22.]480(2). 97-11-053, § 296-200-900, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.27.020 and 18.27.070. 83-16-059 (Order 83-21), § 296-200-900, filed 8/2/83. Statutory Authority: RCW 18.27.040, 42.17.290 and 42.17.300. 82-18-026 (Order 82-26), § 296-200-900, filed 8/25/82. Statutory Authority:

RCW 18.27.040. 81-21-001 (Order 81-25), § 296-200-900, filed 10/8/81.] Repealed by 97-24-071, filed 12/2/97, effective 1/5/98. Statutory Authority: Chapter 18.27 RCW.

WAC 296-200-005 through 296-200-900 Repealed.
See Disposition Table at beginning of this chapter.

Chapter 296-200A WAC
CONTRACTOR CERTIFICATE OF REGISTRATION
RENEWALS—SECURITY—INSURANCE

- WAC**
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 - 296-200A-025 How does a contractor register or renew its registration?
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 - 296-200A-405 When must a contractor pay assessed monetary penalties?
 - 296-200A-500 Is the department required to monitor unregistered contractors who become registered?
 - 296-200A-510 Is the department required to report contractor compliance activities to the legislature?
 - 296-200A-900 What fees does the department charge contractors for issuance, renewal and reinstatement of certificates of registration?

WAC 296-200A-005 What is the goal of this chapter? The goal of this chapter is to:
(1) Reduce the paperwork required for contractor registrations.

(2) Clarify issues related to suits against contractors and the collection of court judgments.

(3) Ensure that the contractors registration law (chapter 18.27 RCW) is efficiently and properly administered.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-005, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-015 What terms do I need to know to understand this chapter? For the purposes of this chapter, the following terms and definitions are important:

"**Administrative law judge**" is any person appointed by the chief administrative law judge (as defined in RCW 34.12.020(2)) to preside at a notice of infraction appeal hearing convened under RCW 18.27.100, 18.27.114 or 18.27.200.

"**Appeal hearing**" is any proceeding in which an administrative law judge is empowered to determine legal rights, duties or privileges of specific parties on behalf of the director.

"**Compliance inspector**" refers to the departmental staff responsible for investigating potential violations of chapter 18.27 RCW.

"**Contractor compliance chief**" refers to the person designated by the director to address all policy and technical issues related to chapter 18.27 RCW and chapter 296-200A WAC.

"**Department**" refers to the department of labor and industries.

"**Director**" refers to the director of the department of labor and industries or the director's designee acting in the place of the director.

"**Final judgment**" means any money that is owed to a claimant as a result of court action against a contractor's bond or assigned savings account with the department or any money that is owed the department as a result of a contractor's unsuccessful appeal of an infraction. Final judgment also includes any penalties owed the department as a result of an unappealed infraction or any outstanding fees due under this chapter.

"**Infraction**" means a violation of RCW 18.27.100, 18.27.114 or 18.27.200 as cited by the chief contractor compliance inspector or the department's construction compliance inspectors.

"**Secured contractor**" is a contractor who has complied with RCW 18.27.040 by assigning, to the department, a savings account held in a Washington state bank, depositing cash with the department or obtaining a surety bond.

"**Security**" is a savings account held in a Washington state bank and assigned to the department, cash deposited with the department or a surety bond.

"**Unregistered contractor**" means a person, firm, or corporation working as a contractor without being registered in compliance with chapter 18.27 RCW and chapter 296-200A WAC.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-015, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-025 How does a contractor register or renew its registration? (1) A contractor may register if it:

(a) Completes an application for contractor registration and submits it to the department as required by RCW 18.27.030;

(b) Satisfies one of the following:

(i) Obtains a surety bond and submits the original bond to the department (see RCW 18.27.040); or

(ii) Assigns, to the department, a savings account held in Washington state; or

(iii) Deposits cash with the department;

(c) Obtains public liability and property damage insurance and submits the original insurance certificate to the department (see RCW 18.27.050); and

(d) Pays the issuance/renewal/reregistration fee shown in WAC 296-200A-900.

(2) A contractor may renew its registration if it submits, to the department, a completed contractor registration renewal notice and the material required in subsection (1)(b) and (c) of this section and pays the renewal fee shown in WAC 296-200A-900. At least forty-five days before the contractor's registration expires, the department must send a renewal notice to the contractor's last recorded address. It is the responsibility of the contractor to notify the department **in writing** of a change in address.

(3) The contractor must:

(a) Submit all required materials to the department in one package.

(b) Include, on each material, its name exactly as it appears on the contractor registration application or renewal notice.

(c) Include, if renewing a registration, the contractor's registration number on each of the materials.

(4) The department will not register or renew the registration of a contractor if:

(a) Any of the required materials are missing;

(b) The materials do not properly name the contractor;

(c) The materials, in the case of a renewal, do not include the registration number; or

(d) The applicant has been previously registered as a contractor and has an unsatisfied final judgment based on chapter 18.27 RCW.

(5) The contractor may request, in a letter filed with the application or renewal materials, that the registration period end on a particular day. However, the registration period cannot exceed one year.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-025, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-035 How long is a contractor's registration period? (1) A registration period cannot exceed one year.

(2) If a contractor's insurance policy will expire in less than one year after the day the registration begins, the registration period ends on the day the insurance expires.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-035, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-040 How does a contractor's registration become suspended? (1) A contractor's registration will be suspended if it does not comply with WAC 296-200A-025, specifically, if:

- (a) A surety bond or other security is impaired.
- (b) A surety bond is canceled.
- (c) An insurance policy is canceled.

(2) The contractor's registration will be automatically suspended on the effective date of the impairment or cancellation. The department must mail a notice of the suspension to the contractor's address on the certificate of registration by certified mail and first class mail within forty-eight hours after suspension.

(3) A contractor must not advertise, offer to do work, submit a bid, or perform any work as a contractor while its registration is suspended. To continue to operate as a contractor while its registration is suspended is a violation of chapter 18.27 RCW and subject to infractions.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-040, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-050 What requirements must be met if a contractor changes its business structure, name or address? (1) If a contractor changes its business structure (for example, from a partnership to a corporation or if the partners in a partnership change), the contractor must:

(a) Apply for a new registration as required in WAC 296-200A-025; and

(b) Pay the registration fee shown in WAC 296-200A-900.

(2) Failure to reregister after a change in business structure may invalidate the contractor's registration. See RCW 18.27.040.

(3) If a registered contractor changes its name, it must:

(a) Notify the department, in writing, of the change; and

(b) Pay the registration fee shown in WAC 296-200A-900; and

(c) Submit to the department a name change rider or a new bond in the new name and a certificate of insurance in the new name.

(4) If a registered contractor changes its address, it must notify the department in writing.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-050, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-060 What procedures should be followed when surety bonds and insurance policies are canceled? (1) Insurance and bonding companies should send cancellation notices to the department by certified or registered mail.

(2) Cancellation notices must contain the following information in the order shown:

(a) The name of the contractor exactly as it appears in the contractor's registration file;

(b) The contractor's registration number;

(c) The contractor's business address;

(d) The names of the owners, partners, or officers of the contractor;

(e) The bond or insurance policy number; and

(f) The effective date of the bond or insurance policy.

(3) The cancellation of a surety bond or insurance policy shall be effective thirty days after the department receives a cancellation notice.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-060, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-070 When will the department refund a security deposit? (1) The department will release a security deposit one year after the contractor's last registration has expired **unless** there is an unsatisfied final court judgment or claim against the contractor.

(2) The department will release a security deposit in less than one year after the contractor's last registration has expired if the contractor provides a surety bond covering **both the previous and current registration periods**.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-070, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-080 How is a suit filed against a contractor? (1) A civil suit against a contractor must be filed in superior court. Unless the suit is filed in a superior court, the department will not be able to pay an unsatisfied final judgment against a secured contractor.

(2) Notice that a suit has been filed (a summons and complaint) against a contractor, the contractor's bond, or the contractor's deposit must be exclusively delivered to the department by registered or certified mail. **The department does not accept personal service of a summons and complaint.** The notice must be addressed to the department and must include three copies of the summons and complaint filed against the contractor, the contractor's bond or the contractor's deposit. The person filing the suit must pay a ten-dollar service fee to the department. See RCW 18.27.040(3).

(3) The summons and complaint against a contractor should include the following information:

(a) The name of the contractor exactly as it appears in the contractor's registration file;

(b) The contractor's business address;

(c) The names of the owners, partners or officers of the contractor; and

(d) The contractor's registration number.

(4) If the suit joins a bonding company, the summons and complaint should also include:

(a) The name of the bonding company that issued the contractor's bond;

(b) The bond number; and

(c) The effective date of the bond.

(5) Service is not complete until the department receives the ten-dollar fee and three copies of the summons and complaint.

(6) Within forty-eight hours of receiving a summons and complaint, the department must transmit a copy of the summons and complaint to the registrant at their last known address and to the registrant's surety.

(7) The department will return a summons and complaint without it being served, if the department cannot identify either the contractor or bonding company being sued.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-080, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-090 How are judgments against contractors paid? (1) **The department can only pay a superior court final judgment.** It cannot pay a district court judgment.

(2) A contractor's security held by the department can be used to pay a superior court final judgment against a secured contractor.

(3) The department must pay a superior court final judgment against a secured contractor if the claimant supplies the department with three certified copies of the unpaid final court judgment. The three certified copies must be delivered by registered or certified mail within one year of the date the final judgment was officially entered into the court record.

(4) For the department to pay a superior court final judgment, the claimant must include the following information with the copies of the judgment:

- (a) The name of the contractor exactly as it appears on the contractor's registration file;
- (b) The contractor's business address;
- (c) The names of the owners, partners, or officers of the contractor;
- (d) The contractor's registration number; and
- (e) The exact amount of the judgment, including court costs, attorneys' fees and interest.

If the department does not receive enough information to pay the judgment, it must inform the claimant.

(5) If a contractor is bonded, the department can neither pay a final court judgment against a contractor nor force the contractor or its bonding company to pay. Only the claimant can pursue payment from the contractor or its bonding company.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-090, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-110 Is a city, town, or county required to verify a contractor registration number? Before issuing a building permit, a city, county or town must verify the registration of the general or specialty contractor applying for the permit.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-110, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-111 How does a city, town, or county verify a contractor's registration? A city, town, or county may verify:

(1) An original contractor registration by receiving and duplicating a current contractor registration card, by checking the department's contractor registration data base or by calling the department to confirm that the contractor is registered.

(2) A nonoriginal contractor registration by either accepting a notarized copy of the original contractor registration card if that copy has been attested to by the person who applied for that original card or by accepting a facsimile verification from the department.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-111, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-112 Who is liable when a city, town, or county fails to verify a contractor's registration? The city, county, or town that issues a building permit without verifying the contractor's registration may be liable for a maximum penalty amount of five thousand dollars. See RCW 18.27.100 (7)(a).

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-112, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-300 What violations of chapter 18.27 RCW can result in the issuance of a notice of infraction? (1) Under RCW 18.27.100, the department can issue a notice of infraction to a contractor for:

- (a) Using an unregistered name while acting as a contractor;
- (b) Using an unregistered name and address in advertising, correspondence, signs, documents, etc.;
- (c) Using a false or expired registration number in advertisements where a contractor's registration number is required;
- (d) Using the bond and insurance requirements of chapter 18.27 RCW to advertise as a bonded and insured contractor;
- (e) Using a false registration number to either solicit business or pose as a contractor;
- (f) Failing to include the contractor's current registration number in all advertising that shows the contractor's name or address. This registration number may be omitted in an alphabetized listing of registered contractors stating only the name, address, and telephone number. See RCW 18.27.100(3).

(2) Under RCW 18.27.114, the department can issue a notice of infraction to a contractor for failing to provide a residential or commercial customer with a proper disclosure statement before beginning a repair, alterations or construction project. See RCW 18.27.114(1) for both the project dollar cost limits affecting this requirement and a sample disclosure statement.

This requirement does not apply to either contracts authorized under chapter 39.04 RCW or to contractors contracting with other contractors.

(3) Under RCW 18.27.200, the department must issue a notice of infraction to a contractor for:

- (a) Advertising, offering to work, submitting a bid, or performing any contractor work without being registered or when it's registration is suspended or revoked; or
- (b) Transferring a valid contractor registration to an unregistered contractor; or
- (c) Allowing an unregistered contractor to work under a registration issued to another contractor.

Each day that a contractor works without being registered, works while the registration is suspended or revoked, or works under a registration issued to another contractor is a separate infraction. A cited contractor who continues to work while unregistered, or while their registration is suspended or revoked, or under a registration issued to another contractor is guilty of a separate misdemeanor for each day worked.

Each worksite at which a contractor works without being registered, works while the registration is suspended

or revoked, or works under a registration issued to another contractor is a separate infraction. A cited contractor who continues to work while unregistered, or while their registration is suspended or revoked, or under a registration issued to another contractor is guilty of a separate misdemeanor for each worksite on which a violation occurs.

(4) See WAC 296-200A-400 for the specific monetary penalties associated with each of the violations discussed in this section.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-300, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-305 How does the department notify registered contractors regarding any unregistered subcontractors they may employ? (1) Unless a general contractor or its representative has been given written notification by the department that a subcontractor they have employed, who was registered when employed, has subsequently become unregistered, it is not illegal for the general contractor to employ that subcontractor. (See RCW 18.27.020(3).)

(2) To comply with RCW 18.27.020(3), the department, when appropriate, will issue a written "notice of unregistered subcontractors" to a general contractor or its representative.

(3) A notice of unregistered subcontractor issued under this section must be personally served on the general contractor named in the notice by the department's compliance inspectors or must be served by certified mail directed to the general contractor named in the notice.

(4) If the general contractor named in the notice is a firm or corporation, the notice may be personally served on any employee of the firm or corporation. If the notice is personally served upon an employee and the department is able to obtain the general contractor's address, the department must send a copy of the notice by certified mail to the general contractor within four days of service.

(5) A "notice of unregistered subcontractor" is not a notice of infraction.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-305, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-310 What information must be included in a notice of infraction? When a contractor violates RCW 18.27.100, 18.27.114 or 18.27.200, the department may issue a notice of infraction which must contain the following:

(1) Notification that an infraction has been committed and shall be final unless contested;

(2) Notification that an infraction is a noncriminal offense and is not punishable by imprisonment;

(3) The specific violation(s) leading to the issuance of the infraction;

(4) The amount of penalty owed if the infraction is established;

(5) Notification of a right to a hearing (chapter 34.05 RCW) if requested within twenty days of receipt of the infraction;

(6) A reminder that the burden of proof in a hearing rests upon the state;

(7) Notification of a right to subpoena witnesses, including the inspector that issued the infraction;

(8) A reminder that a contractor is legally required to sign a notice of infraction and, by doing so, promises to respond to it;

(9) A reminder that a refusal to sign a notice of infraction is a misdemeanor and may be punishable by fine or imprisonment; and

(10) A reminder that a failure to respond to a notice of infraction is a misdemeanor and may be punishable by a fine or imprisonment.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-310, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-320 Who can be issued a notice of infraction? (1) A notice of infraction can be issued personally to the contractor named in the notice by the compliance inspector issuing it or the notice can be delivered to the contractor by certified mail.

(2) Any employee of a contractor can be issued a notice of infraction at a job site. When the notice is signed by an employee, it is binding upon the contractor. To avoid confusion, the department must have the employee sign the "name of the contractor, by name of the employee." The signature will appear as:

Jane Doe Construction Co.

(by) Richard Roe, Employee.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-320, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-330 If a notice of infraction is served on an employee, how is the contractor notified?

(1) When the department issues a notice of infraction to a contractor's employee and it knows the contractor's name and address, the department has four days to deliver a copy of the notice to the contractor by certified mail. To ensure that the contractor receives this notice, the department must mail a second copy of the infraction by first class mail.

(2) If the department does not know the contractor's name and address, it does not need to mail a copy of the infraction to the contractor, however, the notice remains in force.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-330, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-340 How does a contractor appeal a notice of infraction? The contractor must:

(1) File two copies of an appeal notice, specifying the reasons for the appeal, at the office designated on the notice of infraction; and

(2) File the appeal notice within twenty days of the issuance of the infraction.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-340, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-350 Who presides over an appeal hearing and where is it held? An administrative law judge from the office of administrative hearings will preside over the hearing and give a decision. The hearing shall be

conducted in the county where the infraction occurred. However, both the contractor and the department have a right to ask the administrative law judge to change the hearing's location.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-350, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-360 Who will represent the contractor and the department at the appeal hearing? Contractors may either represent themselves or be represented by an attorney. The department shall be represented by the office of attorney general.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-360, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-370 How is the appeal hearing conducted? The hearing process shall be conducted according to chapter 34.05 RCW, Administrative Procedure Act and chapter 10-08 WAC. All appeals of the hearing decision shall be to the superior court according to chapter 34.05 RCW.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-370, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-380 What evidence is admissible in an appeal hearing? All relevant evidence must be admitted in appeals hearings convened according to RCW 18.27.100, 18.27.114 and 18.27.200. The admission of evidence is further subject to chapter 34.05 RCW, Administrative Procedure Act.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-380, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-390 What does the department do with the appeal notices that they receive? The department must record and forward all appeal notices to the office of administrative hearings.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-390, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-400 What monetary penalties will be assessed for an infraction issued for violations of RCW 18.27.100, 18.27.114 or 18.27.200? (1) Monetary penalties that may be assessed for a violation of RCW 18.27.100 are:

RCW 18.27.100 Monetary Penalties	Dollar Amount
First Final Violation	\$ 100.00*
Second Final Violation	\$ 200.00
Third Final Violation	\$ 400.00
Fourth Final Violation	\$ 800.00
Fifth Final Violation	\$1,600.00
Sixth Final Violation	\$3,200.00
Each Additional Final Violation	\$5,000.00

* Minimum penalty per violation. Once a violation of RCW 18.27.100 becomes a final judgment, any additional violation is subject to an increased penalty as set forth in the above table.

(2) Monetary penalties that may be assessed for a violation of RCW 18.27.114 are:

RCW 18.27.114 Monetary Penalties	Dollar Amount
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First Final Violation	\$ 200.00*
Second Final Violation	\$ 400.00
Third Final Violation	\$ 800.00
Fourth Final Violation	\$1,600.00
Fifth Final Violation	\$3,200.00
Each Additional Final Violation	\$5,000.00

* Minimum penalty per violation. Once a violation of RCW 18.27.114 becomes a final judgment, any additional violation is subject to an increased penalty as set forth in the above table.

(3) Monetary penalties that may be assessed for a violation of RCW 18.27.200 according to RCW 18.27.340 (1) and (3) are:

(a)

RCW 18.27.340(1) Monetary Penalties	Dollar Amount
First Final Violation	\$ 200.00*
Second Final Violation	\$ 400.00
Third Final Violation	\$ 800.00
Fourth Final Violation	\$1,600.00
Fifth Final Violation	\$3,200.00
Each Additional Final Violation	\$5,000.00

* Minimum penalty per violation. Once a violation of RCW 18.27.340(1) becomes a final judgment, any additional violation is subject to an increased penalty as set forth in the above table.

(b)

RCW 18.27.340(3) Monetary Penalties	Dollar Amount
First Final Violation	\$1,000.00*
Second Final Violation	\$2,000.00
Third Final Violation	\$4,000.00
Each Additional Final Violation	\$5,000.00

* Minimum penalty per violation. Once a violation of RCW 18.27.340(3) becomes a final judgment, any additional violation is subject to an increased penalty as set forth in the above table. However, if the unregistered contractor becomes registered within ten days of receiving the notice of infraction and the notice is the contractor's first offense, the director may reduce the penalty. In no case can the director reduce the penalty below five hundred dollars.

(c) The director may waive a penalty collection from a contractor in exchange for a payment of restitution to a damaged consumer equal to the amount of the assessed penalty.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-400, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-405 When must a contractor pay assessed monetary penalties? (1) If a contractor named in a notice of infraction does not choose to appeal the notice, then the contractor must pay the department the amount of the penalty prescribed for the infraction. Payment must be by check or money order.

(2) After an administrative law judge decides that an infraction has been committed, a contractor who does not appeal the decision to a superior court, has thirty days to pay any outstanding monetary penalties. Failure to do so is a misdemeanor and shall be prosecuted in the county where the infraction occurred.

(3) A contractor who has exhausted all appeal opportunities and fails to pay an assessed monetary penalty within thirty days after exhausting those opportunities shall be guilty of a misdemeanor and be prosecuted in the county where the infraction occurred.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-405, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-500 Is the department required to monitor unregistered contractors who become registered? Beginning January 1, 1998, the department must monitor, for two years, unregistered contractors who become registered after receiving an infraction or conviction. Information gathered as a result of this monitoring will be shared with the department of revenue and the department of employment security. This information will be shared every other month to determine whether any taxes, fees or penalties are owed to the state.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-500, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-510 Is the department required to report contractor compliance activities to the legislature?

(1) Beginning December 1, 1997, the department must provide an annual written report regarding contractor compliance to the following legislative committees:

- (a) The senate commerce and labor committee.
- (b) The house of representatives commerce and labor committee.
- (c) The senate ways and means committee.
- (d) The house of representatives appropriations committee.

(2) The report will cover a three year period and will include the following information:

- (a) The number of contractors found in violation of chapter 18.27 RCW and chapter 296-200A WAC;
- (b) The number of contractors who were assessed a monetary penalty and the amount of the penalty assessed;
- (c) The amount of assessed monetary penalties collected; and
- (d) The amount of assessed monetary penalties waived.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-510, filed 12/2/97, effective 1/5/98.]

WAC 296-200A-900 What fees does the department charge contractors for issuance, renewal and reinstatement of certificates of registration? (1) For the purposes of this chapter:

- (a) A contractor **renews** its registration before it expires.
 - (b) A contractor **reinstates** its registration after it has been suspended because its bond or insurance has been canceled or after it has expired.
 - (c) A contractor **reregisters** when it changes its business structure.
- (2) The department charges the following fees:
- (a) \$41.75 for each issuance, renewal or reregistration of a certificate of registration.
 - (b) \$50.00 for the reinstatement of a certificate of registration.
 - (c) \$10.25 for providing a duplicate certificate of registration.
 - (d) \$20.00 for each requested certified letter prepared by the department.

(e) \$2.00 per copy for documents copied from a contractor's file. The maximum copy charge for copies from one contractor's file will be \$25.00.

[Statutory Authority: Chapter 18.27 RCW. 97-24-071, § 296-200A-900, filed 12/2/97, effective 1/5/98.]

Chapter 296-304 WAC

SAFETY STANDARDS FOR SHIP REPAIRING, SHIPBUILDING AND SHIPBREAKING

WAC

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296-304-09019	Fall protection—General requirement.
296-304-09021	Personal fall arrest systems (PFAS).
296-304-09023	Positioning device systems.

WAC 296-304-010 Scope and application. (1) The provisions and standards of the general safety and health standards, chapters 296-24 and 296-62 WAC, and such other codes and standards as are promulgated by the department of labor and industries which are applicable to all industries, shall be applicable in the ship repairing, shipbuilding, or shipbreaking industries whenever the employees are covered under the Washington State Industrial Safety and Health Act, chapter 49.17 RCW. The rules of this chapter and the rules of the aforementioned chapters 296-24 and 296-62 WAC are applicable to all ship repairing, shipbuilding, and shipbreaking industries and operations, provided that such rules shall not be applicable to those operations under the exclusive safety jurisdiction of the federal government.

(2) The responsibility for compliance with these regulations is placed upon "employers" as defined in WAC 296-304-01001.

(3) It is not the intent of these regulations to place additional responsibilities or duties on owners, operators, agents or masters of vessels unless such persons are acting as employers, nor is it the intent of these regulations to relieve such owners, operators, agents or masters of vessels from responsibilities or duties now placed upon them by law, regulation or custom.

(4) The responsibilities placed upon the competent person herein shall be deemed to be the responsibilities of the employer.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-010, filed 12/26/97, effective 3/1/98. Statutory Authority: RCW 49.17.010, [49.17].050 and [49.17].060. 95-22-015, § 296-304-010, filed 10/20/95, effective 1/16/96. Statutory Authority: Chapter 49.17 RCW. 95-04-006, § 296-304-010, filed 1/18/95, effective 3/10/95; 89-11-035 (Order 89-03), § 296-304-010, filed 5/15/89, effective 6/30/89; Order 75-6, § 296-304-010, filed 3/10/75; Order 74-25, § 296-304-010, filed 5/7/74.]

WAC 296-304-01001 Definitions. "Anchorage" - A secure point to attach lifelines, lanyards, or deceleration devices.

"Body belt" - A strap with means to both secure it around the waist and to attach it to a lanyard, lifeline, or deceleration device. Body belts may be used only in fall restraint or positioning device systems and may not be used for fall arrest.

"Body harness" - Straps to secure around an employee so that fall arrest forces are distributed over at least the thighs, shoulders, chest and pelvis with means to attach it to other components of a personal fall arrest system.

"Cold-work" - Work that does not involve riveting, welding, burning, or other fire-producing or spark-producing operations.

"Competent person" - A person who can recognize and evaluate employee exposure to hazardous substances or to other unsafe conditions and can specify the necessary protection and precautions necessary to ensure the safety of employees as required by these standards.

"Confined space" - A small compartment with limited access such as a double bottom tank, cofferdam, or other small, confined space that can readily create or aggravate a hazardous exposure.

"Connector" - A device used to connect parts of a personal fall arrest system or parts of a positioning device system together. It may be:

- An independent component of the system (such as a carabiner); or
- An integral component of part of the system (such as a buckle or D-ring sewn into a body belt or body harness or a snaphook spliced or sewn to a lanyard or self-retracting lanyard).

"Deceleration device" - A mechanism, such as a rope grab, rip stitch lanyard, specially woven lanyard, tearing or deforming lanyard, or automatic self-retracting lifeline/lanyard, that serves to dissipate a substantial amount of energy during a fall arrest, or to limit the energy imposed on an employee during fall arrest.

"Deceleration distance" - The additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured from the location of an employee's body belt or body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, to the location of that attachment point after the employee comes to a full stop.

"Director" - The director of the department of labor and industries or a designated representative.

"Employee" - Any person engaged in ship repairing, ship building, or ship breaking or related employment as defined in these standards.

"Employer" - An employer with employees who are employed, in whole or in part, in ship repair, ship building and ship breaking, or related employment as defined in these standards.

"Enclosed space" - A space, other than a confined space, that is enclosed by bulkheads and overhead. It includes cargo holds, tanks, quarters, and machinery and boiler spaces.

"Equivalent" - Alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the method or item specified in the standard.

"Free fall" - To fall before a personal fall arrest system begins to apply force to arrest the fall.

"Free fall distance" - The vertical displacement of the fall arrest attachment point on the employee's body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before the device operates and fall arrest forces occur.

"Gangway" - A ramp-like or stair-like means to board or leave a vessel including accommodation ladders, gang-planks and brows.

"Hazardous substance" - A substance likely to cause injury because it is explosive, flammable, poisonous, corrosive, oxidizing, irritant, or otherwise harmful.

"Hot-work" - Riveting, welding, burning or other fire or spark producing operations.

"Lanyard" - A flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

"Lifeline" - A component consisting of a flexible line to connect to an anchorage at one end to hang vertically (vertical lifeline), or to connect to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

"Lower levels" - Those areas or surfaces to which an employee can fall. Such areas or surfaces include but are not limited to ground levels, floors, ramps, tanks, materials, water, excavations, pits, vessels, structures, or portions thereof.

"Personal fall arrest system" - A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, body harness and may include a lanyard, a deceleration device, a lifeline, or a suitable combination.

"Portable unfired pressure vessel" - A pressure container or vessel used aboard ship, other than the ship's equipment, containing liquids or gases under pressure. This does not include pressure vessels built to ICC regulations under 49 CFR Part 78, Subparts C and H.

"Positioning device system" - A body belt or body harness system rigged to allow an employee to be supported

at an elevated vertical surface, such as a wall or window, and to be able to work with both hands free while leaning.

"Powder actuated fastening tool" - A tool or machine that drives a stud, pin, or fastener by means of an explosive charge.

"Qualified person" - A person who has successfully demonstrated the ability to solve or resolve problems related to the subject matter and work by possessing a recognized degree or certificate of professional standing or by extensive knowledge, training, and experience.

"Related employment" - Any employment related to or performed in conjunction with ship repairing, ship building or ship breaking work, including, but not limited to, inspecting, testing, and serving as a watchman.

"Restraint (tether) line" - A line from an anchorage, or between anchorages, to which the employee is secured so as to prevent the employee from walking or falling off an elevated work surface.

Note: A restraint line is not necessarily designed to withstand forces resulting from a fall.

"Rope grab" - A deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest the fall of an employee. A rope grab usually uses the principle of inertial locking, cam/level locking or both.

"Shall" or "must" - Mandatory.

"Ship breaking" - Breaking down a vessel's structure to scrap the vessel, including the removal of gear, equipment or any component part of a vessel.

"Ship building" - Construction of a vessel, including the installation of machinery and equipment.

"Ship repairing" - Repair of a vessel including, but not limited to, alterations, conversions, installations, cleaning, painting, and maintenance.

"Vessel" - Every watercraft for use as a means of transportation on water, including special purpose floating structures not primarily designed for or used as a means of transportation on water.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-01001, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 95-04-006, § 296-304-01001, filed 1/18/95, effective 3/10/95; Order 76-7, § 296-304-01001, filed 3/1/76; Order 74-25, § 296-304-01001, filed 5/7/74.]

WAC 296-304-03001 Toxic cleaning solvents. (1)

When toxic solvents are used, the employer shall employ one or more of the following measures to safeguard the health of employees exposed to these solvents.

(a) The cleaning operation shall be completely enclosed to prevent the escape of vapor into the working space.

(b) Either natural ventilation or mechanical exhaust ventilation shall be used to remove the vapor at the source and to dilute the concentration of vapors in the working space to a concentration which is safe for the entire work period.

(c) The employer must ensure that employees are protected against:

- Toxic vapors by suitable respiratory protective equipment that meets the requirements of chapter 296-62 WAC, Part E; and

- Exposure of skin and eyes to contact with toxic solvents and their vapors by suitable clothing and equipment.

(2) The principles in the threshold limit values to which attention is directed in WAC 296-304-02005 and applicable sections in chapter 296-62 WAC will be used by the department of labor and industries in enforcement proceedings in defining a safe concentration of air contaminants.

(3) When flammable solvents are used, precautions shall be taken in accordance with the requirements of WAC 296-304-03009.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-03001, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 95-04-006, § 296-304-03001, filed 1/18/95, effective 3/10/95; 93-19-142 (Order 93-04), § 296-304-03001, filed 9/22/93, effective 11/1/93; Order 76-7, § 296-304-03001, filed 3/1/76; Order 74-25, § 296-304-03001, filed 5/7/74.]

WAC 296-304-03003 Chemical paint and preservative removers. (1) The employer must ensure that employees are protected against:

- Skin contact during the handling and application of chemical paint and preservative removers; and

- Eye injury by goggles or face shields that meet the requirements of WAC 296-304-09005 (1) and (2).

(2) When using flammable paint and preservative removers precautions shall be taken in accordance with the requirements of WAC 296-304-03009.

(3) When using chemical paint and preservative removers which contain volatile and toxic solvents, such as benzol, acetone and amyl acetate, the provisions of WAC 296-304-03001 shall be applicable.

(4) The employer must ensure that employees using paint and rust removers containing strong acids or alkalies are protected by suitable face shields to prevent chemical burns on the face and neck according to the requirements of WAC 296-304-09005 (1) and (2).

(5) The employer must ensure that all employees working within range of a steam gun blast are protected by suitable face shields according to the requirements of WAC 296-304-09005 (1) and (2). Metal parts of the steam gun itself must be insulated to protect the operator against heat burns.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-03003, filed 12/26/97, effective 3/1/98; Order 74-25, § 296-304-03003, filed 5/7/74.]

WAC 296-304-03005 Mechanical paint removers. (1) Power tools.

(a) The employer must ensure that employees engaged in the removal of paints, preservatives, rusts or other coatings by means of power tools are protected against eye injury by goggles or face shields that meets the requirements of WAC 296-304-09005 (1) and (2).

(b) All portable rotating tools used for the removal of paints, preservatives, rusts or other coatings shall be adequately guarded to protect both the operator and nearby workers from flying missiles.

(c) Portable electric tools shall be grounded in accordance with the requirements of WAC 296-304-08003 (1) and (2).

(d) In a confined space, the employer must provide mechanical exhaust ventilation sufficient to keep the dust concentration to a minimum, or must protect employees by respiratory protective equipment that meets the requirements of chapter 296-62 WAC, Part E.

(2) Flame removal.

(a) The employer must ensure that when hardened preservative coatings are removed by flame in enclosed spaces, the employees exposed to fumes are protected by air line respirators that meet the requirements of chapter 296-62 WAC, Part E. Employees performing this operation in the open air, and those exposed to the resulting fumes, must be protected by a fume filter respirator that meets the requirements of WAC 296-62-071.

(b) Flame or heat shall not be used to remove soft and greasy preservative coatings.

(3) Abrasive blasting.

(a) Equipment. Hoses and fittings used for abrasive blasting shall meet the following requirements:

(i) Hoses. Hose of a type to prevent shocks from static electricity shall be used.

(ii) Hose couplings. Hose lengths shall be joined by metal couplings secured to the outside of the hose to avoid erosion and weakening of the couplings.

(iii) Nozzles. Nozzles shall be attached to the hose by fittings that will prevent the nozzle from unintentionally becoming disengaged. Nozzle attachments shall be of metal and shall fit onto the hose externally.

(iv) Dead man control. A dead man control device shall be provided at the nozzle end of the blasting hose either to provide direct cutoff or to signal the pot tender by means of a visual and audible signal to cut off the flow, in the event the blaster loses control of the hose. The pot tender shall be available at all times to respond immediately to the signal.

(b) Replacement. Hoses and all fittings used for abrasive blasting shall be inspected frequently to insure timely replacement before an unsafe amount of wear has occurred.

(c) Personal protective equipment.

(i) The employer must ensure that abrasive blasters working in enclosed spaces are protected by abrasive blasting respirators that meet the requirements of WAC 296-24-675 and 296-62-071.

(ii) The employer must ensure that abrasive blasters working in the open are protected as required in subsection (1) of this section.

Exception: When synthetic abrasives containing less than one percent free silica are used, the employer may substitute particulate or dust filter respirators that are approved by the National Institute of Safety and Health (NIOSH) and used according to WAC 296-62-071.

(iii) The employer must ensure that employees, including machine tenders and abrasive recovery workers, working in areas where unsafe concentrations of abrasive materials and dusts are present are protected by eye and respiratory protective equipment that meets the requirements of WAC 296-304-09005 (1) and (2) and chapter 296-62 WAC, Part E.

Exception: This requirement does not apply to blasters.

(iv) The employer must ensure that a blaster is protected against injury from exposure to the blast by appropriate protective clothing, including gloves that meet the requirements of WAC 296-304-09015(1).

(v) A surge from a drop in pressure in the hose line can throw a blaster off the staging. To protect against this hazard, the employer must ensure that a blaster is protected by a personal fall arrest system, that meets the requirements of WAC 296-304-09021. The personal fall arrest system must be tied off to the ship or other structure during blasting from elevations where adequate fall protection cannot be provided by railings.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-03005, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 95-04-006, § 296-304-03005, filed 1/18/95, effective 3/10/95; 93-19-142 (Order 93-04), § 296-304-03005, filed 9/22/93, effective 11/1/93; Order 76-7, § 296-304-03005, filed 3/1/76; Order 74-25, § 296-304-03005, filed 5/7/74.]

WAC 296-304-03007 Painting. All respirators required by this section must meet the requirements of chapter 296-62 WAC, Part E.

(1) Paints mixed with toxic vehicles or solvents.

(a) When employees spray paints mixed with toxic vehicles or solvents, the employer must ensure that the following conditions are met:

(i) In confined spaces, employees continuously exposed to spraying are protected by air line respirators.

(ii) In tanks or compartments, employees continuously exposed to spraying are protected by air line respirators. Where mechanical ventilation is provided, employees are protected by respirators.

(iii) In large and well ventilated areas, employees exposed to spraying are protected by respirators.

(b) The employer must ensure that where employees apply by brush paints with toxic solvents in confined spaces or other areas where lack of ventilation creates a hazard, the employees are protected by filter respirators.

(c) When flammable paints or vehicles are used, precautions shall be taken in accordance with the requirements of WAC 296-304-03009.

(d) The metallic parts of air moving devices, including fans, blowers, and jet-type air movers, and all duct work shall be electrically bonded to the vessel's structure.

(2) Paints and tank coatings dissolved in highly volatile, toxic and flammable solvents. Several organic coatings, adhesives and resins are dissolved in highly toxic, flammable and explosive solvents with flash points below 80°F. Work involving such materials shall be done only when all of the following special precautions have been taken:

(a) Sufficient exhaust ventilation shall be provided to keep the concentration of solvent vapors below ten percent of the lower explosive limit. Frequent tests shall be made by a competent person to ascertain the concentration.

(b) If the ventilation fails or if the concentration of solvent vapors rises above ten percent of the lower explosive limit, painting shall be stopped and the compartment shall be evacuated until the concentration again falls below ten percent of the lower explosive limit. If the concentration does not fall when painting is stopped, additional ventilation

to bring the concentration down to ten percent of the lower explosive limit shall be provided.

(c) Ventilation shall be continued after the completion of painting until the space or compartment is gas free. The final determination as to whether the space or compartment is gas free shall be made after the ventilating equipment has been shut off for a least ten minutes.

(d) Exhaust ducts shall discharge clear of working areas and away from sources of possible ignition. Periodic tests shall be made to ensure that the exhausted vapors are not accumulating in other areas within or around the vessel or dry dock.

(e) All motors and control equipment shall be of the explosion-proof type. Fans shall have nonferrous blades. Portable air ducts shall also be of nonferrous materials. All motors and associated control equipment shall be properly maintained and grounded.

(f) Only nonsparking paint buckets, spray guns and tools shall be used. Metal parts of paint brushes and rollers shall be insulated. Staging shall be erected in a manner which ensures that it is nonsparking.

(g) Only explosion proof lights, approved by the Underwriters' Laboratories for use in Class I, Group D atmospheres, or approved as permissible by the U.S. Bureau of Mines or the U.S. Coast Guard, shall be used.

(h) A competent person shall inspect all power and lighting cables to ensure that the insulation is in excellent condition, free of all cracks and worn spots, that there are no connections within fifty feet of the operation, that lines are not overloaded, and that they are suspended with sufficient slack to prevent undue stress or chafing.

(i) The face, eyes, head, hands and all other exposed parts of the bodies of employees handling highly volatile paints must be protected according to WAC 296-304-090. All footwear must be nonsparking, such as rubbers, rubber boots or rubber soled shoes without nails. Coveralls or other outer clothing must be made of cotton. Rubber gloves, instead of plastic gloves, must be used to protect against the danger of static sparks.

(j) No matches, lighted cigarettes, cigars, or pipes, and no cigarette lighters or ferrous articles shall be taken into the area where work is being done.

(k) All solvent drums taken into the compartment shall be placed on nonferrous surfaces and shall be grounded to the vessel. Metallic contact shall be maintained between containers and drums when materials are being transferred from one to another.

(l) Spray guns, paint pots, and metallic parts of connecting tubing shall be electrically bonded, and the bonded assembly shall be grounded to the vessel.

(m) The employer must ensure that all employees continuously in a compartment in which such painting is performed, are protected by air line respirators and by suitable protective clothing. Employees entering such compartments for a limited time must be protected by filter cartridge type respirators.

(n) The employer must ensure that all employees doing exterior paint spraying with such paints are protected by suitable filter cartridge type respirators and by suitable protective clothing.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-03007, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 95-04-006, § 296-304-03007, filed 1/18/95, effective 3/10/95; 93-19-142 (Order 93-04), § 296-304-03007, filed 9/22/93, effective 11/1/93; Order 76-7, § 296-304-03007, filed 3/1/76; Order 74-25, § 296-304-03007, filed 5/7/74.]

WAC 296-304-05007 Access to vessels. "Barge" - An unpowered, flat bottom, shallow draft vessel including scows, carfloats and lighters, but not ship-shaped or deep-draft barges.

"River towboat" - A shallow draft, low free board, self-propelled vessel designed to tow river barges by pushing ahead.

(1) Access to vessels afloat. The employer shall not permit employees to board or leave any vessel, except a barge or river towboat, until the following requirements have been met:

(a) Whenever practicable, a gangway of not less than 20 inches walking surface, of adequate strength, maintained in safe repair and safely secured shall be used. If a gangway is not practicable, a substantial straight ladder, extending at least 36 inches above the upper landing surface and adequately secured against shifting or slipping shall be provided. When conditions are such that neither a gangway nor a straight ladder can be used, a Jacob's ladder meeting the requirements of (4)(a) and (b) of this section may be used.

(b) Each side of such gangway, and the turntable if used, shall have a railing with a minimum height of approximately 33 inches measured perpendicularly from rail to walking surface at the stanchion, with a midrail. Rails shall be of wood, pipe, chain, wire or rope and shall be kept taut at all times.

(c) Gangways on vessels inspected and certificated by the U.S. Coast Guard are deemed to meet the foregoing requirements, except in cases where the vessel's regular gangway is not being used.

(d) The gangway shall be kept properly trimmed at all times.

(e) When a fixed tread accommodation ladder is used, and the angle is low enough to require employees to walk on the edge of the treads, cleated duckboards shall be laid over and secured to the ladder.

(f) When the lower end of a gangway overhangs the water between the ship and the dock in such a manner that there is danger of employees falling between the ship and the dock, a net or other suitable protection shall be rigged at the foot of the gangway in such a manner as to prevent employees from falling from the end of the gangway.

(g) If the foot of the gangway is more than one foot away from the edge of the apron, the space between them shall be bridged by a firm walkway equipped with railings, with a minimum height of approximately 33 inches with midrails on both sides.

(h) Supporting bridles shall be kept clear so as to permit unobstructed passage for employees using the gangway.

(i) When the upper end of the means of access rests on or flush with the top of the bulwark, substantial steps properly secured and equipped with at least one substantial handrail approximately 33 inches in height shall be provided between the top of the bulwark and the deck.

(j) Obstructions shall not be laid on or across the gangway.

(k) The means of access shall be adequately illuminated for its full length.

(1) Unless the construction of the vessel makes it impossible, the means of access shall be so located that drafts of cargo do not pass over it. In any event loads shall not be passed over the means of access while employees are on it.

(2) Access to vessels in drydock or between vessels. Gangways meeting the requirements of (1)(a), (b), (i), (j) and (l) of this section shall be provided for access from wing wall to vessel or, when two or more vessels, other than barges or river towboats, are lying abreast, from one vessel to another.

(3) Access to barges and river towboats.

(a) Ramps for access of vehicles to or between barges shall be of adequate strength, provided with side boards, well maintained and properly secured.

(b) Unless employees can step safely to or from the wharf, float, barge, or river towboat, either a ramp in accordance with the requirements of (a) of this section or a safe walkway in accordance with the requirements of (1)(g) of this section shall be provided. When a walkway is impracticable, a substantial straight ladder, extending at least 36 inches above the upper landing surface and adequately secured against shifting or slipping shall be provided. When conditions are such that neither a walkway nor a straight ladder can be used, a Jacob's ladder in accordance with the requirements of (4) of this section may be used.

(c) The means of access shall be in accordance with the requirements of (1)(i), (j) and (k) of this section.

(4) Jacob's ladders.

(a) Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured.

(b) A Jacob's ladder shall either hang without slack from its lashings or be pulled up entirely.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-05007, filed 12/26/97, effective 3/1/98; Order 74-25, § 296-304-05007, filed 5/7/74.]

WAC 296-304-05013 Working surfaces. (1) When firebox floors present tripping hazards of exposed tubing or of missing or removed refractory, sufficient planking to afford safe footing shall be laid while work is being carried on within the boiler.

(2) The employer must provide and ensure the use of fall protection when employees work aloft or elsewhere at elevations more than 5 feet above a solid surface.

(a) Employees must be protected by the use of scaffolds, ladders, or personal protection equipment according to WAC 296-304-09021, or 296-304-09023.

(b) Employees must work from scaffolds when visually restricted by:

- Blasting hoods;
- Welding helmets; and
- Burning goggles; except
- For the initial and final welding or burning operation to start or complete a job such as the erection and dismantling of hung scaffolding; or

- Other similar, nonrepetitive jobs of brief duration.

(3) For work performed in restricted quarters, such as behind boilers and in between congested machinery units and piping, work platforms at least 20 inches wide meeting the requirements of WAC 296-304-05001 (8)(b) shall be used. Backrails may be omitted if bulkheading, boilers, machinery units, or piping afford proper protection against falling.

(4) When employees are boarding, leaving, or working from small boats or floats, they shall be protected by personal flotation devices meeting the requirements of WAC 296-304-09007(1).

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-05013, filed 12/26/97, effective 3/1/98; Order 76-7, § 296-304-05013, filed 3/1/76; Order 74-25, § 296-304-05013, filed 5/7/74.]

WAC 296-304-06013 Health and sanitation. "**Hazardous material**" - A material with one or more of the following characteristics:

- Has a flash point below 140°F, closed cup, or is subject to spontaneous heating;
- Has a threshold limit value below 500 p.p.m. in the case of a gas or vapor, below 500 mg./m.3 for fumes, and below 25 m.p.p.c.f. in case of a dust;
- Has a single dose oral LD50 below 500 mg./kg.;
- Is subject to polymerization with the release of large amounts of energy;
- Is a strong oxidizing or reducing agent;
- Causes first degree burns to skin in short time exposure, or is systematically toxic by skin contact; or
- In the course of normal operations, may produce dusts, gases, fumes, vapors, mists, or smokes that have one or more of the above characteristics.

(1) No chemical product, such as a solvent or preservative; no structural material, such as cadmium or zinc coated steel, or plastic material; and no process material, such as welding filler metal; which is a hazardous material may be used until the employer has ascertained the potential fire, toxic, or reactivity hazards which are likely to be encountered in the handling, application, or utilization of such a material.

(2) In order to ascertain the hazards, as required by subsection (1) of this section, the employer shall obtain the following items of information which are applicable to a specific product or material to be used:

(a) The name, address, and telephone number of the source of the information specified in this section preferably those of the manufacturer of the product or material.

(b) The trade name and synonyms for a mixture of chemicals, a basic structural material, or for a process material; and the chemical name and synonyms, chemical family, and formula for a single chemical.

(c) Chemical names of hazardous ingredients, including, but not limited to, those in mixtures, such as those in: (i) Paints, preservatives, and solvents; (ii) alloys, metallic coatings, filler metals and their coatings or core fluxes; and (iii) other liquids, solids, or gases (e.g., abrasive materials).

(d) An indication of the percentage, by weight or volume, which each ingredient of a mixture bears to the whole mixture, and of the threshold limit value of each ingredient, in appropriate units.

(e) Physical data about a single chemical or a mixture of chemicals, including boiling point, in degrees Fahrenheit; vapor pressure, in millimeters of mercury; vapor density of gas or vapor (air=1); solubility in water, in percent by weight; specific gravity of material (water=1); percentage volatile, by volume, at 70°F.; evaporation rate for liquids (either butyl acetate or ether may be taken as 1); and appearance and odor.

(f) Fire and explosion hazard data about a single chemical or a mixture of chemicals, including flashpoint, in degrees Fahrenheit; flammable limits, in percent by volume in air; suitable extinguishing media or agents; special fire fighting procedures; and unusual fire and explosion hazard information.

(g) Health hazard data, including threshold limit value, in appropriate units, for a single hazardous chemical or for the individual hazardous ingredients of a mixture as appropriate, effects of overexposure; and emergency and first aid procedures.

(h) Reactivity data, including stability, incompatibility, hazardous decomposition products, and hazardous polymerization.

(i) Procedures to be followed and precautions to be taken in cleaning up and disposing of materials leaked or spilled.

(j) Special protection information, including use of personal protective equipment, such as respirators, eye protection, and protective clothing, and of ventilation, such as local exhaust, general, special, or other types.

(k) Special precautionary information about handling and storing.

(1) Any other general precautionary information.

(3) The pertinent information required by subsection (2) of this section shall be recorded either on United States Department of Labor Form LSB 00S-4, Material Safety Data Sheet, or on an essentially similar form which has been approved by the department of labor and industries. Copies of Form LSB 00S-4 may be obtained at any of the following regional offices of the occupational safety and health administration:

(a) Pacific region. (Arizona, California, Hawaii, and Nevada.)

10353 Federal Building, 450 Golden Gate Avenue, Box 36017, San Francisco, Calif. 94102.

(b) Region X, OSHA, (Alaska, Washington, Idaho, and Oregon), Federal Office Building, 909 First Avenue, Seattle, Washington 98174.

A completed MSDS form shall be preserved and available for inspection for each hazardous chemical on the worksite.

(4) The employer shall instruct employees who will be exposed to the hazardous materials as to the nature of the hazards and the means of avoiding them.

(5) The employer shall provide all necessary controls, and the employees shall be protected by suitable personal protective equipment against the hazards identified under subsection (1) of this section and those hazards for which specific precautions are required in WAC 296-304-020 through 296-304-04013.

(6) The employer shall provide adequate washing facilities for employees engaged in the application of paints

or coatings or in other operations where contaminants can, by ingestion or absorption, be detrimental to the health of the employees. The employer shall encourage good personal hygiene practices by informing the employees of the need for removing surface contaminants by thorough washing of hands and face prior to eating or smoking.

(7) The employer shall not permit eating or smoking in areas undergoing surface preparation or preservation or where shiprepairing, shipbuilding, or shipbreaking operations produce atmospheric contamination.

(8) The employer shall not permit employees to work in the immediate vicinity of uncovered garbage and shall ensure that employees working beneath or on the outboard side of a vessel are not subject to contamination by drainage or waste from overboard discharges.

(9) Requirements of chapter 296-62 WAC, Part C, hazard communication, will apply to shiprepairing, shipbuilding, and shipbreaking when potential hazards of chemicals and communicating information concerning hazards and appropriate protective equipment is applicable to an operation.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-06013, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 95-04-006, § 296-304-06013, filed 1/18/95, effective 3/10/95; 88-14-108 (Order 88-11), § 296-304-06013, filed 7/6/88; Order 76-7, § 296-304-06013, filed 3/1/76; Order 74-25, § 296-304-06013, filed 5/7/74.]

WAC 296-304-07013 Qualifications of operators.

(1) When ship's gear is used to hoist materials aboard, a competent person shall determine that the gear is properly rigged, that it is in safe condition, and that it will not be overloaded by the size and weight of the lift.

(2) Only those employees who understand the signs, notices, and operating instructions, and are familiar with the signal code in use, shall be permitted to operate a crane, winch, or other power operated hoisting apparatus.

(3) No employee known to have defective uncorrected eyesight or hearing, or to be suffering from heart disease, epilepsy, or similar ailments which may suddenly incapacitate him, shall be permitted to operate a crane, winch or other power operated hoisting apparatus.

(4) No minor under eighteen years of age shall be employed in occupations involving the operation of any power-driven hoisting apparatus or assisting in such operations by work such as hooking on, loading slings, rigging gear, etc.

TABLE E-1
DIMENSIONS AND SPACING OF WOOD
INDEPENDENT-POLE SCAFFOLD MEMBERS

Structural Members	Light duty (Up to 25 pounds per square foot)			Heavy duty (25 to 75 pounds per square foot)		
	Height in feet			Height in feet		
	24 or less	24-40	40-60	24 or less	24-40	40-60
Poles or uprights (in inches)	2x4	3x4 or 2x6	4x4	3x4	4x4	4x6
Bearers (in inches)	2x4	2x6	2x6	2x8	2x8	2x10
Ledgers (in inches)	2x6	2x6	2x6	2x8	2x8	2x8
Stringer (not supporting bearers) (in inches)	1x6	1x6	1x6	1x6	1x6	1x6
Braces (in inches)	1x4	1x6	1x6	1x6	1x6	1x6
Pole spacing—longitudinally (in feet)	7 1/2	7 1/2	7 1/2	7	7	7
Pole spacing—transversely (in feet)	6 1/2 min	7 1/2 min	8 1/2 min	6 1/2	10	10
Ledger spacing—vertically (in feet)	7	7	7	4 1/2	4 1/2	4 1/2

TABLE E-2
SPECIFICATIONS FOR SIDE RAILS OF LADDERS

Length (in feet)	Cross section (in inches)	
	At ends	At center
15	1 7/8 x 2 3/4	1 7/8 x 3 3/4
16	1 7/8 x 2 3/4	1 7/8 x 3 3/4
17	1 7/8 x 3	1 7/8 x 4
18	1 7/8 x 3	1 7/8 x 4
20	1 7/8 x 3	1 7/8 x 4 1/2
24	1 7/8 x 3	1 7/8 x 4 1/2

TABLE E-3
SPECIFICATIONS FOR THE CONSTRUCTION OF HORSES

Structural Members	Height in feet		
	Up to 10	10 to 16	16 to 20
	Inches	Inches	Inches
Legs	2x4	3x4	4x6
Bearers or headers	2x6	2x8	4x6
Crossbraces	2x4 or 1x8	2x4	2x6
Longitudinal braces	2x4	2x6	2x6

TABLE E-4
SAFE CENTER LOADS FOR SCAFFOLD PLANK
OF 1,100 POUNDS FIBRE STRESS

[Codification note: The graphic presentation of this table has been varied in order that it would fall within the printing specifications for the Washington Administrative Code. The

following table had lumber dimensions in the table heading typed in vertically across the page while the remainder of the table was typed horizontally on the page. The "Span in Feet" materials (6 through 16) which ran top to bottom has been switched to run left to right on the page. The "Lumber dimensions in inches" which ran left to right on the page has been switched to run top to bottom on the page.]

Lumber dimensions in inches	Span in Feet					
	6	8	10	12	14	16
A-2 x 10						
B-1 5/8 x 9 1/2	256	192	153	128	110	—
A-2 x 12						
B-1 5/8 x 11 1/2	309	232	186	155	133	116
A-3 x 8						
B-2 5/8 x 7 1/2	526	395	316	263	225	197
A-3 x 10						
B-2 5/8 x 9 1/2	667	600	400	333	286	250
A-3 x 12						
B-2 5/8 x 11 1/2	807	605	484	404	346	303

(A)—Rough lumber.
(B)—Dressed lumber.

TABLE G-1
MANILA ROPE
(in pounds or tons of 2000 pounds)





Circumference	Dia- meter in Inches	Single Leg	60°	45°	30°
					
3/4	1/4	120 lbs.	204 lbs.	170 lbs.	120 lbs.
1	5/16	200	346	282	200
1-1/8	3/8	270	467	380	270
1-1/4	7/16	350	605	493	350
1-3/8	15/32	450	775	635	450
1-1/2	1/2	530	915	798	530
1-3/4	9/16	690	1190	973	690
2	5/8	880	1520	1240	880
2-1/4	3/4	1080	1870	1520	1080
2-1/2	13/16	1300	2250	1830	1300
2-3/4	7/8	1540	2660	2170	1540
3	1	1800	3120	2540	1800
3-1/4	1-1/16	1.0 tons	1.7 tons	1.4 tons	1.0 tons
3-1/2	1-1/8	1.2	2.1	1.7	1.2
3-3/4	1-1/4	1.35	2.3	1.9	1.35
4	1-5/16	1.5	2.6	2.1	1.5
4-1/2	1-1/2	1.8	3.1	2.5	1.8
5	1-5/8	2.25	3.9	3.2	2.25
5-1/2	1-3/4	2.6	4.5	3.7	2.6
6	2	3.1	5.4	4.4	3.1
6-1/2	2-1/8	3.6	6.2	5.1	3.6

TABLE G-2
RATED CAPACITIES FOR IMPROVED PLOW
STEEL, INDEPENDENT WIRE ROPE CORE,
WIRE ROPE AND WIRE ROPE SLINGS
(in tons of 2000 pounds)


Rope Dia. Inches	SINGLE LEG					
	Vertical			Choker		
	A	B	C	A	B	C
6X19 CLASSIFICATION						
1/4"	.59	.56	.53	.44	.42	.40
3/8"	1.3	1.2	1.1	.98	.93	.86
1/2"	2.3	2.2	2.0	1.7	1.6	1.5
5/8"	3.6	3.4	3.0	2.7	2.5	2.2
3/4"	5.1	4.9	4.2	3.8	3.6	3.1
7/8"	6.9	6.6	5.5	5.2	4.9	4.1
1"	9.0	8.5	7.2	6.7	6.4	5.4
1- 1/8"	11.0	10.0	9.0	8.5	7.8	6.8
6X37 CLASSIFICATION						
1- 1/4"	13.	12.	10.	9.9	9.2	7.9
1- 3/8"	16.	15.	13.	12.	11.	9.6
1- 1/2"	19.	17.	15.	14.	13.	11.
1- 3/4"	26.	24.	20.	19.	18.	15.
2"	33.	30.	26.	25.	23.	20.
2- 1/4"	41.	38.	33.	31.	29.	25.

(A) - Socket or swaged terminal attachment.
(B) - Mechanical sleeve attachment.
(C) - Hand tucked splice attachment.

TABLE G-3
RATED CAPACITIES FOR
IMPROVED PLOW STEEL,
INDEPENDENT WIRE ROPE CORE,
WIRE ROPE SLINGS
(in tons of 2000 pounds)

[Codification note: The graphic presentation of this table has been varied slightly in order that it would fall within the printing specifications for the Washington Administrative Code. The following table was too wide to be accommodated in the width of the WAC column. The table as codified has been divided into two tables covering the "TWO-LEG BRIDLE OR BASKET HITCH" for 6x19 Classification and for 6x37 Classification. Part One has Rope Diameter in Inches for Vertical and 60° within the two classifications. Part Two has Rope Diameter in Inches for 45° and 30° within the two classifications.]

TWO - LEG BRIDLE OR BASKET HITCH
(TABLE G-3: Part 1—Vertical and 60° Positions)



Rope Dia. Inches	SINGLE LEG					
	Vertical			60° 		
	A	B	C	A	B	C
6X19 CLASSIFICATION						
1/4"	1.2	1.1	1.0	1.0	.97	.92
3/8"	2.6	2.5	2.3	2.3	2.1	2.0
1/2"	4.6	4.4	3.9	4.0	3.8	3.4

5/8"	7.2	6.8	6.0	6.2	5.9	5.2
3/4"	10.	9.7	8.4	8.9	8.4	7.3
7/8"	14.	13.	11.	12.	11.	9.6
1"	18.	17.	14.	15.	15.	12.
1- 1/8"	23.	21.	18.	19.	18.	16.

6X37 CLASSIFICATION

1- 1/4"	26.	24.	21.	23.	21.	18.
1- 3/8"	32.	29.	25.	28.	25.	22.
1- 1/2"	38.	35.	30.	33.	30.	26.
1- 3/4"	51.	47.	41.	44.	41.	35.
2"	66.	61.	53.	57.	53.	46.
2- 1/4"	83.	76.	66.	72.	66.	57.

TWO - LEG BRIDLE OR BASKET HITCH
(TABLE G-3: Part 2—45° and 30° Positions)

Rope Dia. Inches	45° 			30° 		
	A	B	C	A	B	C
	6X19 CLASSIFICATION					
1/4"	.83	.79	.75	.59	.56	.53
3/8"	1.8	1.8	1.6	1.3	1.2	1.1
1/2"	3.2	3.1	2.8	2.3	2.2	2.0
5/8"	5.1	4.8	4.2	3.6	3.4	3.0
3/4"	7.2	6.9	5.9	5.1	4.9	4.2
7/8"	9.8	9.3	7.8	6.9	6.6	5.5
1"	13.	12.	10.	9.0	8.5	7.2
1- 1/8"	16.	15.	13.	11.	10.	9.0

6X37 CLASSIFICATION

1- 1/4"	19.	17.	15.	13.	12.	10.
1- 3/8"	22.	21.	18.	16.	15.	13.
1- 1/2"	27.	25.	21.	19.	17.	15.
1- 3/4"	36.	33.	29.	26.	24.	20.
2"	47.	43.	37.	33.	30.	26.
2- 1/4"	58.	54.	47.	41.	38.	33.

(A) - Socket or swaged terminal attachment.
(B) - Mechanical sleeve attachment.
(C) - Hand tucked splice attachment.

TABLE G-4

RATED CAPACITIES FOR
IMPROVED PLOW STEEL,
FIBER CORE, WIRE ROPE AND
WIRE ROPE SLINGS
(in tons of 2000 pounds)

Rope Dia. Inches	SINGLE LEG					
	Vertical			Choker		
	A	B	C	A	B	C
6X19 CLASSIFICATION						
1/4"	.55	.51	.49	.41	.38	.37
3/8"	1.2	1.1	1.1	.91	.85	.80
1/2"	2.1	2.0	1.8	1.6	1.5	1.4
5/8"	3.3	3.1	2.8	2.5	2.3	2.1
3/4"	4.8	4.4	3.9	3.6	3.3	2.9
7/8"	6.4	5.9	5.1	4.8	4.5	3.9

1	8.4	7.7	6.7	6.3	5.8	5.0
1- 1/8	10.	9.5	8.4	7.9	7.1	6.3

6X37 CLASSIFICATION

1- 1/4	12.	11.	9.8	9.2	8.3	7.4
1- 3/8	15.	13.	12.	11.	10.	8.9
1- 1/2	17.	16.	14.	13.	12.	10.
1- 3/4	24.	21.	19.	18.	16.	14.
2	31.	28.	25.	23.	21.	18.


- (A) - Socket or swaged terminal attachment.
- (B) - Mechanical sleeve attachment.
- (C) - Hand tucked splice attachment.

TABLE G-5

RATED CAPACITIES FOR IMPROVED PLOW
STEEL, FIBER CORE, WIRE ROPE SLINGS
(in tons of 2000 pounds)

[Codification note: The graphic presentation of this table has been varied slightly in order that it would fall within the printing specifications for the Washington Administrative Code. The following table was too wide to be accommodated in the width of the WAC column. The table as codified has been divided into two tables covering the "TWO - LEG BRIDLE OR BASKET HITCH" for 6x19 Classification and for 6x37 Classification. Part One has Rope Diameter in Inches for Vertical and 60° within the two classifications. Part Two has Rope Diameter in Inches for 45° and 30° within the two classifications.]

TWO - LEG BRIDLE OR BASKET HITCH
(TABLE G-5: Part 1—Vertical and 60° Positions)

Rope Dia. Inches	Vertical			60° 		
	A	B	C	A	B	C



6X19 CLASSIFICATION

1/4	1.1	1.0	.99	.95	.88	.85
3/8	2.4	2.2	1.9	2.1	1.9	1.8
1/2	4.3	3.9	3.7	3.7	3.4	3.2
5/8	6.7	6.2	5.6	5.8	5.3	4.8
3/4	9.5	8.8	7.8	8.2	7.6	6.8
7/8	13.	12.	10.	11.	10.	8.9
1	17.	15.	13.	14.	13.	11.
1- 1/8	21.	19.	17.	18.	16.	14.

6X37 CLASSIFICATION

1- 1/4	25.	22.	20.	21.	19.	17.
1- 3/8	30.	27.	24.	26.	23.	20.
1- 1/2	35.	23.	28.	30.	27.	24.
1- 3/4	48.	43.	38.	41.	37.	33.
2	62.	55.	49.	53.	48.	43.

TWO - LEG BRIDLE OR BASKET HITCH
(TABLE G-5: Part 2—45° and 30° Positions)

Rope Dia. Inches	45° 			30° 		
	A	B	C	A	B	C

6X19 CLASSIFICATION

1/4	.77	.72	.70	.55	.51	.49
3/8	1.7	1.6	1.5	1.2	1.1	1.1
1/2	3.0	2.8	2.6	2.1	2.0	1.8
5/8	4.7	4.4	4.0	3.3	3.1	2.8
3/4	6.7	6.2	5.5	4.8	4.4	3.9
7/8	9.1	8.4	7.3	6.4	5.9	5.1
1	12.	11.	9.4	8.4	7.7	6.7
1- 1/8	15.	13.	12.	10.	9.5	8.4

6X37 CLASSIFICATION

1-1/4	17.	16.	14.	12.	11.	9.8
1-3/8	21.	19.	17.	15.	13.	12.
1-1/2	25.	22.	20.	17.	16.	14.
1-3/4	34.	30.	27.	24.	21.	19.
2	43.	39.	35.	31.	28.	25.

- (A) - Socket or swaged terminal attachment.
- (B) - Mechanical sleeve attachment.
- (C) - Hand tucked splice attachment.

TABLE G-6




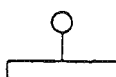
NUMBER AND SPACING OF U-BOLT WIRE
ROPE CLIPS

Improved plow steel rope diameter inches	Number of Clips		
	Drop forged	Other material	Minimum spacing (inches)
*
1/2	3	4	3
5/8	3	4	3 3/4
3/4	4	5	4 1/2
7/8	4	5	5 1/4
1	4	6	6
1 1/8	5	6	6 3/4
1 1/4	5	7	7 1/2
1 3/8	6	7	8 1/4
1 1/2	6	8	9

*Three clips shall be used on wire size less than 1/2-inch diameter.

TABLE G-7

WROUGHT IRON CHAIN
(in pounds or tons of 2000 pounds)

Nominal Size Chain Stock Inch	Single Leg	60° 	45° 	30° 
				

* 1/4	1060	1835	1500	1060
-------	------	------	------	------

* 5/16	1655	2865	2340	1655
3/8	2385	2.1	3370	2385
* 7/16	3250	2.8	2.3	3250
1/2	12.1	13.7	13.0	12.1
* 9/16	12.7	14.6	13.8	12.7
5/8	13.3	15.7	14.7	13.3
3/4	14.8	18.3	16.7	14.8
7/8	16.5	11.2	19.2	16.5
1	18.5	14.7	12.0	18.5
1- 1/8	10.0	17.3	14.2	10.0
1- 1/4	12.4	21.4	17.5	12.4
1- 3/8	15.0	25.9	21.1	15.0
1- 1/2	17.8	30.8	25.2	17.8
1- 5/8	20.9	36.2	29.5	20.9
1- 3/4	24.2	42.0	34.3	24.2
1- 7/8	27.6	47.9	39.1	27.6
2	31.6	54.8	44.8	31.6

*These sizes of wrought iron chain are no longer manufactured in the United States.

TABLE G-8

ALLOY STEEL CHAIN
(in tons of 2000 pounds)

Nominal Size Chain Stock Inch	Single Leg	60°	45°	30°
1/4	1.62	2.82	2.27	1.62
3/8	3.30	5.70	4.65	3.30
1/2	5.62	9.75	7.90	5.62
5/8	8.25	14.25	11.65	8.25
3/4	11.5	19.9	16.2	11.5
7/8	14.3	24.9	20.3	14.3
1	19.3	33.4	27.3	19.8
1- 1/8	22.2	38.5	31.5	22.2
1- 1/4	28.7	49.7	40.5	28.7
1- 3/8	33.5	58.0	47.0	33.5
1- 1/2	39.7	68.5	56.0	39.7
1- 5/8	42.5	73.5	59.5	42.5
1- 3/4	47.0	81.5	62.0	47.0

TABLE G-9

MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK

Chain size in inches

Maximum allowable wear in fraction of inches

1/4 (9/32)	3/64
3/8	5/64
1/2	7/64
5/8	9/64
3/4	5/32
7/8	1 1/64
1	3/16
1 1/8	7/32
1 1/4	1/4
1 3/8	9/32
1 1/2	5/16
1 3/4	1 1/32

TABLE G-10

SAFE WORKING LOADS FOR SHACKLES
(in tons of 2,000 pounds)

Material size (inches)	Pin diameter (inches)	Safe working load
1/2	5/8	1.4
5/8	3/4	2.2
3/4	7/8	3.2
7/8	1	4.3
1	1 1/8	5.6
1 1/8	1 1/4	6.7
1 1/4	1 3/8	8.2
1 3/8	1 1/2	10.0
1 1/2	1 5/8	11.9
1 3/4	2	16.2
2	2 1/4	21.2

Table I-1A

FILTER LENSES FOR PROTECTION AGAINST RADIANT ENERGY

OPERATIONS	ELECTRODE SIZE 1/32 IN	ARC CURRENT	MINIMUM PROTECTIVE SHADE
Shielded metal arc welding	Less than 3	Less than 60	7
	3-5	60-160	8
	5-8	160-250	10
	More than 8	250-550	11
Gas metal arc welding and flux cored arc welding		Less than 60	7
		60-160	10
		160-250	10
		250-550	10
Gas Tungsten arc welding		Less than 50	8
		50-150	8
		150-500	10
Air carbon arc cutting	(Light)	Less than 500	10
	(Heavy)	500-1000	11
		Less than 20	6
	20-100	8	

Plasma arc welding		100-400	10
		400-800	11
Plasma arc cutting	(Light)**	Less than 300	8
	(Medium)**	300-400	9
	(Heavy)**	400-800	10
Torch brazing	—	—	3
Torch soldering	—	—	2
Carbon Arc welding	—	—	14

** These values apply where the actual arc is clearly seen. Lighter filters may be used when the arc is hidden by the workplace.

Table I-1B

FILTER LENSES FOR PROTECTION AGAINST RADIANT ENERGY

OPERATIONS	PLATE THICKNESS... INCHES	PLATE THICKNESS... MM	MINIMUM* PROTECTIVE SHADE
Gas welding			
Light	Under 1/8	Under 3.2	4
Medium	1/8 - 1/2	3.2 - 12.7	5
Heavy	Over 1/2	Over 12.7	6
Oxygen cutting			
Light	Under 1	Under 25	3
Medium	1 - 6	25 - 100	4
Heavy	Over 6	Over 150	5

*As rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the viable light of the (spectrum) operation.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-07013, filed 12/26/97, effective 3/1/98; Order 74-25, § 296-304-07013, filed 5/7/74.]

WAC 296-304-08007 Abrasive wheels. (1) Floor stand and bench mounted abrasive wheels used for external grinding shall be provided with safety guards (protection hoods). The maximum angular exposure of the grinding wheel periphery and sides shall be not more than 90 degrees, except that when work requires contact with the wheel below the horizontal plane of the spindle, the angular exposure shall not exceed 125 degrees. In either case the exposure shall begin not more than 65 degrees above the horizontal plane of the spindle. Safety guards shall be strong enough to withstand the effect of a bursting wheel.

(2) Floor and bench mounted grinders shall be provided with work rests which are rigidly supported and readily adjustable. Such work rests shall be kept a distance not to exceed 1/8 inch from the surface of the wheel.

(3) Cup type wheels use for external grinding shall be protected by either a revolving cup guard or a band type guard in accordance with the provisions of the United States of American Standard Safety Code for the Use, Care, and Protection of Abrasive Wheels, B7.1.1970. All other portable abrasive wheels used for external grinding shall be provided with safety guards (protection hoods) meeting the requirements of (5) of this section, except as follows:

(a) When the work location makes it impossible, in which case a wheel equipped with safety flanges as described in (6) of this section shall be used.

(b) When wheels 2 inches or less in diameter which are securely mounted on the end of a steel mandrel are used.

(4) Portable abrasive wheels used for internal grinding shall be provided with safety flanges (protection flanges) meeting the requirements of (6) of this section, except as follows:

(a) When wheels 2 inches or less in diameter which are securely mounted on the end of a steel mandrel are used.

(b) If the wheel is entirely within the work being ground while in use.

(5) When safety guards are required, they shall be so mounted as to maintain proper alignment with the wheel, and the guard and its fastenings shall be of sufficient strength to retain fragments of the wheel in case of accidental breakage. The maximum angular exposure of the grinding wheel periphery and sides shall not exceed 180 degrees.

(6) When safety flanges are required, they shall be used only with wheels designed to fit the flanges. Only safety flanges of a type and design and properly assembled so as to insure that the pieces of the wheel will be retained in case of accidental breakage shall be used.

(7) All abrasive wheels shall be closely inspected and ring tested before mounting to ensure that they are free from cracks or defects.

(8) Grinding wheels shall fit freely on the spindle and shall not be forced on. The spindle nut shall be tightened only enough to hold the wheel in place.

(9) The power supply shall be sufficient to maintain the rated spindle speed under all conditions of normal grinding. The rated maximum speed of the wheel shall not be exceeded.

(10) The employer must ensure that all employees using abrasive wheels are protected by eye protection equipment that meets the requirements of WAC 296-304-09005 (1) and (2), except when adequate eye protection is provided by eye shields permanently attached to the bench or floor stand.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-08007, filed 12/26/97, effective 3/1/98; Order 74-25, § 296-304-08007, filed 5/7/74.]

WAC 296-304-08009 Powder-actuated fastening tools. (1) The employer must ensure powder-actuated fastening tools are used, designed, constructed, and maintained according to the requirements of WAC 296-24-663, Safety requirements for powder-actuated fastening systems.

(2) The employer must ensure that employees using powder-actuated fastening tools are protected by personal protective equipment that meets the requirements of WAC 296-304-09005 (1) and (2). The employer must also meet the hearing conservation requirements of the general occupational health standards, chapter 296-62 WAC, Part K.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-08009, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 95-04-006, § 296-304-08009, filed 1/18/95, effective 3/10/95; Order 76-7, § 296-304-08009, filed 3/1/76; Order 74-25, § 296-304-08009, filed 5/7/74.]

WAC 296-304-090 Personal protective equipment (PPE)—General requirements. The employer must provide and ensure that each affected employee uses the appropriate personal protective equipment (PPE) for the eyes, face, head, extremities, torso, and respiratory system, including protective clothing, protective shields, hearing protection, protective barriers, personal fall protection equipment, and life saving equipment, wherever the employee is exposed to hazards that require the use of PPE. The employer must furnish the personal protective equipment at no cost to employees if:

- The intended purpose is to protect against hazardous materials (the PPE may be contaminated by hazardous materials in the course of employment); or
- The PPE is of such a nature that it would not reasonably be worn outside the worksite.

The provision of personal protective equipment which may reasonably be worn outside of the workplace is subject to labor-management negotiations, but the employer must ensure that exposed employees are wearing the appropriate PPE.

Examples of PPE that must be provided at no cost to employees include but are not limited to:

- Boots worn to protect against chemicals;
- Nonprescription protective eye wear;
- Goggles to fit over prescription eye wear;
- Metatarsal protection;
- Full body harnesses and lanyards.

Examples of PPE that provision is subject to labor-management negotiation include but are not limited to:

- Leather boots with or without steel toes;
- Coats to protect against inclement weather;
- Prescription protective eye wear (except as part of a full facepiece or hooded respirator).

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-090, filed 12/26/97, effective 3/1/98; Order 74-25, § 296-304-090, filed 5/7/74.]

WAC 296-304-09001 Hazard assessment and equipment selection. (1) The employer must assess its work activity to determine if hazards that require the use of personal protective equipment (PPE) are present, or are likely to be present.

(a) If such hazards are present, or likely to be present, the employer must:

(i) Select, and require each affected employee to use, PPE that will protect the employee from the hazards identified in the hazard assessment;

(ii) Inform the affected employee what types of PPE to use;

(iii) Select PPE that properly fits the affected employee; and

(iv) Verify that the hazard assessment has been performed through a document that contains the following information:

- Work activity evaluated;
- Occupation;
- Date(s) of the hazard assessment; and
- The name of the person performing the hazard assessment.

Note: A hazard assessment conducted according to the trade or occupation of affected employees will be considered to comply with this requirement if it addresses all PPE - related hazards to which employees are exposed in the course of their work activities.

(2) The employer must ensure that employees do not use defective or damaged PPE.

(3) The employer must ensure that all unsanitary PPE, including all previously used PPE, is cleaned and disinfected before it is reissued.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09001, filed 12/26/97, effective 3/1/98; Order 76-7, § 296-304-09001, filed 3/1/76; Order 74-25, § 296-304-09001, filed 5/7/74.]

WAC 296-304-09003 Training. The employer must provide training to each employee for whom PPE is required by this section.

(1) Each employee whose work activities require the use of PPE must be trained to know at least the following:

(a) When PPE is necessary;

(b) What PPE is necessary;

(c) How to properly put on, take off, adjust, and wear PPE;

(d) The limitations of the PPE; and

(e) The proper care, maintenance, useful life and disposal of the PPE.

(2) The employer must ensure that each affected employee demonstrates the ability to use PPE properly before being allowed to perform work where its use is required.

(3) The employer must retrain any employee who does not understand or display the skills required by subsection (2) of this section. Circumstances where retraining is required include, but are not limited to, situations where:

(a) Changes in occupation or work make previous training obsolete; or

(b) Changes in the types of PPE to be used make previous training obsolete; or

(c) Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the understanding or skill.

(4) The employer must verify that each affected employee has received the required training through a document that contains the following information:

- Name of each employee trained;
- Date(s) of training; and
- Type of training the employee received.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09003, filed 12/26/97, effective 3/1/98. Statutory Authority: Chapter 49.17 RCW. 93-19-142 (Order 93-04), § 296-304-09003, filed 9/22/93, effective 11/1/93. Statutory Authority: RCW 49.17.040 and 49.17.050. 83-24-013 (Order 83-34), § 296-304-09003, filed 11/30/83; Order 74-25, § 296-304-09003, filed 5/7/74.]

WAC 296-304-09005 Eye and face protection. (1)

The employer must provide each affected employee with eye and face protection according to the following requirements:

(a) Each affected employee must use appropriate eye or face protection when exposed to eye or face hazards caused by flying particles, molten metal, liquid chemicals, acid or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

(b) Each affected employee must use eye or face protection that provides side protection when there is a hazard from flying objects. A detachable side protector (e.g., a clip-on or slide-on side shield) that meets the requirements of this section is acceptable.

(c) Each affected employee who wears prescription lenses must:

- Use eye protection that incorporates the prescription in its design; or
- Be protected by eye protection that can be worn over prescription lenses without disturbing the proper position of either the PPE or the prescription lenses.

(d) Each affected employee must use equipment with filter lenses of a shade that provides appropriate protection from injurious light radiation. Tables I-1A and I-1B lists the appropriate shade numbers for various operations. If filter lenses are used in goggles worn under a helmet with a lens, the shade number of the lens in the helmet may be reduced so that the shade numbers of the two lenses will equal the value shown in the Tables I-1A and I-1B.

(2) The employer must ensure that all protective eye and face devices meet the following criteria:

(a) Protective eye and face devices purchased after February 20, 1995, comply with the American National Standards Institute, ANSI Z87.1-1989, "Practice for Occupational and Educational Eye and Face Protection," or the employer demonstrates that the devices are equally effective.

(b) Eye and face protective devices purchased before February 20, 1995, comply with "American National Standard Practice for Occupational and Educational Eye and Face Protection, Z87.1-1979," or the employer demonstrates that the devices are equally effective.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09005, filed 12/26/97, effective 3/1/98; Order 74-25, § 296-304-09005, filed 5/7/74.]

WAC 296-304-09007 Respiratory protection. The employer must provide respiratory protection that meets the requirements of the general occupational health standards, chapter 296-62 WAC, Part E.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09007, filed 12/26/97, effective 3/1/98; Order 76-7, § 296-304-09007, filed 3/1/76; Order 74-25, § 296-304-09007, filed 5/7/74.]

WAC 296-304-09009 Hearing protection. The employer must meet the hearing conservation requirements of the general occupational health standards, chapter 296-62 WAC, Part K.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09009, filed 12/26/97, effective 3/1/98.]

WAC 296-304-09011 Head protection. (1) The employer must provide each affected employee with head protection according to the following requirements:

(a) Each affected employee wears a protective helmet when working in areas where there is a potential for injury to the head.

(b) Each affected employee wears a protective helmet designed to reduce electrical shock hazards where there is potential for electric shock or burns from contact with exposed electrical conductors that could contact the head.

(2) The employer must ensure that all protective helmets meet the following criteria:

(a) Protective helmets purchased before February 20, 1995, comply with the "American National Standard Safety Requirements for Industrial Head Protection, Z89.1-1969," or the employer demonstrates that they are equally effective.

(b) Protective helmets purchased after February 20, 1995, comply with ANSI Z89.1-1986, "Personnel Protection—Protective Headwear for Industrial Workers—Requirements," or the employer demonstrates that they are equally effective.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09011, filed 12/26/97, effective 3/1/98.]

WAC 296-304-09013 Foot protection. (1) The employer must ensure that each affected employee wears protective footwear when working in areas where:

- There is a danger of foot injuries from falling or rolling objects;
- There is a danger of foot injuries from objects piercing the sole; or
- Where an employee's feet are exposed to electrical hazards.

(2) The employer must ensure that all protective footwear meets the following criteria:

(a) Protective footwear purchased before February 20, 1995, complies with the ANSI standard "USA Standard for Men's Safety-Toe Footwear," ANSI Z41-1983, or the employer demonstrates that footwear is equally effective.

(b) Protective footwear purchased after February 20, 1995, complies with ANSI Z41-1991, "American National

Standard for Personal Protection—Protective Footwear," or the employer demonstrates that footwear is equally effective.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09013, filed 12/26/97, effective 3/1/98.]

WAC 296-304-09015 Hand and body protection.

The employer must ensure that each affected employee uses appropriate hand protection and other protective clothing where there is exposure to hazards such as:

- Skin absorption of harmful substances;
- Severe cuts or lacerations;
- Severe abrasions;
- Punctures;
- Chemical burns;
- Thermal burns;
- Harmful temperature extremes; and
- Sharp objects.

(1) Hot work operations. The employer must ensure that an employee's clothing is free from flammable or combustible materials (such as grease or oil) while engaged in hot work operations or working near an ignition or oxygen source.

(2) Electrical protective devices. The employer must ensure that each affected employee wears protective electrical insulating gloves and sleeves or other electrical protective equipment, if that employee is exposed to electrical shock hazards while working on electrical equipment.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09015, filed 12/26/97, effective 3/1/98.]

WAC 296-304-09017 Lifesaving equipment. (1) Personal flotation devices (PFD).

(a) The employer must ensure that each personal flotation device (life preservers, life jackets and work vests) worn by an affected employee is:

- United States Coast Guard (USCG) approved and marked Type I PFD, Type II PFD, or Type III PFD; or
- USCG approved Type V PFD, marked for use as a work vest, for commercial use, or for use on vessels.

Note: The requirements for USCG approval are in 46 CFR Part 160, Subpart Q, Coast Guard Lifesaving Equipment Specifications.

(b) The employer must ensure that each personal flotation device is inspected before use for dry rot, chemical damage, or other defects that may affect its strength and buoyancy. Defective personal flotation devices shall not be used.

(2) Ring life buoys and ladders.

(a) The employer must ensure that when work is performed on a floating vessel 200 feet (61 m) or more in length, at least three 30-inch (0.76 m) U.S. Coast Guard approved ring life buoys with lines attached are located in readily visible and accessible places. Ring life buoys must be located one forward, one aft, and one at the access to the gangway.

(b) On floating vessels under 200 feet (61 m) in length, at least one 30-inch (0.76 m) U.S. Coast Guard approved ring life buoy with line attached must be located at the gangway.

(c) At least one 30-inch (0.76 m) U.S. Coast Guard approved ring life buoy with a line attached must be located on each staging alongside of a floating vessel on which work is performed.

(d) At least 90 feet (27 m) of line must be attached to each ring life buoy.

(e) There must be at least one portable or permanent ladder near each floating vessel on which work is performed. The ladder must be long enough to help an employee reach safety in the event of a fall into the water.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09017, filed 12/26/97, effective 3/1/98.]

WAC 296-304-09019 Fall protection—General requirement. The employer must provide and ensure the use of fall protection when employees work aloft or elsewhere at elevations more than 5 feet above a solid surface.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09019, filed 12/26/97, effective 3/1/98.]

WAC 296-304-09021 Personal fall arrest systems (PFAS). Personal fall arrest systems must meet the requirements of this section.

(1) The employer must ensure that connectors and anchorages meet the following criteria:

(a) Connectors are made of drop forged, pressed, or formed steel or of materials with equivalent strength.

(b) Connectors have a corrosion-resistant finish, and all surfaces and edges are smooth to prevent damage to the interfacing parts of the system.

(c) D-rings and snaphooks can sustain a minimum tensile load of 5,000 pounds (22.2 Kn).

(d) D-rings and snaphooks are proof-tested to a minimum tensile load of 3,600 pounds (16 Kn) without cracking, breaking, or being permanently deformed.

(e) Snaphooks lock and are designed and used to prevent disengagement of the snaphook by contact of the snaphook keeper with the connected part.

(f) On suspended scaffolds or similar work platforms with horizontal lifelines that may become vertical lifelines, the devices used for connection to the horizontal lifeline can lock in any direction on the lifeline.

(g) Anchorages used for attachment of personal fall arrest equipment are independent of any anchorage used to support or suspend platforms.

(h) Anchorages can support at least 5,000 pounds (22.2 Kn) per employee attached, or are designed, installed, and used as follows:

(i) As part of a complete personal fall arrest system that maintains a safety factor of at least two; and

(ii) Under the direction and supervision of a qualified person.

(2) The employer must ensure that lifelines, lanyards, and personal fall arrest systems meet the following criteria:

(a) When vertical lifelines are used, each employee has a separate lifeline.

(b) Vertical lifelines and lanyards have a minimum tensile strength of 5,000 pounds (22.2 Kn).

(c) Self-retracting lifelines and lanyards that automatically limit free fall distances to 2 feet (0.61 m) or less can

sustain a minimum tensile load of 3000 pounds (13.3 Kn) applied to a self-retracting lifeline or lanyard with the lifeline or lanyard in the fully extended position.

(d) Self-retracting lifelines and lanyards which do not limit free fall distance to 2 feet (0.61 m) or less, ripstitch lanyards and tearing and deforming lanyards can sustain a minimum static tensile load of 5,000 pounds (22.2 Kn) applied to the device when they are in the fully extended position.

(e) Horizontal lifelines are designed, installed, and used under the supervision of a qualified person, and only used as part of a complete personal fall arrest system that maintains a safety factor of at least two.

Note: The system strength needs below are based on a maximum combined weight of employee and tools of 310 pounds. If combined weight is more than 310 pounds, appropriate allowances must be made or the system will not be in compliance.

(f) Effective April 20, 1998, the employer must ensure that personal fall arrest systems:

(i) Limit the maximum arresting force on a falling employee to 1,800 pounds (8 Kn) when used with a body harness;

(ii) Bring a falling employee to a complete stop and limit the maximum deceleration distance an employee travels to 3.5 feet (1.07 m); and

(iii) Are strong enough to withstand twice the potential impact energy of an employee free falling a distance of 6 feet (1.8 m), or the free fall distance permitted by the system, whichever is less.

(g) The employer must ensure that personal fall arrest systems are rigged so that an employee can neither free fall more than 6 feet (1.8 m) nor contact any lower level.

(3) The employer must select, use, and care for systems and system components according to the following requirements:

(a) Lanyards are attached to employees using personal fall arrest systems, as follows:

The attachment point of a body harness is in the center of the wearer's back near the shoulder level, or above the wearer's head. If the maximum free fall distance is 20 inches, the attachment point may be located in the chest position.

(b) Ropes and straps (webbing) used in lanyards, lifelines and strength components of body harnesses are made from synthetic fibers or wire rope.

(c) Ropes, harnesses, and lanyards are compatible with their hardware.

(d) Lifelines and lanyards are protected against cuts, abrasions, burns from hot work operations and deterioration by acids, solvents, and other chemicals.

(e) Personal fall arrest systems are inspected before each use for mildew, wear, damage, and other deterioration. Defective components are removed from service.

(f) Personal fall arrest systems and components subjected to impact loading are immediately removed from service and not used again for employee protection until inspected and determined by a qualified persons to be undamaged and suitable for reuse.

(g) The employer must provide for prompt rescue of employees in the event of a fall or must ensure that employees are able to rescue themselves.

(h) Personal fall arrest systems and components are used only for employee fall protection and not to hoist materials.

(4) Training. Before using personal fall arrest equipment, the employer must ensure that each affected employee is trained to understand the application limits of the equipment and proper hook-up, anchoring, and tie-off techniques. Affected employees must also be trained to demonstrate the proper use, inspection, and storage of their equipment.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09021, filed 12/26/97, effective 3/1/98.]

WAC 296-304-09023 Positioning device systems.

The employer must ensure that positioning device systems and their use meet the requirements of this section.

(1) The employer must ensure that connectors and anchorages meet the following criteria:

(a) Connectors have a corrosion-resistant finish, and all surfaces and edges are smooth to prevent damage to interfacing parts of this system.

(b) Connecting assemblies have a minimum tensile strength of 5,000 pounds (22.2 Kn).

(c) Positioning device systems are secured to an anchorage that can support at least twice the potential impact load of an employee's fall.

(d) Only locking type snaphooks are used in positioning device systems.

(2) The employer must ensure that positioning device systems meet the following criteria:

(a) Restraint (tether) lines have a minimum breaking strength of 3,000 pounds (13.3 Kn).

(b) Beginning April 20, 1998, the following system performance criteria for positioning device systems are met:

(i) A window cleaner's positioning system can withstand without failure, a drop test consisting of a 6-foot (1.83 m) drop of a 250-pound (113 kg) weight. The system limits the initial arresting force to a maximum of 2,000 pounds (8.89 Kn), with a maximum duration of 2 milliseconds. The system limits any subsequent arresting forces imposed on the falling employee to a maximum of 1,000 pounds (4.45 Kn);

(ii) All other positioning device systems can withstand without failure a drop test consisting of a 4-foot (1.2 m) drop of a 250-pound (113 kg) weight.

(3) The employer must ensure that a positioning device system is used and cared for according to the following requirements:

(a) Positioning device systems are inspected before each use for mildew, wear, damage, and other deterioration. Defective components are removed from service.

(b) A positioning device system or component subjected to impact loading is immediately removed from service and not used again for employee protection, unless inspected and determined by a qualified person to be undamaged and suitable for reuse.

(4) Training. Before using a positioning device system, the employer must ensure that employees are trained in the application limits, proper hook-up, anchoring and tie-off techniques, methods of use, inspection, and storage of positioning device systems.

[Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. 98-02-006, § 296-304-09023, filed 12/26/97, effective 3/1/98.]

Chapter 296-306 WAC
SAFETY STANDARDS FOR AGRICULTURE

WAC

296-306-060 through 296-306-40009 Repealed.

**DISPOSITION OF SECTIONS FORMERLY
CODIFIED IN THIS CHAPTER**

296-306-060 Personal protective equipment. [Statutory Authority: Chapter 49.17 RCW. 93-07-012 (Order 92-24), § 296-306-060, filed 3/5/93, effective 6/1/93. Statutory Authority: RCW 49.17.040 and 49.17.050. 83-24-013 (Order 83-34), § 296-306-060, filed 11/30/83; Order 75-2, § 296-306-060, filed 1/24/75.] Repealed by 97-08-051A, filed 3/31/97, effective 5/1/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060.

296-306-330 Decontamination. [Statutory Authority: Chapter 49.17 RCW. 93-07-012 (Order 92-24), § 296-306-330, filed 3/5/93, effective 6/1/93.] Repealed by 97-08-051A, filed 3/31/97, effective 5/1/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060.

296-306-400 Posting requirements. [Statutory Authority: Chapter 49.17 RCW. 94-06-068 (Order 93-17), § 296-306-400, filed 3/2/94, effective 4/15/94; 93-07-012 (Order 92-24), § 296-306-400, filed 3/5/93, effective 6/1/93; 91-24-017 (Order 91-07), § 296-306-400, filed 11/22/91, effective 12/24/91. Statutory Authority: Chapters 49.17 and 49.70 RCW. 90-11-023 (Order 89-19), § 296-306-400, filed 5/9/90, effective 7/1/90.] Repealed by 97-08-051A, filed 3/31/97, effective 5/1/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060.

296-306-40007 Emergency medical care information. [Statutory Authority: Chapter 49.17 RCW. 93-07-012 (Order 92-24), § 296-306-40007, filed 3/5/93, effective 6/1/93.] Repealed by 97-08-051A, filed 3/31/97, effective 5/1/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060.

296-306-40009 Emergency assistance. [Statutory Authority: Chapter 49.17 RCW. 93-07-012 (Order 92-24), § 296-306-40009, filed 3/5/93, effective 6/1/93.] Repealed by 97-08-051A, filed 3/31/97, effective 5/1/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060.

WAC 296-306-060 through 296-306-40009 Repealed.
See Disposition Table at beginning of this chapter.

Chapter 296-306A WAC
SAFETY STANDARDS FOR AGRICULTURE

WAC

296-306A-003 through 296-306A-53017 Decodified.

**DISPOSITION OF SECTIONS FORMERLY
CODIFIED IN THIS CHAPTER**

296-306A-003 How is this chapter divided? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-006 What does this chapter cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-009 What definitions apply to this chapter? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-012

What does it mean when equipment is approved by a nonstate organization? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-015

What must an employer do if a serious injury occurs? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-018

What are the employer's responsibilities? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-021

What are the employee's responsibilities? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-024

How does an employer apply for a variance? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-024, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-030

What are the required elements of an accident prevention program? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-030, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-033

How often must safety meetings be held? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-033, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-036

What items go on the safety bulletin board? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-036, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-039

How many people at the worksite must be first-aid trained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-039, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-042

Must an employer provide first-aid kits? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-042, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-045

What are the requirements of the safe place standard? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-045, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-050

What requirements apply to hand tools? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-050, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-055

Ladders. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-055, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-05501

How must ladders be cared for and maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05501, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-05503	How must an employer instruct employees to use ladders? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05503, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-073, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-05505	How must orchard ladders be used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05505, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-076 How must farm field equipment be guarded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-076, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-05507	What other requirements apply to ladders? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05507, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-080 Rollover protective structures (ROPS) for tractors. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-080, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-060	What requirements apply to job-made ladders? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-060, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-08003 Which agricultural tractors are covered by this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-061	What requirements apply to working around bins, bunkers, hoppers, tanks, pits, and trenches? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-061, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-08006 What definitions apply to rollover protective structures (ROPS) for agricultural tractors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-065	How must slow-moving vehicles be marked? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-065, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-08009 What requirements apply to the testing and performance of ROPS used on agricultural tractors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-070	Motor vehicles. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-070, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-08012 What requirements apply to seatbelts used with ROPS on agricultural tractors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-07001	How must motor vehicles be maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-08015 When are ROPS not required on agricultural tractors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-07003	How must motor vehicles be operated? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-08018 What employee training requirements apply to ROPS used on agricultural tractors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-08-051A, § 296-306A-08018, filed 3/31/97, effective 5/1/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-07005	Who may operate motor vehicles? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-08021 What other requirements apply to ROPS used on agricultural tractors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-07007	What requirements apply to motor vehicle brakes? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-085 When must ROPS be provided for material handling equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-085, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-07009	How must motor vehicles be loaded and unloaded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-090 What requirements apply to overhead protection for operators of agricultural and industrial tractors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-090, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-07011	What safety equipment must motor vehicles have? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-095 Field sanitation. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-095, filed 10/31/96, effective 12/1/96.]
296-306A-07013	What rules apply to vehicles used to transport employees? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
296-306A-073	What requirements apply to changing and charging storage batteries? [Statutory Authority: RCW	

	Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-110, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-09503	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09503, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-11005	Definitions—Worker protection standards—40 CFR, § 170.3. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-11005, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-09506	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09506, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-11010	General duties and prohibited actions—Worker protection standards—40 CFR, § 170.7. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-11010, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-09509	What orientation must employers provide for field sanitation? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09509, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-11015	Violations of this part—Worker protection standards—40 CFR, § 170.9. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-11015, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-09512	What potable water sources must an employer provide? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09512, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-120	Applicability of this section—Standards for workers—40 CFR, § 170.102. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-120, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-09515	What handwashing facilities must an employer provide? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09515, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-12005	Exceptions—Standards for workers—40 CFR, § 170.103. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12005, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-09518	What toilet facilities must an employer provide? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09518, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-12010	Exemptions—Standards for workers—40 CFR, § 170.104. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12010, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-100	Personal protective equipment. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-100, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-12015	Restrictions associated with pesticide applications—Standards for workers—40 CFR, § 170.110. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12015, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-10005	Who must provide personal protective equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-10005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-12020	Entry restrictions—Standards for workers—40 CFR, § 170.112. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12020, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-10010	What requirements apply to eye protection? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-10010, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-12025	Notice of applications—Standards for workers—40 CFR, § 170.120. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12025, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-10015	How must personal protective equipment be used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-10015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-12030	Providing specific information about applications—Standards for workers—40 CFR, § 170.122. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12030, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-10020	What must an employer do to prevent heat-related illness? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-10020, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-12035	Notice of applications to handler employers—Standards for workers—40 CFR, § 170.124. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-08, § 296-306A-12035, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-10025	What instruction on personal protective equipment must an employer give to employees? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-10025, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-12040	Pesticide safety training—Standards for workers—40 CFR, § 170.130. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12040, filed 9/30/96, effective 11/1/96.]
296-306A-107	Federal worker protection standards—Washington state department of agriculture. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-107, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-110	Scope and purpose—Worker protection standards—40 CFR, § 170.1. [Statutory Authority: RCW		

	Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-12045	Posted pesticide safety information—Standards for workers—40 CFR, § 170.135. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12045, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-13045	Personal protective equipment—Standards for pesticide handlers—40 CFR, § 170.240. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13045, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-12050	Decontamination—Standards for workers—40 CFR, § 170.150. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12050, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-13050	Decontamination—Standards for pesticide handlers—40 CFR, § 170.250. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13050, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-12055	Emergency assistance—Standards for workers—40 CFR, § 170.160. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12055, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-13055	Emergency assistance—Standards for pesticide handlers—40 CFR, § 170.260. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13055, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-130	Applicability of this section—Standards for pesticide handlers—40 CFR, § 170.202. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-130, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-145	Pesticides recordkeeping. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-145, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-13005	Exemptions—Standards for handlers—40 CFR, § 170.204. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13005, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-14505	What records must an employer keep for pesticide applications? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-14505, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-13010	Restrictions during applications—Standards for pesticide handlers—40 CFR, § 170.210. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13010, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-14510	What do the pesticides forms look like? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-14510, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-13015	Providing specific information about applications—Standards for pesticide handlers—40 CFR, § 170.222. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13015, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-14520	What are the department's recommendations for cholinesterase monitoring? (Nonmandatory) [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-14520, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-13020	Notice of applications to agricultural employers—Standards for pesticide handlers—40 CFR, § 170.224. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13020, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-150	Employees working near overhead lines. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-150, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-13025	Pesticide safety training—Standards for pesticide handlers—40 CFR, § 170.230. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13025, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-15003	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-15003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-13030	Knowledge of labeling and site-specific information—Standards for pesticide handlers—40 CFR, § 170.232. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13030, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-15006	What clearance and safeguards are required to protect employees working near overhead lines? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-15006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-13035	Safe operation of equipment—Standards for pesticide handlers—40 CFR, § 170.234. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13035, filed 9/30/96, effective 11/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-15009	What signs must an employer post to warn employees working near overhead lines? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-15009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-13040	Posted pesticide safety information—Standards for pesticide handlers—40 CFR, § 170.235. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13040, filed	296-306A-15012	When must an employer notify the utility of employees working near overhead lines? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-15012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
		296-306A-160	Temporary labor camps. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-160, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-16001	What requirements apply to camp sites? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-18503	What general requirements apply to powered saws? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-18503, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16003	How must camp shelters be constructed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-08-051A, § 296-306A-16003, filed 3/31/97, effective 5/1/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-18506	How must band saws be guarded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-18506, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16005	What requirements apply to the water supply? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-18509	How must radial arm saws be guarded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-18509, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16007	Must an employer provide toilet facilities for the camp? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-18512	How must table saws be guarded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-18512, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16009	Must sewer lines connect to public sewers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-18515	How must circular fuel-wood saws be guarded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-18515, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16011	What facilities must an employer provide for laundry, handwashing, and bathing? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-190	Guarding bench grinders and abrasive wheels. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-190, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16013	What lighting must an employer provide in camp buildings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-08-051A, § 296-306A-16013, filed 3/31/97, effective 5/1/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-19003	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16015	What requirements apply to refuse disposal? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-19006	What rules apply to guarding abrasive wheels? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16017	How must kitchens, dining halls, and feeding facilities be constructed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-19009	What are the use, mounting, and guarding rules for abrasive wheels? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16019	Must an employer provide insect and rodent control? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16019, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-19012	What requirements apply to flanges? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16021	What first-aid facilities must be available in the camp? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-19015	How must vertical portable grinders be guarded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-16023	When must an employer report communicable diseases in a camp? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16023, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-19018	How must other portable grinders be guarded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-185	Guarding powered saws. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-185, filed 10/31/96, effective	296-306A-195	What rules apply to grounding and "dead man" controls for hand-held portable power tools? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-195, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
		296-306A-200	Compressed air. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-200, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-20005	May compressed air be used for cleaning? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-20005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-22506	How shall the rated load be marked on a jack? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22506, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-20010	What requirements apply to compressed air tools? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-20010, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-22509	What rules apply to the operation and maintenance of jacks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22509, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-205	Guarding portable powered tools. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-205, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-230	What are the general requirements for materials handling and storage? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-230, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-20505	What requirements apply to guarding portable powered tools? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-20505, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-232	What requirements apply to conveyors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-232, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-20510	What requirements apply to switches and controls on portable powered tools? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-20510, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-240	Sanitation for fixed, indoor workplaces. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-240, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-20515	What requirements apply to pneumatic powered tools and hose? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-20515, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-24001	Must an employer comply with state health regulations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-220	Power lawnmowers. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-220, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-24003	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-22003	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-24006	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-22006	What are the general guarding requirements for power lawnmowers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-24009	What housekeeping requirements apply to fixed, indoor workplaces? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-22009	What rules apply to walk-behind and riding rotary mowers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-24012	How must the potable water supply be maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-22012	What rules apply to walk-behind rotary mowers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-24015	How must the nonpotable water supply be maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-22015	What rules apply to riding rotary mowers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-24018	What toilet facilities must an employer provide? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-225	Jacks. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-225, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-24021	What washing facilities must an employer provide? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-22503	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22503, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-24024	What requirements apply to lavatories? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24024, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-24027	When must an employer provide change rooms? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24027, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-25030	What requirements apply to toeboards? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25030, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-24030	What requirements apply to consumption of food and beverages in the workplace? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24030, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-25033	How must handrails and railings be constructed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25033, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-24033	How must waste be stored and removed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24033, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-25036	What materials may be used for floor opening covers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25036, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-24036	When must an employer have a vermin control program? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24036, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-25039	How must skylight screens be constructed and mounted? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25039, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-250	Walking working surfaces, elevated walkways, and platforms. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-250, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-25042	What protection must an employer provide for wall openings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25042, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-25003	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-260	Fixed industrial stairs. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-260, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-25006	When may railings be omitted? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-26003	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-25009	What protection must an employer provide for floor openings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-26006	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-25012	What protection must an employer provide for wall openings and holes? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-26009	Where are fixed stairs required? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-25015	What protection must an employer provide for open-sided floors, platforms, and runways? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-26012	Where are spiral stairs prohibited? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-25018	What requirements apply to stairway railings and guards? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-26015	How strong must fixed stairs be? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-25021	How must a standard railing be constructed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-26018	How wide must fixed stairs be? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-25024	How must a stair railing be constructed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25024, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-26021	What angles may stairways be installed at? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-25027	What are the requirements for railing dimensions? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25027,	296-306A-26024	What requirements apply to stair treads? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26024, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-26027	What requirements apply to the length of stairways? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26027, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-26030	What requirements apply to railings and handrails on fixed stairs? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26030, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28014	What requirements apply to prime-mover guards? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28014, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-26033	What requirements apply to alternating tread-type stairs? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26033, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28016	What requirements apply to guarding shafting? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28016, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-26036	What other requirements apply to fixed stairs? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26036, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28018	What requirements apply to guarding pulleys? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-270	Aerial manlift equipment. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-270, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28020	What requirements apply to guarding horizontal belt, rope, and chain drives? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28020, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-27005	What requirements apply to aerial manlift equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-27005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28022	What requirements apply to guarding overhead horizontal belt, rope, and chain drives? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28022, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-27010	What requirements apply to using aerial manlift equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-27010, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28024	What requirements apply to guarding vertical and inclined belts? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28024, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-280	Guarding power transmission machinery. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-280, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28026	What requirements apply to guarding cone-pulley belts? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28026, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-28002	What power transmission belts are covered by this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28002, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28028	What requirements apply to guarding belt tighteners? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28028, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-28004	What does "guarded by location" mean? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28004, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28030	What requirements apply to guarding gears, sprockets, and chains? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28030, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-28006	What general requirements apply to machine guarding? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28032	What requirements apply to guarding friction drives? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28032, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-28008	What training must an employer provide for employees who use agricultural equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28008, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28034	What requirements apply to guarding keys, set screws, and other projections? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28034, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-28010	What requirements apply to machine controls? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28010, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-28036	What requirements apply to guarding collars and couplings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28036, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-28012	What requirements apply to guarding steam pipes? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28012,	296-306A-28038	Must self-lubricating bearings be used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28038, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

- 296-306A-28040 What requirements apply to guarding clutches, cutoff couplings, and clutch pulleys? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28040, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28042 What requirements apply to guarding belt shifters, clutches, shippers, poles, perches, and fasteners? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28042, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28044 What materials must be used for standard guards? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28044, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28046 How must standard guards be manufactured? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28046, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28048 What requirements apply to disk, shield, and U-guards? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28048, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28050 What materials must be used for guards? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28050, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28052 When may wood guards be used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28052, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28054 What materials may be used for guarding horizontal overhead belts? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28054, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28056 What clearance must be maintained between guards and power transmission machinery? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28056, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28058 How must overhead rope and chain-dive guards be constructed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28058, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28060 What materials must be used for guardrails and toeboards? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28060, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28062 How must shafting be maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28062, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28064 How must pulleys be maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28064, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28066 How must belts be maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28066, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-28068 How must other equipment be maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28068, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-290 Auger conveying equipment. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-290, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-29005 What requirements apply to auger conveying equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-29005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-29010 What other requirements apply to auger conveying equipment manufactured after October 25, 1976? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-29010, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-300 Guarding farmstead equipment. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-300, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-30003 What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-30006 How must power takeoff shafts of farmstead equipment be guarded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-30009 How must other power transmission components of farmstead equipment be guarded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-30012 How must functional components of farmstead equipment be guarded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-30015 When may guards be removed on farmstead equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-30018 What requirements apply to electrical control for maintaining and servicing farmstead equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-30021 What additional guarding requirements apply to farmstead equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-320 Control of hazardous energy (lockout-tagout). [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-320, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-32001	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-08-051A, § 296-306A-32001, filed 3/31/97, effective 5/1/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-32027	Who may perform lockout or tagout? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32027, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32003	When does this section not apply? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-32029	Who must be notified of lockout and tagout? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32029, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32005	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-32031	What order of events must lockout or tagout procedures follow? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32031, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32007	What are the required elements of an energy control program? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-32033	What order of events must be followed to remove lockout or tagout devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32033, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32009	How does an employer determine when to use lockout vs. tagout? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-32035	What requirements apply to testing and positioning machines and equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32035, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32011	What requirements must be met to substitute tagout for lockout? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-32037	What requirements apply to outside servicing contractors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32037, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32013	What are the required elements of energy control procedures? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-32039	What requirements apply to group lockout or tagout? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32039, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32015	What requirements apply to lockout and tagout devices and materials? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-32041	What requirements apply to lockout/tagout during shift changes? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32041, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32017	How often must the energy control procedure be inspected? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-330	Safety color coding; accident prevention signs and tags. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-330, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32019	What general requirements apply to energy control program training and communication? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32019, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-33001	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32021	What additional requirements apply to tagout training and communication? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-33003	What does red identify in safety color coding? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32023	What requirements apply to employee retraining? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32023, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-33005	What does yellow identify in safety color coding? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-32025	What training records must an employer keep? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32025,	296-306A-33007	When should signs and tags use "danger" versus "caution"? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

- 296-306A-33009 What are the design and color specifications for accident prevention signs? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-33011 What are the proper uses of accident prevention tags? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-340 Portable fire extinguishers. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-340, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34003 What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34006 Who is exempt from the requirements of this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34009 What general requirements apply to portable fire extinguishers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34012 How should portable fire extinguishers be selected and distributed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34015 What are the requirements for inspection, maintenance and testing of portable fire extinguishers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34018 What requirements apply to hydrostatic testing? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34021 What are the training requirements for portable fire extinguishers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-345 Employee alarm systems. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-345, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34503 What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34503, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34506 What general requirements apply to employee alarm systems? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34506, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34509 What are the installation and restoration requirements for employee alarm systems? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34509, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34512 How must employee alarm systems be maintained and tested? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34512, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-34515 Where must manually operated devices be located? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34515, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-350 Exit routes. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-350, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-35003 What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-35006 What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-35009 What are the design requirements for exit routes? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-35012 What are the operation and maintenance requirements for exit routes? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-35015 What are the requirements for an emergency action plan? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-35018 What are the requirements for a fire prevention plan? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-360 Electrical. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-360, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-36005 What does this part cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-36010 What definitions apply to this part? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36010, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-362 General electrical requirements. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-362, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
- 296-306A-36203 What electrical equipment must be approved? [Statutory Authority: RCW 49.17.040, [49.17.]050

	and [49.17.]060. 96-22-048, § 296-306A-36203, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-36206	How must electrical equipment safety be determined? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36206, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36412	12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97. What grounding and bonding requirements apply to equipment installation and maintenance? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36412, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36209	What requirements apply to guarding live parts? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36209, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36415	What requirements apply to disconnecting means? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36415, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36212	What workspace must be provided? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36212, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36418	What requirements apply to identification and load rating of electrical equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36418, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36215	What general requirements apply to splices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36215, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36421	How must equipment be installed in wet locations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36421, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36218	What protection must be provided against combustible materials? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36218, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-366	Wiring design and protection. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-366, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36221	How must electrical equipment be marked? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36221, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36603	How must grounded and grounding conductors be used and identified? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36603, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36224	How must disconnecting means be marked? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36224, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36606	What ampere rating must outlet devices have? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36606, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36227	What access and working space must be provided for electrical equipment of 600 volts, nominal, or less? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36227, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36609	What requirements apply to conductors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36609, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36230	What access and working space must be provided for electrical equipment over 600 volts, nominal? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36230, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36612	What design and protection requirements apply to service-entrances? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36612, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-364	Electrical installation and maintenance. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-364, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36615	What overcurrent protection must be provided? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36615, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36403	How must flexible cords and cables be installed and maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36403, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36618	What premises wiring systems must be grounded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36618, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36406	How must attachment plugs and receptacles be installed and maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36406, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36621	Must the conductor be grounded for AC premises wiring? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36621, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36409	What must employees do when equipment causes electrical shock? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36409, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36624	What general requirements apply to grounding conductors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36624, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
		296-306A-36627	Must the path to ground be continuous? [Statutory Authority: RCW 49.17.040, [49.17.]050 and

	[49.17.]060. 96-22-048, § 296-306A-36627, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36830	How must flexible cords and cables be identified, spliced, and terminated? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36830, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36630	What supports, enclosures, and equipment must be grounded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36630, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36833	What requirements apply to multiconductor portable cable? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36833, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36633	How must fixed equipment be grounded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36633, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36836	When may fixture wires be used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36836, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36636	How must high voltage systems be grounded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36636, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36839	What requirements apply to wiring for lighting fixtures, lampholders, lamps, and receptacles? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36839, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-368	Wiring methods, components, and equipment for general use. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-368, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36842	What requirements apply to wiring for receptacles, cord connectors, and attachment plugs (caps)? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36842, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36803	Does this section apply to factory-assembled equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36803, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36845	What requirements apply to wiring for appliances? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36845, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36806	What wiring methods must be used for temporary wiring? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36806, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36848	What requirements apply to wiring for motors, motor circuits, and controllers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36848, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36809	When may cable trays be used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36809, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36851	What requirements apply to wiring for transformers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36851, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36812	What requirements apply to open wiring on insulators? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36812, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36854	What requirements apply to wiring for capacitors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36854, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36815	What wiring requirements apply to cabinets, boxes, and fittings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36815, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36857	How must storage batteries be ventilated? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36857, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36818	What requirements apply to switches? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36818, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-36860	What other miscellaneous requirements apply to wiring methods? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36860, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36821	Where must switchboards and panelboards be located? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36821, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-370	Special purpose equipment and installations. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-370, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36824	When must conductors be insulated? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36824, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37003	What requirements apply to cranes, hoists, and runways? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-36827	When may flexible cords and cables be used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36827, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37006	What requirements apply to elevators, dumbwaiters, escalators, and moving walks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-

	22-048, § 296-306A-37006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		306A-37409, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37009	What requirements apply to the disconnecting means for electric welders? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37412	What requirements apply to fire protective signaling systems? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37412, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37012	What requirements apply to electrically driven or controlled irrigation machines? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-376	Working on or near exposed energized parts. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-376, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-372	Hazardous (classified) locations. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-372, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37603	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37603, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37203	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37203, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37606	Who may work on energized parts? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37606, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37206	What classifications apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37206, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37609	What requirements apply to working near low voltage lines? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37609, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37209	What equipment, wiring methods, and installations may be used in hazardous locations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37209, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37612	What requirements apply to qualified persons working near overhead lines? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37612, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37212	How must conduit be installed in hazardous locations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37212, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37615	What requirements apply to vehicles and mechanical equipment near overhead lines? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37615, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37215	Which equipment may be used in Division 1 and 2 locations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37215, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37618	What lighting must be provided for employees working near exposed energized parts? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37618, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37218	What requirements apply to motors and generators used in hazardous locations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37218, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37621	What requirements apply to working near exposed energized parts in confined spaces? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37621, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-374	Special systems. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-374, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37624	What housekeeping requirements apply to working near exposed energized parts? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37624, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37403	What requirements apply to systems over 600 volts, nominal? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37403, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-37627	Who may defeat an electrical safety interlock? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37627, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37406	What requirements apply to emergency power systems? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37406, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-378	Safety-related work practices. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-378, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37409	How are Class 1, Class 2, and Class 3 remote control, signaling, and power-limited circuits classified? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-	296-306A-37801	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37801, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

296-306A-37803	How must employees be trained on safety practices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37803, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-38003	How must protective equipment be used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37805	How must safety-related work practices be chosen and used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37805, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-38006	What requirements apply to general protective equipment and tools? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38006, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37807	What work practices must be followed for work on exposed deenergized parts? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37807, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-38009	What manufacturing and marking requirements apply to electrical protective devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37809	Must an employer have a written copy of lockout-tagout procedures? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37809, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-38012	What electrical requirements apply to electrical protective devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38012, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37811	What work practices must be followed for deenergizing equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37811, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-38015	What workmanship and finish requirements apply to electrical protective devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37813	How must locks and tags be applied? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37813, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-38018	How must electrical protective devices be maintained and used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38018, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37815	What work practices must be followed to verify deenergization? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37815, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-400	Anhydrous ammonia. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-400, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37817	What work practices must be followed when reenergizing equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37817, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-40001	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37819	What safety-related work practices relate to portable electric equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37819, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-40003	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37821	What safety-related work practices relate to electric power and lighting circuits? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37821, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-40005	What general requirements apply to the storage and handling of anhydrous ammonia? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37823	What safety-related work practices relate to test instruments and equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37823, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-40007	What requirements apply to systems mounted on farm wagons (implements of husbandry) for the transportation of ammonia? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-37825	What safety-related work practices relate to flammable materials? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37825, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-40009	What requirements apply to systems mounted on farm wagons (implements of husbandry) for the application of ammonia? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-380	Electrical protective equipment. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-380, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-40011	What requirements must approved anhydrous ammonia equipment meet? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.

	12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40013	What requirements apply to the construction, original test, and requalification of nonrefrigerated containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-40039	What requirements apply to electrical equipment and wiring? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40039, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40015	How must nonrefrigerated containers and systems (other than DOT containers) be marked? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-410	Storage and handling of liquefied petroleum gases. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-410, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40017	Where may anhydrous ammonia containers be located? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41001	What does this part cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40019	What requirements apply to container accessories? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40019, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41003	Which LP-gas installations are not covered by this part? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40021	What requirements apply to piping, tubing, and fittings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41005	What definitions apply to this part? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40023	What specifications must hoses meet? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40023, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41007	When must LP-gas be odorized? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40025	What requirements apply to safety-relief devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40025, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41009	Must LP-gas containers and equipment be approved? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40027	What emergency precautions are required when handling anhydrous ammonia? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40027, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41011	What construction and test requirements must containers meet? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40029	What requirements apply to filling densities? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40029, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41013	How must containers be welded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40031	What requirements apply to the transfer of liquids? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40031, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41015	How must containers be marked? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40033	What requirements apply to tank car unloading points and operations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40033, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41017	Where must containers be located? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40035	What requirements apply to the liquid-level gauging device? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40035, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41019	What requirements apply to valves and accessories? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41019, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-40037	How should aboveground uninsulated containers be maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40037, filed 10/31/96, effective 12/1/96.]	296-306A-41021	What requirements apply to piping, tubing, and fittings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
		296-306A-41023	What specifications must hoses meet? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41023, filed

	10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41051	What requirements apply to appliances? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41051, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41025	What requirements apply to safety devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41025, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-415	Cylinder systems. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-415, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41027	How must indirect fired vaporizers be constructed and installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41027, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41501	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41501, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41029	How must atmospheric vaporizers be constructed and installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41029, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41503	What is a "cylinder system?" [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41503, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41031	How must direct gas-fired vaporizers be constructed and installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41031, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41505	How must containers be marked for cylinder systems? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41505, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41033	How must direct gas-fired tank heaters be constructed and installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41033, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41507	What additional requirements apply to cylinder systems installed outdoors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41507, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41035	How must dehydrators be constructed and installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41035, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41509	What additional requirements apply to cylinder system installed indoors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41509, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41037	What are the maximum filling densities? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41037, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41511	What requirements apply to valves and accessories? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41511, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41039	What requirements apply to LP-gas in buildings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41039, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41513	What requirements apply to safety devices for cylinder systems? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41513, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41041	What requirements apply to transfer of liquids? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41041, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-41515	What other requirements apply to cylinder systems? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41515, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41043	Must workers be trained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41043, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-420	Systems using non-DOT containers. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-420, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41045	What fire protection must be provided for LP-gas installations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41045, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42001	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41047	What electrical requirements apply to LP-gas installations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41047, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42003	How must non-DOT containers be designed and classified? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-41049	What requirements apply to liquid-level gauging devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41049, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42005	What requirements apply to valves and accessories, filler pipes, and discharge pipes for non-DOT containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42005, filed 10/31/96, effective 12/1/96.]

	Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42507	How must fuel containers be installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42507, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42007	What additional requirements apply to safety devices for non-DOT containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42509	What requirements apply to valves and accessories? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42509, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42009	When may non-DOT containers be reinstalled? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42511	What requirements apply to piping, tubing, and fittings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42511, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42011	What is the maximum capacity allowed for non-DOT containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42513	What requirements apply to safety devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42513, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42013	How must non-DOT containers be installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42515	What requirements apply to vaporizers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42515, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42015	How must non-DOT containers be protected? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42517	What requirements apply to gas regulating and mixing equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42517, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42017	What requirements apply to non-DOT containers in industrial plants? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42519	What is the maximum container capacity allowed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42519, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42019	What requirements apply to container-charging plants? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42019, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42521	What requirements apply to stationary engines used indoors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42521, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42021	What fire protection must be provided for non-DOT containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42523	What requirements apply to portable engines used indoors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42523, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42023	What other requirements apply to non-DOT containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42023, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42525	What requirements apply to industrial trucks used indoors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42525, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-425	LP-gas as a motor fuel. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-425, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-42527	How must LP-gas-fueled vehicles be garaged? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42527, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42501	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42501, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-430	Storage of container's awaiting use or resale. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-430, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42503	What general requirements apply to LP-gas used as a motor fuel? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42503, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-43001	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-42505	How must fuel containers be designed and classified? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42505, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-43003	What general requirements apply to storage of containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43003, filed 10/31/96, effective 12/1/96.]

296-306A-43005	Decodified by 97-09-013, filed 4/7/97, effective 4/7/97. How must containers be stored within buildings frequented by the public? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
296-306A-43007	How must containers be stored in buildings not frequented by the public? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-43517
296-306A-43009	How must containers be stored within special buildings or rooms? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-43519
296-306A-43011	How must containers be stored outdoors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-43521
296-306A-43013	What fire protection must be provided for stored containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-43523
296-306A-435	LP-gas system installations on commercial vehicles. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-435, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-43525
296-306A-43501	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43501, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-440
296-306A-43503	How must containers be constructed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43503, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-44001
296-306A-43505	What is the maximum capacity allowed for LP-gas installations on commercial vehicles? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43505, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-44003
296-306A-43507	Where must systems be located? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43507, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-44005
296-306A-43509	What requirements apply to valves and accessories? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43509, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-44007
296-306A-43511	What requirements apply to safety devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43511, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-44009
296-306A-43513	What types of systems may be used on commercial vehicles? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43513, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-44011
296-306A-43515	What requirements apply to enclosures and mounting? [Statutory Authority: RCW 49.17.040,	296-306A-44013
	[49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43515, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	What requirements apply to piping, tubing, and fittings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43517, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	What requirements apply to appliances? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43519, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	What general precautions must be followed for LP-gas system installations on commercial vehicles? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43521, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	How must containers be charged? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43523, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	What fire protection must be provided for mobile cook units? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43525, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	LP-gas service stations. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-440, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	How must storage containers be designed and classified? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	What requirements apply to valves and accessories? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	What requirements apply to safety devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	What is the maximum capacity allowed for containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	How must storage containers be installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	
	What equipment must be protected against tampering? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	

296-306A-44015	What requirements apply to the transport truck unloading point? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-45013	How must the bottom drains of dip tanks be constructed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-44017	What requirements apply to piping, valves, and fittings? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-45015	How must liquids used in dip tanks be stored and handled? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-44019	What requirements apply to pumps and accessory equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44019, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-45017	What measures must an employer take to prevent hazards from electrical and other ignition sources? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-44021	What requirements apply to LP-gas dispensing devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-45019	How must dip tanks be operated and maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45019, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-44023	Is smoking allowed at LP-gas service stations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44023, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-45021	What requirements must fire extinguishing systems meet? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-44025	What fire protection must be provided at LP-gas service stations? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44025, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-45023	What requirements apply to hardening and tempering tanks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45023, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-450	Other hazardous materials. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-450, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-45025	What requirements apply to flow coat applications? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45025, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-45001	What general requirements apply to hazardous materials and flammable and combustible liquids? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-45027	What requirements apply to electrostatic apparatus? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45027, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-45003	What requirements apply to dip tanks containing flammable or combustible liquids? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-45029	What requirements apply to roll coating applications? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45029, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-45005	What definitions apply to this section? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-475	Welding, cutting, and brazing. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-475, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-45007	What requirements must ventilation systems meet? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-47501	What definitions apply to this part? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-47501, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-45009	What general requirements apply to the construction of dip tanks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-480	Installation and operation of oxygen fuel gas systems for welding and cutting. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-480, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-45011	How must overflow pipes for dip tanks be constructed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48001	What general requirements apply to oxygen fuel gas systems? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
		296-306A-48003	What requirements apply to portable cylinders? [Statutory Authority: RCW 49.17.040, [49.17.]050

	and [49.17.]060. 96-22-048, § 296-306A-48003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48031	What operating procedures apply to cylinder manifolds? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48031, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48005	What general requirements apply to storing compressed gas cylinders? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48033	How must service piping systems be designed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48033, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48007	How must fuel-gas cylinders be stored? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48035	What requirements apply to piping joints? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48035, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48009	How must oxygen cylinders be stored? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48037	How must service piping systems be installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48037, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48011	What general operating procedures apply to working with cylinders and containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48039	How must service piping systems be painted and marked? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48039, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48013	What requirements apply to safety devices on cylinders? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48041	How must service piping systems be tested? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48041, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48015	How must cylinders be transported? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48043	How must equipment be installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48043, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48017	How must cylinders be handled? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48045	How must service piping systems be protected? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48045, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48019	What requirements apply to cylinder valves? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48019, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48047	What requirements apply to piping protective equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48047, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48021	What requirements apply to cylinder regulators? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48049	What requirements apply to station outlet protective equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48049, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48023	What requirements apply to fuel-gas manifolds? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48023, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48051	What requirements apply to hose and hose connections? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48051, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48025	What requirements apply to high pressure oxygen manifolds? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48025, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48053	What requirements apply to pressure-reducing regulators? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48053, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48027	What requirements apply to low pressure oxygen manifolds? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48027, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-485	Installation and operation of resistance welding equipment. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-485, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48029	What requirements apply to manifolding portable outlet headers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48029, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-48501	What general requirements apply to resistance welding equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048,

	§ 296-306A-48501, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-495	Fire prevention and protection. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-495, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48503	What requirements apply to portable welding machines? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48503, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-49501	What basic fire prevention precautions must be taken? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49501, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48505	What requirements apply to flash welding equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48505, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-49503	What special fire prevention precautions must be taken? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49503, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48507	Who must perform a job hazard analysis? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48507, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-49505	What precautions must be taken when welding or cutting containers? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49505, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-48509	What maintenance requirements apply to resistance welding equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48509, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-49507	What precautions must be taken when welding in confined spaces? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49507, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-490	Application, installation, and operation of arc welding and cutting equipment. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-490, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-500	Protection of employees. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-500, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-49001	What environmental conditions must be taken into account when selecting arc welding equipment? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-50001	How must eye protection be selected? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-49003	What voltages must arc welding equipment use? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-50003	What specifications must eye protection meet? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-49005	How must arc welding equipment be designed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-50005	What protective clothing must welders wear? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-49007	How must arc welding equipment be installed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-50007	What other requirements apply to employee protection? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-49009	How must arc welding equipment be grounded? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-50009	What employee protection must be provided in confined spaces? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-49011	What requirements apply to supply connections and conductors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-50011	What general requirements apply to welding ventilation? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-49013	How must arc welding equipment be operated? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-50013	What ventilation must be provided for general welding and cutting? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-49015	How must arc welding equipment be maintained? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-50015	What requirements apply to local exhaust hoods and booths? [Statutory Authority: RCW 49.17.040,

	[49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52011	What requirements determine which trucks to use in specific hazardous environments? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-50017	What ventilation must be provided in confined spaces? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52013	In what environments may converted trucks be used? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-50019	What requirements apply to welding fluorine compounds? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50019, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52015	What requirements apply to overhead safety guards? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-50021	What requirements apply to welding zinc? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52017	What requirements apply to load backrests? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-50023	What requirements apply to welding lead? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50023, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52019	What requirements apply to fuel handling and storage? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52019, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-50025	What requirements apply to welding beryllium? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50025, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52021	What requirements apply to lighting for operating areas? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52021, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-50027	What requirements apply to welding cadmium? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50027, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52023	What level of carbon monoxide gas is allowed? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52023, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-50029	What requirements apply to welding mercury? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50029, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52025	What requirements apply to dockboards (bridge plates)? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52025, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-520	Powered industrial trucks (forklifts). [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-520, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52027	What rules apply to loading trucks, trailers, and railroad cars with powered industrial trucks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52027, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-52001	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52029	Who may operate powered industrial trucks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52029, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-52003	What is a "powered industrial truck"? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52031	What requirements apply to operating powered industrial trucks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52031, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-52005	What manufacturer's requirements apply to powered industrial trucks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52033	When may trucks be used to open or close freight car doors? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52033, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-52007	What are the classifications of powered industrial trucks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52035	What requirements apply to lifting employees on the forks of trucks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52035, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-52009	What must a user consider before choosing a powered industrial truck? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-52037	What requirements apply to using platforms for hoisting employees? [Statutory Authority: RCW

	49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52037, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		§ 296-306A-53013, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-52039	What requirements apply to traveling in a powered industrial truck? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52039, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-53015	What are the safe operating procedures for servicing single-piece rim wheels? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53015, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-52041	What requirements apply to traveling speeds of powered industrial trucks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52041, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.	296-306A-53017	How can an employer order the OSHA charts? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53017, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.
296-306A-52043	What requirements apply to loading powered industrial trucks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52043, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-52045	What requirements apply to servicing powered industrial trucks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52045, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-52047	What requirements apply to maintaining powered industrial trucks? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52047, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-530	Rim wheel servicing. [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-530, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-53001	What does this section cover? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53001, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-53003	What definitions apply to rim wheel servicing? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53003, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-53005	What training must an employer provide for employees who service rim wheels? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53005, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-53007	What requirements apply to restraining devices? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53007, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-53009	What other equipment must an employer provide for rim wheel servicing? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53009, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-53011	What requirements apply to wheel component assembly? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53011, filed 10/31/96, effective 12/1/96.] Decodified by 97-09-013, filed 4/7/97, effective 4/7/97.		
296-306A-53013	What are the safe operating procedures for servicing multipiece rim wheels? [Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048,		

WAC 296-306A-003 through 296-306A-53017 Decodified. See Disposition Table at beginning of this chapter.

Chapter 296-307 WAC

SAFETY STANDARDS FOR AGRICULTURE

WAC

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296-307-018	What are the employer's responsibilities?
296-307-021	What are the employee's responsibilities?
296-307-024	How does an employer apply for a variance?
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296-307-039	How many people at the worksite must be first-aid trained?
296-307-042	Must an employer provide first-aid kits?
296-307-045	What are the requirements of the safe place standard?
296-307-050	What requirements apply to hand tools?
296-307-055	Ladders.
296-307-05501	How must ladders be cared for and maintained?
296-307-05503	How must an employer instruct employees to use ladders?
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296-307-061	What requirements apply to working around bins, bunkers, hoppers, tanks, pits, and trenches?
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296-307-076	How must farm field equipment be guarded?
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296-307-08003	Which agricultural tractors are covered by this section?	296-307-12055	Emergency assistance—Standards for workers—40 CFR, § 170.160.
296-307-08006	What definitions apply to rollover protective structures (ROPS) for agricultural tractors?	296-307-130	Applicability of this section—Standards for pesticide handlers—40 CFR, § 170.202.
296-307-08009	What requirements apply to the testing and performance of ROPS used on agricultural tractors?	296-307-13005	Exemptions—Standards for handlers—40 CFR, § 170.204.
296-307-08012	What requirements apply to seatbelts used with ROPS on agricultural tractors?	296-307-13010	Restrictions during applications—Standards for pesticide handlers—40 CFR, § 170.210.
296-307-08015	When are ROPS not required on agricultural tractors?	296-307-13015	Providing specific information about applications—Standards for pesticide handlers—40 CFR, § 170.222.
296-307-08018	What employee training requirements apply to ROPS used on agricultural tractors?	296-307-13020	Notice of applications to agricultural employers—Standards for pesticide handlers—40 CFR, § 170.224.
296-307-08021	What other requirements apply to ROPS used on agricultural tractors?	296-307-13025	Pesticide safety training—Standards for pesticide handlers—40 CFR, § 170.230.
296-307-085	When must ROPS be provided for material handling equipment?	296-307-13030	Knowledge of labeling and site-specific information—Standards for pesticide handlers—40 CFR, § 170.232.
296-307-090	What requirements apply to overhead protection for operators of agricultural and industrial tractors?	296-307-13035	Safe operation of equipment—Standards for pesticide handlers—40 CFR, § 170.234.
296-307-095	Field sanitation.	296-307-13040	Posted pesticide safety information—Standards for pesticide handlers—40 CFR, § 170.235.
296-307-09503	What does this section cover?	296-307-13045	Personal protective equipment—Standards for pesticide handlers—40 CFR, § 170.240.
296-307-09506	What definitions apply to this section?	296-307-13050	Decontamination—Standards for pesticide handlers—40 CFR, § 170.250.
296-307-09509	What orientation must employers provide for field sanitation?	296-307-13055	Emergency assistance—Standards for pesticide handlers—40 CFR, § 170.260.
296-307-09512	What potable water sources must an employer provide?	296-307-145	Pesticides recordkeeping.
296-307-09515	What handwashing facilities must an employer provide?	296-307-14505	What records must an employer keep for pesticide applications?
296-307-09518	What toilet facilities must an employer provide?	296-307-14510	What do the pesticides forms look like?
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296-307-10005	Who must provide personal protective equipment?	296-307-150	Employees working near overhead lines.
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296-307-120	Applicability of this section—Standards for workers—40 CFR, § 170.102.	296-307-16009	Must sewer lines connect to public sewers?
296-307-12005	Exceptions—Standards for workers—40 CFR, § 170.103.	296-307-16011	What facilities must an employer provide for laundry, handwashing, and bathing?
296-307-12010	Exemptions—Standards for workers—40 CFR, § 170.104.	296-307-16013	What lighting must an employer provide in camp buildings?
296-307-12015	Restrictions associated with pesticide applications—Standards for workers—40 CFR, § 170.110.	296-307-16015	What requirements apply to refuse disposal?
296-307-12020	Entry restrictions—Standards for workers—40 CFR, § 170.112.	296-307-16017	How must kitchens, dining halls, and feeding facilities be constructed?
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296-307-12035	Notice of applications to handler employers—Standards for workers—40 CFR, § 170.124.	296-307-16023	When must an employer report communicable diseases in a camp?
296-307-12040	Pesticide safety training—Standards for workers—40 CFR, § 170.130.	296-307-185	Guarding powered saws.
296-307-12045	Posted pesticide safety information—Standards for workers—40 CFR, § 170.135.	296-307-18503	What general requirements apply to powered saws?
296-307-12050	Decontamination—Standards for workers—40 CFR, § 170.150.	296-307-18506	How must band saws be guarded?
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		296-307-19006	What rules apply to guarding abrasive wheels?

296-307-19009	What are the use, mounting, and guarding rules for abrasive wheels?	296-307-25039	How must skylight screens be constructed and mounted?
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296-307-24012	How must the potable water supply be maintained?	296-307-28020	What requirements apply to guarding overhead horizontal belt, rope, and chain drives?
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296-307-30003	What does this section cover?	296-307-34503	What does this section cover?
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296-307-30021	What additional guarding requirements apply to farmstead equipment?	296-307-35003	What does this section cover?
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296-307-32029	Who must be notified of lockout and tagout?	296-307-36221	How must electrical equipment be marked?
296-307-32031	What order of events must lockout or tagout procedures follow?	296-307-36224	How must disconnecting means be marked?
296-307-32033	What order of events must be followed to remove lockout or tagout devices?	296-307-36227	What access and working space must be provided for electrical equipment of 600 volts, nominal, or less?
296-307-32035	What requirements apply to testing and positioning machines and equipment?	296-307-36230	What access and working space must be provided for electrical equipment over 600 volts, nominal?
296-307-32037	What requirements apply to outside servicing contractors?	296-307-364	Electrical installation and maintenance.
296-307-32039	What requirements apply to group lockout or tagout?	296-307-36403	How must flexible cords and cables be installed and maintained?
296-307-32041	What requirements apply to lockout/tagout during shift changes?	296-307-36406	How must attachment plugs and receptacles be installed and maintained?
296-307-330	Safety color coding; accident prevention signs and tags.	296-307-36409	What must employees do when equipment causes electrical shock?
296-307-33001	What definitions apply to this section?	296-307-36412	What grounding and bonding requirements apply to equipment installation and maintenance?
296-307-33003	What does red identify in safety color coding?	296-307-36415	What requirements apply to disconnecting means?
296-307-33005	What does yellow identify in safety color coding?	296-307-36418	What requirements apply to identification and load rating of electrical equipment?
296-307-33007	When should signs and tags use "danger" versus "caution"?	296-307-36421	How must equipment be installed in wet locations?
296-307-33009	What are the design and color specifications for accident prevention signs?	296-307-366	Wiring design and protection.
		296-307-36603	How must grounded and grounding conductors be used and identified?
		296-307-36606	What ampere rating must outlet devices have?

296-307-36609	What requirements apply to conductors?	296-307-37403	What requirements apply to systems over 600 volts, nominal?
296-307-36612	What design and protection requirements apply to service-entrances?	296-307-37406	What requirements apply to emergency power systems?
296-307-36615	What overcurrent protection must be provided?	296-307-37409	How are Class 1, Class 2, and Class 3 remote control, signaling, and power-limited circuits classified?
296-307-36618	What premises wiring systems must be grounded?	296-307-37412	What requirements apply to fire protective signaling systems?
296-307-36621	Must the conductor be grounded for AC premises wiring?	296-307-376	Working on or near exposed energized parts. What does this section cover?
296-307-36624	What general requirements apply to grounding conductors?	296-307-37603	Who may work on energized parts?
296-307-36627	Must the path to ground be continuous?	296-307-37606	What requirements apply to working near low voltage lines?
296-307-36630	What supports, enclosures, and equipment must be grounded?	296-307-37609	What requirements apply to qualified persons working near overhead lines?
296-307-36633	How must fixed equipment be grounded?	296-307-37612	What requirements apply to vehicles and mechanical equipment near overhead lines?
296-307-36636	How must high voltage systems be grounded?	296-307-37615	What lighting must be provided for employees working near exposed energized parts?
296-307-368	Wiring methods, components, and equipment for general use.	296-307-37618	What requirements apply to working near exposed energized parts in confined spaces?
296-307-36803	Does this section apply to factory-assembled equipment?	296-307-37621	What housekeeping requirements apply to working near exposed energized parts?
296-307-36806	What wiring methods must be used for temporary wiring?	296-307-37624	Who may defeat an electrical safety interlock? Safety-related work practices. What does this section cover?
296-307-36809	When may cable trays be used?	296-307-37627	How must employees be trained on safety practices?
296-307-36812	What requirements apply to open wiring on insulators?	296-307-378	How must safety-related work practices be chosen and used?
296-307-36815	What wiring requirements apply to cabinets, boxes, and fittings?	296-307-37801	What work practices must be followed for work on exposed deenergized parts?
296-307-36818	What requirements apply to switches?	296-307-37803	Must an employer have a written copy of lock-out-tagout procedures?
296-307-36821	Where must switchboards and panelboards be located?	296-307-37805	What work practices must be followed for deenergizing equipment?
296-307-36824	When must conductors be insulated?	296-307-37807	How must locks and tags be applied?
296-307-36827	When may flexible cords and cables be used?	296-307-37811	What work practices must be followed to verify deenergization?
296-307-36830	How must flexible cords and cables be identified, spliced, and terminated?	296-307-37813	What work practices must be followed when reenergizing equipment?
296-307-36833	What requirements apply to multiconductor portable cable?	296-307-37815	What safety-related work practices relate to portable electric equipment?
296-307-36836	When may fixture wires be used?	296-307-37817	What safety-related work practices relate to electric power and lighting circuits?
296-307-36839	What requirements apply to wiring for lighting fixtures, lampholders, lamps, and receptacles?	296-307-37819	What safety-related work practices relate to test instruments and equipment?
296-307-36842	What requirements apply to wiring for receptacles, cord connectors, and attachment plugs (caps)?	296-307-37821	What safety-related work practices relate to flammable materials?
296-307-36845	What requirements apply to wiring for appliances?	296-307-37823	Electrical protective equipment. How must protective equipment be used?
296-307-36848	What requirements apply to wiring for motors, motor circuits, and controllers?	296-307-37825	What requirements apply to general protective equipment and tools?
296-307-36851	What requirements apply to wiring for transformers?	296-307-380	What manufacturing and marking requirements apply to electrical protective devices?
296-307-36854	What requirements apply to wiring for capacitors?	296-307-38003	What electrical requirements apply to electrical protective devices?
296-307-36857	How must storage batteries be ventilated?	296-307-38006	What workmanship and finish requirements apply to electrical protective devices?
296-307-36860	What other miscellaneous requirements apply to wiring methods?	296-307-38009	How must electrical protective devices be maintained and used?
296-307-370	Special purpose equipment and installations.	296-307-38012	Anhydrous ammonia. What does this section cover?
296-307-37003	What requirements apply to cranes, hoists, and runways?	296-307-38015	What definitions apply to this section?
296-307-37006	What requirements apply to elevators, dumbwaiters, escalators, and moving walks?	296-307-38018	What general requirements apply to the storage and handling of anhydrous ammonia?
296-307-37009	What requirements apply to the disconnecting means for electric welders?	296-307-400	What requirements apply to systems mounted on farm wagons (implements of husbandry) for the transportation of ammonia?
296-307-37012	What requirements apply to electrically driven or controlled irrigation machines?	296-307-40001	What requirements apply to systems mounted on farm wagons (implements of husbandry) for the application of ammonia?
296-307-372	Hazardous (classified) locations.	296-307-40003	What requirements must approved anhydrous ammonia equipment meet?
296-307-37203	What does this section cover?	296-307-40005	
296-307-37206	What classifications apply to this section?	296-307-40007	
296-307-37209	What equipment, wiring methods, and installations may be used in hazardous locations?	296-307-40009	
296-307-37212	How must conduit be installed in hazardous locations?	296-307-40011	
296-307-37215	Which equipment may be used in Division 1 and 2 locations?		
296-307-37218	What requirements apply to motors and generators used in hazardous locations?		
296-307-374	Special systems.		

296-307-40013	What requirements apply to the construction, original test, and requalification of nonrefrigerated containers?	296-307-41509	What additional requirements apply to cylinder system installed indoors?
296-307-40015	How must nonrefrigerated containers and systems (other than DOT containers) be marked?	296-307-41511	What requirements apply to valves and accessories?
296-307-40017	Where may anhydrous ammonia containers be located?	296-307-41513	What requirements apply to safety devices for cylinder systems?
296-307-40019	What requirements apply to container accessories?	296-307-41515	What other requirements apply to cylinder systems?
296-307-40021	What requirements apply to piping, tubing, and fittings?	296-307-420	Systems using non-DOT containers.
296-307-40023	What specifications must hoses meet?	296-307-42001	What does this section cover?
296-307-40025	What requirements apply to safety-relief devices?	296-307-42003	How must non-DOT containers be designed and classified?
296-307-40027	What emergency precautions are required when handling anhydrous ammonia?	296-307-42005	What requirements apply to valves and accessories, filler pipes, and discharge pipes for non-DOT containers?
296-307-40029	What requirements apply to filling densities?	296-307-42007	What additional requirements apply to safety devices for non-DOT containers?
296-307-40031	What requirements apply to the transfer of liquids?	296-307-42009	When may non-DOT containers be reinstalled?
296-307-40033	What requirements apply to tank car unloading points and operations?	296-307-42011	What is the maximum capacity allowed for non-DOT containers?
296-307-40035	What requirements apply to the liquid-level gauging device?	296-307-42013	How must non-DOT containers be installed?
296-307-40037	How should aboveground uninsulated containers be maintained?	296-307-42015	How must non-DOT containers be protected?
296-307-40039	What requirements apply to electrical equipment and wiring?	296-307-42017	What requirements apply to non-DOT containers in industrial plants?
296-307-410	Storage and handling of liquefied petroleum gases.	296-307-42019	What requirements apply to container-charging plants?
296-307-41001	What does this part cover?	296-307-42021	What fire protection must be provided for non-DOT containers?
296-307-41003	Which LP-gas installations are not covered by this part?	296-307-42023	What other requirements apply to non-DOT containers?
296-307-41005	What definitions apply to this part?	296-307-425	LP-gas as a motor fuel.
296-307-41007	When must LP-gas be odorized?	296-307-42501	What does this section cover?
296-307-41009	Must LP-gas containers and equipment be approved?	296-307-42503	What general requirements apply to LP-gas used as a motor fuel?
296-307-41011	What construction and test requirements must containers meet?	296-307-42505	How must fuel containers be designed and classified?
296-307-41013	How must containers be welded?	296-307-42507	How must fuel containers be installed?
296-307-41015	How must containers be marked?	296-307-42509	What requirements apply to valves and accessories?
296-307-41017	Where must containers be located?	296-307-42511	What requirements apply to piping, tubing, and fittings?
296-307-41019	What requirements apply to valves and accessories?	296-307-42513	What requirements apply to safety devices?
296-307-41021	What requirements apply to piping, tubing, and fittings?	296-307-42515	What requirements apply to vaporizers?
296-307-41023	What specifications must hoses meet?	296-307-42517	What requirements apply to gas regulating and mixing equipment?
296-307-41025	What requirements apply to safety devices?	296-307-42519	What is the maximum container capacity allowed?
296-307-41027	How must indirect fired vaporizers be constructed and installed?	296-307-42521	What requirements apply to stationary engines used indoors?
296-307-41029	How must atmospheric vaporizers be constructed and installed?	296-307-42523	What requirements apply to portable engines used indoors?
296-307-41031	How must direct gas-fired vaporizers be constructed and installed?	296-307-42525	What requirements apply to industrial trucks used indoors?
296-307-41033	How must direct gas-fired tank heaters be constructed and installed?	296-307-42527	How must LP-gas-fueled vehicles be garaged?
296-307-41035	How must dehydrators be constructed and installed?	296-307-430	Storage of containers awaiting use or resale.
296-307-41037	What are the maximum filling densities?	296-307-43001	What does this section cover?
296-307-41039	What requirements apply to LP-gas in buildings?	296-307-43003	What general requirements apply to storage of containers?
296-307-41041	What requirements apply to transfer of liquids?	296-307-43005	How must containers be stored within buildings frequented by the public?
296-307-41043	Must workers be trained?	296-307-43007	How must containers be stored in buildings not frequented by the public?
296-307-41045	What fire protection must be provided for LP-gas installations?	296-307-43009	How must containers be stored within special buildings or rooms?
296-307-41047	What electrical requirements apply to LP-gas installations?	296-307-43011	How must containers be stored outdoors?
296-307-41049	What requirements apply to liquid-level gauging devices?	296-307-43013	What fire protection must be provided for stored containers?
296-307-41051	What requirements apply to appliances?	296-307-435	LP-gas system installations on commercial vehicles.
296-307-415	Cylinder systems.	296-307-43501	What does this section cover?
296-307-41501	What does this section cover?	296-307-43503	How must containers be constructed?
296-307-41503	What is a "cylinder system?"	296-307-43505	What is the maximum capacity allowed for LP-gas installations on commercial vehicles?
296-307-41505	How must containers be marked for cylinder systems?	296-307-43507	Where must systems be located?
296-307-41507	What additional requirements apply to cylinder systems installed outdoors?		

296-307-43509	What requirements apply to valves and accessories?	296-307-48001	What general requirements apply to oxygen fuel gas systems?
296-307-43511	What requirements apply to safety devices?	296-307-48003	What requirements apply to portable cylinders?
296-307-43513	What types of systems may be used on commercial vehicles?	296-307-48005	What general requirements apply to storing compressed gas cylinders?
296-307-43515	What requirements apply to enclosures and mounting?	296-307-48007	How must fuel-gas cylinders be stored?
296-307-43517	What requirements apply to piping, tubing, and fittings?	296-307-48009	How must oxygen cylinders be stored?
296-307-43519	What requirements apply to appliances?	296-307-48011	What general operating procedures apply to working with cylinders and containers?
296-307-43521	What general precautions must be followed for LP-gas system installations on commercial vehicles?	296-307-48013	What requirements apply to safety devices on cylinders?
296-307-43523	How must containers be charged?	296-307-48015	How must cylinders be transported?
296-307-43525	What fire protection must be provided for mobile cook units?	296-307-48017	How must cylinders be handled?
296-307-440	LP-gas service stations.	296-307-48019	What requirements apply to cylinder valves?
296-307-44001	What does this section cover?	296-307-48021	What requirements apply to cylinder regulators?
296-307-44003	How must storage containers be designed and classified?	296-307-48023	What requirements apply to fuel-gas manifolds?
296-307-44005	What requirements apply to valves and accessories?	296-307-48025	What requirements apply to high pressure oxygen manifolds?
296-307-44007	What requirements apply to safety devices?	296-307-48027	What requirements apply to low pressure oxygen manifolds?
296-307-44009	What is the maximum capacity allowed for containers?	296-307-48029	What requirements apply to manifolding portable outlet headers?
296-307-44011	How must storage containers be installed?	296-307-48031	What operating procedures apply to cylinder manifolds?
296-307-44013	What equipment must be protected against tampering?	296-307-48033	How must service piping systems be designed?
296-307-44015	What requirements apply to the transport truck unloading point?	296-307-48035	What requirements apply to piping joints?
296-307-44017	What requirements apply to piping, valves, and fittings?	296-307-48037	How must service piping systems be installed?
296-307-44019	What requirements apply to pumps and accessory equipment?	296-307-48039	How must service piping systems be painted and marked?
296-307-44021	What requirements apply to LP-gas dispensing devices?	296-307-48041	How must service piping systems be tested?
296-307-44023	Is smoking allowed at LP-gas service stations?	296-307-48043	How must equipment be installed?
296-307-44025	What fire protection must be provided at LP-gas service stations?	296-307-48045	How must service piping systems be protected?
296-307-450	Other hazardous materials.	296-307-48047	What requirements apply to piping protective equipment?
296-307-45001	What general requirements apply to hazardous materials and flammable and combustible liquids?	296-307-48049	What requirements apply to station outlet protective equipment?
296-307-45003	What requirements apply to dip tanks containing flammable or combustible liquids?	296-307-48051	What requirements apply to hose and hose connections?
296-307-45005	What definitions apply to this section?	296-307-48053	What requirements apply to pressure-reducing regulators?
296-307-45007	What requirements must ventilation systems meet?	296-307-485	Installation and operation of resistance welding equipment.
296-307-45009	What general requirements apply to the construction of dip tanks?	296-307-48501	What general requirements apply to resistance welding equipment?
296-307-45011	How must overflow pipes for dip tanks be constructed?	296-307-48503	What requirements apply to portable welding machines?
296-307-45013	How must the bottom drains of dip tanks be constructed?	296-307-48505	What requirements apply to flash welding equipment?
296-307-45015	How must liquids used in dip tanks be stored and handled?	296-307-48507	Who must perform a job hazard analysis?
296-307-45017	What measures must an employer take to prevent hazards from electrical and other ignition sources?	296-307-48509	What maintenance requirements apply to resistance welding equipment?
296-307-45019	How must dip tanks be operated and maintained?	296-307-490	Application, installation, and operation of arc welding and cutting equipment.
296-307-45021	What requirements must fire extinguishing systems meet?	296-307-49001	What environmental conditions must be taken into account when selecting arc welding equipment?
296-307-45023	What requirements apply to hardening and tempering tanks?	296-307-49003	What voltages must arc welding equipment use?
296-307-45025	What requirements apply to flow coat applications?	296-307-49005	How must arc welding equipment be designed?
296-307-45027	What requirements apply to electrostatic apparatus?	296-307-49007	How must arc welding equipment be installed?
296-307-45029	What requirements apply to roll coating applications?	296-307-49009	How must arc welding equipment be grounded?
296-307-475	Welding, cutting, and brazing.	296-307-49011	What requirements apply to supply connections and conductors?
296-307-47501	What definitions apply to this part?	296-307-49013	How must arc welding equipment be operated?
296-307-480	Installation and operation of oxygen fuel gas systems for welding and cutting.	296-307-49015	How must arc welding equipment be maintained?
		296-307-495	Fire prevention and protection.
		296-307-49501	What basic fire prevention precautions must be taken?
		296-307-49503	What special fire prevention precautions must be taken?
		296-307-49505	What precautions must be taken when welding or cutting containers?
		296-307-49507	What precautions must be taken when welding in confined spaces?
		296-307-500	Protection of employees.
		296-307-50001	How must eye protection be selected?

- 296-307-50003 What specifications must eye protection meet?
- 296-307-50005 What protective clothing must welders wear?
- 296-307-50007 What other requirements apply to employee protection?
- 296-307-50009 What employee protection must be provided in confined spaces?
- 296-307-50011 What general requirements apply to welding ventilation?
- 296-307-50013 What ventilation must be provided for general welding and cutting?
- 296-307-50015 What requirements apply to local exhaust hoods and booths?
- 296-307-50017 What ventilation must be provided in confined spaces?
- 296-307-50019 What requirements apply to welding fluorine compounds?
- 296-307-50021 What requirements apply to welding zinc?
- 296-307-50023 What requirements apply to welding lead?
- 296-307-50025 What requirements apply to welding beryllium?
- 296-307-50027 What requirements apply to welding cadmium?
- 296-307-50029 What requirements apply to welding mercury?
- 296-307-520 Powered industrial trucks (forklifts).
- 296-307-52001 What does this section cover?
- 296-307-52003 What is a "powered industrial truck"?
- 296-307-52005 What manufacturer's requirements apply to powered industrial trucks?
- 296-307-52007 What are the classifications of powered industrial trucks?
- 296-307-52009 What must a user consider before choosing a powered industrial truck?
- 296-307-52011 What requirements determine which trucks to use in specific hazardous environments?
- 296-307-52013 In what environments may converted trucks be used?
- 296-307-52015 What requirements apply to overhead safety guards?
- 296-307-52017 What requirements apply to load backrests?
- 296-307-52019 What requirements apply to fuel handling and storage?
- 296-307-52021 What requirements apply to lighting for operating areas?
- 296-307-52023 What level of carbon monoxide gas is allowed?
- 296-307-52025 What requirements apply to dockboards (bridge plates)?
- 296-307-52027 What rules apply to loading trucks, trailers, and railroad cars with powered industrial trucks?
- 296-307-52029 Who may operate powered industrial trucks?
- 296-307-52031 What requirements apply to operating powered industrial trucks?
- 296-307-52033 When may trucks be used to open or close freight car doors?
- 296-307-52035 What requirements apply to lifting employees on the forks of trucks?
- 296-307-52037 What requirements apply to using platforms for hoisting employees?
- 296-307-52039 What requirements apply to traveling in a powered industrial truck?
- 296-307-52041 What requirements apply to traveling speeds of powered industrial trucks?
- 296-307-52043 What requirements apply to loading powered industrial trucks?
- 296-307-52045 What requirements apply to servicing powered industrial trucks?
- 296-307-52047 What requirements apply to maintaining powered industrial trucks?
- 296-307-530 Rim wheel servicing.
- 296-307-53001 What does this section cover?
- 296-307-53003 What definitions apply to rim wheel servicing?
- 296-307-53005 What training must an employer provide for employees who service rim wheels?
- 296-307-53007 What requirements apply to restraining devices?
- 296-307-53009 What other equipment must an employer provide for rim wheel servicing?
- 296-307-53011 What requirements apply to wheel component assembly?

- 296-307-53013 What are the safe operating procedures for servicing multipiece rim wheels?
- 296-307-53015 What are the safe operating procedures for servicing single-piece rim wheels?
- 296-307-53017 How can an employer order the OSHA charts?

WAC 296-307-003 How is this chapter divided?

The first three digits of the WAC (296) are the title. The second three digits are the chapter (306A). The third number group is the section, which may have three or five digits. The fourth and fifth digits are treated as if there were a decimal point after the third digit.

For example: Section 330 of this chapter includes all five-digit sections whose number begins with 330.

Sections may be further divided as indicated below.

- Title-Chapter-Section 296-306A-330
- 296-306A-33003
- Subsection (1)
- (2)
- Subdivision (a)
- (b)
- Item (i)
- (ii)

Note: The chapter is also divided into "parts" according to subject, to make it easier for you to find the information you need.

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WAC 296-307-006 What does this chapter cover?

(1) Chapter 296-306A WAC applies to all agricultural operations with one or more employees covered by the Washington Industrial Safety and Health Act (WISHA), chapter 49.17 RCW.

"Agricultural operations" are all operations necessary to farming and ranching, including equipment and machinery maintenance, and planting, cultivating, growing or raising, keeping for sale, harvesting, or transporting on the farm or to the first place of processing any tree, plant, fruit, vegetable, animal, fowl, fish, or insects or products. Agricultural operations include all employers in one or more of the following standard industrial classification (SIC) codes:

- 0111 Wheat
- 0115 Corn
- 0119 Cash grains not elsewhere classified, barley, peas, lentils, oats, etc.
- 0133 Sugar cane and sugar beets
- 0134 Irish potatoes—all potatoes except yams
- 0139 Field crops—hay, hops, mint, etc.
- 0161 Vegetables and melons, all inclusive
- 0171 All berry crops
- 0172 Grapes
- 0173 Tree nuts
- 0175 Deciduous tree fruits
- 0179 Tree fruits or tree nuts not elsewhere classified
- 0181 Ornamental floriculture and nursery products
- 0182 Food crops grown under cover
- 0191 General farms, primarily crops
- 0211 Beef cattle feedlots
- 0212 Beef cattle except feedlots—cattle ranches
- 0213 Hogs
- 0214 Sheep and goats
- 0219 General livestock except dairy and poultry

0241 Dairy farms
 0251 Broiler, fryer, and roaster chickens
 0252 Chicken eggs
 0253 Turkeys and turkey eggs
 0254 Poultry hatcheries
 0259 Poultry and eggs not elsewhere classified
 0271 Fur bearing animals and rabbits
 0272 Horses
 0273 Animal aquaculture
 0279 Animal specialties not elsewhere classified
 0291 General farms, primarily livestock and animal specialties
 0711 Soil preparation services
 0721 Crop planting, cultivating, and protecting
 0722 Crop harvesting, primarily by machine
 0751 Livestock services, except veterinary
 0761 Farm labor contractors
 0811 Timber tracts, Christmas tree growing, tree farms
 0831 Forest nurseries
 0851 Forestry services—reforestation

"In-field" processing operations directly related to agricultural operations are covered under this chapter.

(2) If rules in this chapter conflict with rules in another chapter of Title 296 WAC, this chapter prevails.

(3) When you assign employees to perform tasks other than those directly related to agricultural operations, the proper chapter of Title 296 WAC applies instead of this chapter.

For example: Employees working in fruit and vegetable packing houses are covered by the general safety and health standards in chapter 296-24 WAC. Employees working on logging and sawmill activities are covered by the appropriate chapter of Title 296 WAC.

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WAC 296-307-009 What definitions apply to this chapter? "Approved" means approved by the director of the department of labor and industries, or by another organization designated by the department. Also means listed or approved by a nationally recognized testing laboratory.

"Authorized person" means someone you have approved to perform specific duties or to be at a specific location on the job site.

"Department" means the department of labor and industries. When this chapter refers to "we" or "us," it means the department.

"Director" means the director of the department of labor and industries, or a designated representative.

"Employee" means someone providing personal labor in the business of the employer, including anyone providing personal labor under an independent contract.

"Employer" means a business entity having one or more employees. Also, any person, partnership, or business entity with no employees but having industrial insurance coverage is both an employer and an employee. When this chapter refers to "you," it means the employer or a designated representative.

"Hazard" means a condition that can cause injury, death, or occupational disease.

"Listed" means listed by a nationally recognized testing laboratory.

"Must" means mandatory.

"Nationally recognized testing laboratory" See 29 CFR 1910.7 (federal OSHA requirements).

"Pesticide" means:

- Any substance intended to prevent, destroy, control, repel, or mitigate any insect, rodent, snail, slug, fungus, weed, and any other form of plant or animal life or virus, except virus on or in a living person or other animal which is normally considered to be a pest or which the director may declare to be a pest;

- Any substance or mixture of substances intended to be used as a plant regulator, defoliant or desiccant; and

- Any spray adjuvant, such as a wetting agent, spreading agent, deposit builder, adhesive, emulsifying agent, deflocculating agent, water modifier, or similar agent with or without toxic properties of its own, intended to be used with any pesticide as an aid to its application or effect, and sold in a package or container separate from that of the pesticide with which it is to be used.

"Safety factor" means the ratio of the ultimate breaking strength of a piece of material or equipment to the actual working stress or safe load when in use.

"Should" or "may" means recommended.

"Standard safeguard" means a device designed and constructed to remove a hazard related to the machine, appliance, tool, building, or equipment to which it is attached.

"Working day," for appeals and accident reporting, means a calendar day, except Saturdays, Sundays, and legal holidays as defined by RCW 1.16.050. To compute the time within which an act is to be completed, exclude the first working day and include the last.

[Recodified as § 296-307-009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-012 What does it mean when equipment is approved by a nonstate organization? Whenever the department requires that you have equipment or processes approved by an organization such as the Underwriters Laboratories (UL), the Bureau of Mines (MSHA), or the National Institute for Occupational Safety and Health (NIOSH), the approval of that organization is considered evidence of your compliance.

[Recodified as § 296-307-012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-015 What must an employer do if a serious injury occurs? (1) You must report to us within eight hours of an incident that:

- Causes a fatal or possibly fatal injury;
- Involves acute injury or illness from exposure to pesticides; or
- Causes injury requiring in-patient hospitalization of any employee.

You may phone us or report in person, or you may use the OSHA toll-free central telephone number, 1-800-321-6742.

Exception: If you do not learn of a reportable incident when it happens, you must report it within eight hours of learning about the incident.

- (a) Your report must include:
- Establishment name;
 - Location of the incident;
 - Time of the incident;
 - Number of fatalities, hospitalized employees, or pesticide exposures;
 - Contact person;
 - Phone number; and
 - Brief description of the incident.

(b) Fatalities or hospitalizations that occur within thirty days of an incident must also be reported.

(2) If a department investigator asks for assistance, you must assign the employees that the investigator requests.

(3) Do not move any equipment involved in the incident until we complete an investigation.

Exception: You may move equipment to prevent additional incidents, or to remove the victim.

[Recodified as § 296-307-015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-018 What are the employer's responsibilities? You must:

- (1) Provide a safe and healthful working environment.
- (2) Ensure that employees do not use defective or unsafe tools and equipment, including tools and equipment that may be furnished by the employee.
- (3) Implement a written accident prevention program as required by these standards.
- (4) Implement a hazard communication program as required by chapter 296-62 WAC, Part C.
- (5) Establish a system for reporting and recording accidents on the OSHA 200 log. (See chapter 296-27 WAC.)

- (6) Provide safety education and training programs.
- (7) Implement the requirements of WAC 296-62-074 through 296-62-07451 to ensure the safety of employees who are exposed to cadmium in the workplace.

[Recodified as § 296-307-018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-021 What are the employee's responsibilities? (1) Employees must cooperate with you and other employees in efforts to eliminate accidents.

- (2) Employees must be informed of and observe all safe practices.
- (3) Employees must notify you of unsafe conditions of equipment or workplaces.
- (4) Employees must use all required safety devices and protective equipment.
- (5) Employees must not willfully damage personal protective equipment.
- (6) Each employee must promptly report any job-related injury or illness to his or her immediate supervisor, regardless of the degree of severity.
- (7) Employees must not engage in any activity unrelated to work that may cause injury to other employees during the course of performing work assignments.

(8) Employees must attend any required training and/or orientation programs designed to increase their competency in occupational safety and health.

(9) Employees must not report to work under the influence of alcohol or controlled substances. Alcohol or controlled substances must not be brought on the worksite.

[Recodified as § 296-307-021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-024 How does an employer apply for a variance? (1) If you find that it is impractical for you to comply with specific requirements of this standard, we may permit a variation from the requirements. However, you must still provide equal protection by substitute means and comply with the requirements of chapter 49.17 RCW and chapter 296-350 WAC, variances.

(2) On the variance application you must certify that you have posted a copy of the written application in a place reasonably accessible to your employees. You must also mail a copy of the application to any authorized employee representative. The notice must advise employees of their right to request us to conduct a hearing on the variance application. You must notify employees before you apply.

Note: To request a permanent or temporary variance, you may write to: Department of Labor and Industries, Consultation and Compliance Services, PO Box 44620, Olympia, WA 98504-4620. We will mail you an application form and instruction sheet. We will also send a copy of chapter 296-350 WAC, Variances, if you request it.

[Recodified as § 296-307-024. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-024, filed 10/31/96, effective 12/1/96.]

WAC 296-307-030 What are the required elements of an accident prevention program? (1) You must instruct all employees in safe working practices at the beginning of employment. Your instruction must be tailored to the types of hazards to which employees are exposed.

(2) You must develop an accident prevention program tailored to the needs of your agricultural operation and to the types of hazards involved.

(3) Your accident prevention program must contain at least the following elements:

- (a) How, when, and where to report injuries and illnesses, and the location of first-aid facilities.
- (b) How to report unsafe conditions and practices.
- (c) The use and care of personal protective equipment.
- (d) What to do in emergencies.
- (e) Identification of hazardous chemicals or materials and the instruction for their safe use.
- (f) An on-the-job review of the practices necessary to perform job assignments in a safe and healthful manner.

(4) Your accident prevention program must be outlined in writing.

(5) At least once a month, you must conduct a walk-around safety inspection of active job sites, the materials and equipment involved, and operating procedures. A representative chosen by employees must be invited and allowed to accompany you.

[Recodified as § 296-307-030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-030, filed 10/31/96, effective 12/1/96.]

WAC 296-307-033 How often must safety meetings be held? (1) Foreman-crew safety meetings must be held at least monthly or whenever there are significant changes in job assignments. These meetings must be tailored to the particular operation or activity occurring at the time.

(2) The meeting minutes must document subjects discussed and attendance.

(3) Short-term operations that last less than one month, such as harvesting, do not require foreman-crew safety meetings but only require initial safety orientation for the operations.

(4) You must maintain copies of the minutes of each foreman-crew safety meeting at the location where the majority of employees report to work each day.

(5) You must retain minutes of foreman-crew safety meetings for one year and be able to show us copies if we ask to see them.

[Recodified as § 296-307-033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-036 What items go on the safety bulletin board? (1) You must provide a bulletin board or posting area large enough to display the required safety and health poster, "Job Safety and Health Protection" (F416-081-000), and other safety education material.

(2) The bulletin board must be readily visible in a place where employees gather during some part of the work day. (For example, at the entrance to a field, a parking area, or in a farm building.)

(3) If for any reason any employee is unable to read the notices posted on the bulletin board, you must ensure that the message of the required poster explaining employee rights is communicated to the employee in terms he or she understands. This same requirement applies to variance applications, denials or grants, and to any other notice affecting the employee's rights under WISHA.

(4) Posting must be in the employees' language.

[Recodified as § 296-307-036. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-036, filed 10/31/96, effective 12/1/96.]

WAC 296-307-039 How many people at the worksite must be first-aid trained? (1) During working hours, each farm or crew must have at least one person qualified to give first-aid.

"Qualified" means that the person holds a current certificate of first-aid training from the American Red Cross or another course with equivalent content and hours.

"Current certificate" means a first-aid training certificate that has not expired.

Note: The local department of labor and industries service location has a list of first-aid courses.

(2) The above requirement is met if the farm operator or spouse holds a current first-aid certificate and is available during working hours.

(3) Exception: The above requirements do not apply to employees whose duties require them to work alone at isolated work stations. However, employees working alone must be checked at intervals by some method agreed upon by you and the employee.

[Recodified as § 296-307-039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-042 Must an employer provide first-aid kits? (1) You must furnish first-aid kits as required by this section.

(2) First-aid supplies must be readily accessible and provided for employees working alone at isolated stations.

(3) First-aid kit sizes and numbers are determined by the number of employees normally dependent upon each kit as outlined in the following table:

Number of employees normally assigned to worksite	Minimum first-aid supplies required at worksite
1-15 employees	1 ten-package kit
16-30 employees	2 ten-package kits or 1 24-package kit
31-50 employees	3 ten-package kits or 1 36-package kit
Over 50 employees (Within 1/2 mile radius of supplies)	First-aid Station or 1 36-package kit plus stretcher and 2 blankets

Note: Kits may be carried in any motor vehicle that is used near the crew. The vehicle may be considered a first-aid station when it is identified as one and when the driver is trained in first aid.

(4) First-aid kits must have at least the following items:
 1 package 1-inch adhesive bandages (16 per package)
 2 packages 4-inch bandage compress (1 per package)
 1 package scissors and tweezers (1 each per package)
 2 packages 40-inch triangular bandage (1 per package)
 1 package antiseptic soap or pads (3 per package)
 2 packages eye dressing (1 per package)
 1 package 24" x 72" absorbent gauze (1 per package)

Note: You may add items to first-aid kits.

(5) Items used from first-aid kits must be replaced before the next shift. Kits must be checked at least weekly for unauthorized removal of items.

[Recodified as § 296-307-042. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-042, filed 10/31/96, effective 12/1/96.]

WAC 296-307-045 What are the requirements of the safe place standard? (1) You must furnish to each employee a place of employment free from recognized controllable hazards likely to cause serious injury or death.

(2) You must furnish and require employees to use any safety devices and safeguards that are needed to control recognized hazards. All agricultural methods, operations, and processes must be designed to promote the safety and health of employees.

(3) You must not require an employee to engage in any duty or enter any place that is not safe.

(4) The following are prohibited:

(a) Removing, displacing, damaging, destroying or carrying off any safety device, safeguard, notice or warning intended for use in any place of employment.

(b) Interfering in any way with the use of any safety device, method or process adopted for the protection of any employee.

(5) Intoxicating beverages or narcotics in or around worksites. Employees under the influence of alcohol or narcotics are prohibited from the worksite.

Exception: This rule does not apply to anyone taking prescription drugs and/or narcotics as directed by a physician providing such use does not endanger the employee or others.

[Recodified as § 296-307-045. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-045, filed 10/31/96, effective 12/1/96.]

WAC 296-307-050 What requirements apply to hand tools? (1) Using hoes with handles less than four feet long or any hand tool used for weeding or thinning crops in a stooped position, is prohibited.

(2) You must ensure that hand tools are in good condition. Using defective hand tools is prohibited.

(3) You must ensure that hand tools are stored safely when not in use.

[Recodified as § 296-307-050. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-050, filed 10/31/96, effective 12/1/96.]

WAC 296-307-055 Ladders.

[Recodified as § 296-307-055. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-055, filed 10/31/96, effective 12/1/96.]

WAC 296-307-05501 How must ladders be cared for and maintained? (1) Ladders must be checked for defects before use, and thoroughly inspected periodically. Ladders shall be inspected immediately in the following situations:

(a) If a ladder tips over, inspect for side rails dents or bends, or excessively dented rungs; check all rung-to-side-rail connections; check hardware connections; check rivets for shear.

(b) If a ladder is exposed to excessive heat, inspect visually for damage and test for deflection and strength characteristics. If you are unsure about the ladder's condition, seek help from the manufacturer.

(2) Ladders must be maintained in good condition at all times. Joints between steps and side rails must be tight. All hardware and fittings must be securely attached, and the moveable parts must operate freely without binding or with too much play.

(3) Defective ladders must be withdrawn from service for repair or destruction and tagged as "Dangerous—Do not use."

(4) Ladders with broken or missing steps, rungs, or cleats, broken side rails, or other faulty equipment must not be used; improvised repairs must not be made.

(5) Ladders must be handled with care. Avoid unnecessary dropping, jarring, or misuse.

(6) Ladder storage must:

(a) Protect the ladder when not in use;

(b) Provide sufficient support to prevent excessive sagging;

(c) Provide ease of access or inspection; and

(d) Prevent danger of accidents when withdrawing a ladder for use.

[Recodified as § 296-307-05501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-05503 How must an employer instruct employees to use ladders? (1) At the beginning of employment, you must provide employees with orientation and training on the proper use of ladders, including how to set a ladder and properly dismount with a full load.

(2) To prevent ladder upset, you must instruct employees to avoid overreaching while standing on the ladder.

(3) You must instruct employees that before climbing ladders; rungs, shoes, and boots must be clean of substances that would make them hazardous.

(4) Employees must not climb up or down ladders while carrying tools or materials that interfere with the free use of both hands.

(5) Ladders must not be placed on boxes, barrels, or other unstable bases to obtain additional height.

(6) Stepladders must not be used as single ladders.

(7) When working from a ladder over twenty-five feet from the ground or floor, the ladder must be secured at both top and bottom. When work on a ladder over twenty-five feet from the ground or floor requires the use of both hands, a safety belt must be worn and the safety lanyard secured to the ladder.

(8) Portable ladders must be placed so that the side rails have a secure footing. The top rest for portable rung and cleat ladders must be reasonably rigid and strong enough to support the applied load. The top of the ladder must be placed with the two rails supported, unless equipped with a single support attachment. Such an attachment should be substantial and large enough to support the ladder under load.

(9) Ladders carried on vehicles should be adequately supported to avoid sagging and securely fastened in position to minimize chafing and the effects of road shocks.

[Recodified as § 296-307-05503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-05505 How must orchard ladders be used? (1) Orchard ladders longer than sixteen feet are prohibited.

(2) Employers must instruct employees to not stand on the top two steps (the top cap and the next step down) of orchard ladders.

(3) Employers must instruct employees to not step off the ladder onto branches of trees except onto the main crotch.

(4) Standing on the top two steps of the orchard ladder is prohibited.

[Recodified as § 296-307-05505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-05507 What other requirements apply to ladders? (1) Ladders made by fastening cleats across a single rail are prohibited.

(2) Wood ladders, when not in use, should be stored where they will not be exposed to the elements, but where there is good ventilation. They must be stored away from radiators, stoves, steam pipes, or other excessive heat or dampness.

(3) Wooden ladders should be kept coated with a suitable protective material. Painted ladders are acceptable if the ladders are carefully inspected prior to painting by competent and experienced inspectors acting for, and responsible to, the purchaser, and if the ladders are not for resale.

(4) A ladder must have feet that are appropriate for the surface on which it will be used.

For example: A ladder used on a slippery surface must have steel points or other nonslip material on its feet.

(5) Ladders must not be placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded.

(6) Ladder safety devices may be used on tower, water tank and chimney ladders over twenty feet long in place of cage protection. No landing platform is required in these cases. All ladder safety devices such as lifebelts, friction brakes, and sliding attachments must meet the design requirements of the ladders that they serve.

(7) See chapter 296-306A WAC Part K for requirements related to working near overhead lines.

[Recodified as § 296-307-05507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-060 What requirements apply to job-made ladders? A "job-made ladder" is a ladder that you or your employees build.

Job-made ladders must meet the following requirements:

(1) All cleats must be made of one-by-four-inch nominal lumber, or stronger.

(2) Cleats must be inset into the edges of side rails to a depth of one-half inch, or filler blocks must be used on the rails between the cleats.

(3) Each cleat must be fastened to each rail with three 8d common wire nails or other fasteners of equal strength.

(4) Cleats must be uniformly spaced approximately 12 inches from the top of one cleat to the top of the next.

(5) Side rails must be continuous, unless splices develop the full strength of a continuous rail of equal length.

[Recodified as § 296-307-060. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-060, filed 10/31/96, effective 12/1/96.]

WAC 296-307-061 What requirements apply to working around bins, bunkers, hoppers, tanks, pits, and trenches? (1) Employees must be prohibited from entering any bin, bunker, hopper, or similar area when loose materials (such as chips, sand, grain, gravel, sawdust, etc.) may collapse, unless the employee wears a safety belt with a lifeline attached and is attended by a helper.

Note: Silage pits are exempt from this section.

(2) When employees are required to work in a trench or a pit 4 feet deep or more, the trench or the pit must be shored or sloped according to the following table:

SOIL OR ROCK TYPE	MAXIMUM ALLOWABLE SLOPES (H:V) (1) FOR EXCAVATIONS LESS THAN 20 FEET DEEP (2)
STABLE ROCK	VERTICAL (90°)
TYPE A	3/4:1 (53°)
TYPE B	1:1 (45°)
TYPE C	1 1/2:1 (34°)

1 Numbers in parentheses next to maximum allowable slopes are angles in degrees from the horizontal. Angles have been rounded off.

2 Sloping or benching for excavations greater than 20 feet deep must be designed by a registered professional engineer.

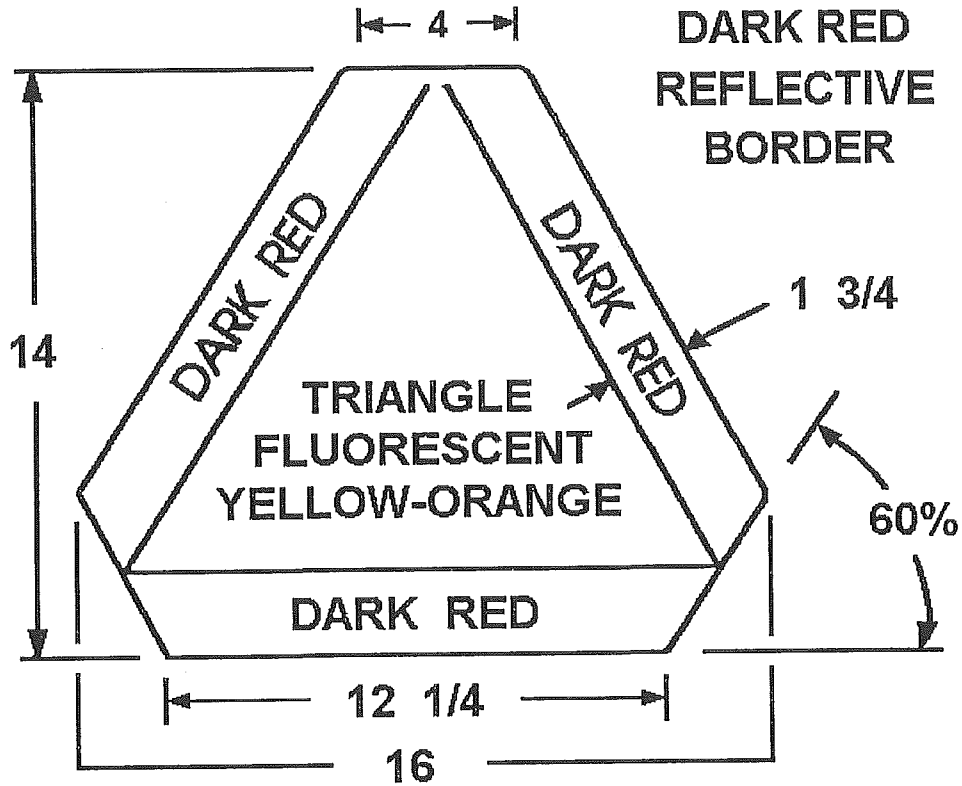
(3) Each soil and rock deposit must be classified by a competent person as Stable Rock, Type A, B, or C according to the definitions in WAC 296-155-66401. "Competent person" means someone who is able to identify working conditions that are hazardous to employees, and has authority to take prompt action to eliminate the hazards.

(4) Classification of the deposits must be based on the results of at least one visual and at least one manual analysis. The analyses must be conducted by a competent person using tests in recognized methods of soil classification and testing such as those adopted by the American Society for Testing Materials, or the U.S. Department of Agriculture textural classification system.

[Recodified as § 296-307-061. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-061, filed 10/31/96, effective 12/1/96.]

WAC 296-307-065 How must slow-moving vehicles be marked? (1) You must ensure that all farm tractors and other slow-moving farm vehicles and equipment used on public roads have lamps, reflectors, and a slow-moving vehicle emblem. From one-half hour after sunset to one-half hour before sunrise, slow-moving vehicles must have lights and reflectors.

(2) The slow-moving vehicle emblem is a fluorescent yellow-orange triangle with a dark red reflective border. (See figure.) The emblem must be used on public roads only by vehicles designed to move slowly (25 M.P.H. or less).



[Recodified as § 296-307-065. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-065, filed 10/31/96, effective 12/1/96.]

WAC 296-307-070 Motor vehicles.

[Recodified as § 296-307-070. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-070, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07001 How must motor vehicles be maintained? (1) You must maintain all motor vehicles and their parts in good repair and safe condition.

(2) You must not use tires that are worn beyond the point of safety.

(3) Employees must report to you any motor vehicle or other farm equipment that is in unsafe operating condition. You must ensure that the vehicle or equipment is removed from service and repaired before use.

(4) Before an employee performs service or repair work under hydraulic or mechanical raised dump truck beds, blades, discs, or other equipment, the raised portion of the equipment must be manually pinned or blocked to prevent falling.

[Recodified as § 296-307-07001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07003 How must motor vehicles be operated? (1) Vehicles must be driven at safe operating speed.

(2) Truck drivers must operate equipment at a safe speed for roadway conditions.

(3) When an employee backing a truck has obstructed vision, the employee must be assisted by a signaler. The signaler must have a clear view of the rear of the truck and the operator of the truck.

(4) Truck drivers must sound their horn before starting to back, and intermittently while backing.

(5) Shut off motors before refueling. Take care to prevent fuel from spilling on hot parts.

[Recodified as § 296-307-07003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07005 Who may operate motor vehicles? Only qualified drivers may operate motor vehicles and must have a current motor vehicle operator's license.

[Recodified as § 296-307-07005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07007 What requirements apply to motor vehicle brakes? (1) You must ensure that motor

vehicles have brakes that will safely hold the maximum load on maximum grades.

(2) Trucks parked on an incline must have the steered wheels turned into the curb and must have at least one "driver" wheel chocked on each side, independent of the braking system.

Exception: If the truck has a functioning secondary braking system, the turned wheels and chock are not required.

(3) You must ensure that trailers have working air brakes, or another approved type. Air must be cut into the trailer brake system at the time that the trailer is coupled to the truck.

(4) The driver must test truck and trailer brakes before driving down a steep grade.

[Recodified as § 296-307-07007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07009 How must motor vehicles be loaded and unloaded? (1) You must ensure that employees load and unload motor vehicles safely.

(2) All loads transported on trucks or truck and trailer combinations must be properly secured and distributed. Loads must not exceed the safe operating load for the roadway condition and the capacity of the bridges, trestles, and other structures.

[Recodified as § 296-307-07009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07011 What safety equipment must motor vehicles have? All motor vehicles must have standard lights, horn, flags, flares, and other safety equipment that conforms to the state of Washington motor vehicles laws.

[Recodified as § 296-307-07011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07013 What rules apply to vehicles used to transport employees? You must ensure that motor vehicles used regularly to transport employees meet the following requirements:

(1) The vehicles are well equipped, covered against the weather, and maintained in good mechanical condition at all times.

(2) A sufficient number of properly secured seats are provided in each vehicle to accommodate the number of employees transported. When emergency conditions make it necessary to transport more employees than the seating capacity can accommodate, all employees must ride within the vehicle. No employee may ride on fenders or running boards of the vehicle.

(3) No employees may ride in or on any vehicle with their legs hanging over the end or sides. All trucks without tail gates should have safety bars.

(4) The vehicles have storage strong enough to retain sharp tools that could present a hazard to employees being transported.

(5) All dump-trucks used to transport employees have an adequate safety chain or locking device to ensure that the body of the truck is not raised while employees are riding in it.

(6) Explosives or highly inflammable materials are not carried in or on the vehicle while it is used to transport employees.

(7) Exhaust systems are installed and maintained in proper condition, and are designed to eliminate the employee exposure to exhaust gases and fumes.

(8) Within the cab, crew trucks must carry only the number of passengers for which they are designed. In any seating arrangement, the driver must be able to maintain full freedom of motion. The driver's normal vision must be free from obstruction by passengers or the seating arrangement.

(9) All enclosed crew trucks have an emergency exit in addition to the regular entrance.

(10) Trucks used for hauling gravel may be used as crew trucks if they meet the following requirements:

- (a) Steps in proper places;
- (b) Wooden floors;
- (c) Securely fastened seats;
- (d) Truck is properly covered; and
- (e) Compliance with all other general regulations covering crew trucks.

(11) Half-ton vehicles must haul no more than six persons including driver. Three-quarter-ton vehicles must haul no more than eight persons including driver.

(12) A vehicle used as a first-aid station has stretchers and fire extinguishers.

(13) Heating units with open fires are not used in vehicles transporting crews.

[Recodified as § 296-307-07013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-073 What requirements apply to changing and charging storage batteries? (1) Battery changing installations must be located in areas designated for that purpose.

(2) Facilities must be provided for:

- Flushing and neutralizing spilled electrolyte;
- Fire protection;
- Protecting charging apparatus from damage by trucks;

and

- Adequate ventilation of fumes from gassing batteries.

(3) Racks used to support batteries should be made of or covered with materials that will not create sparks.

(4) A conveyor, overhead hoist, or equivalent material handling equipment must be provided for handling batteries.

(5) Reinstalled batteries must be properly positioned and secured in the vehicle.

(6) A carboy tilter or siphon must be provided for handling electrolyte.

(7) When mixing water and acid for charging batteries, pour acid into water; do not pour water into acid.

(8) Vehicles must be properly positioned and the brake applied before attempting to change or charge batteries.

(9) When charging batteries, the vent caps should be kept in place to avoid electrolyte spray. You must ensure

that vent caps function. The battery (or compartment) cover(s) must be open for cooling.

(10) Precautions shall be taken to prevent open flames, sparks, or electric arcs in battery charging areas.

(11) Tools and other metallic objects must be kept away from the tops of uncovered batteries.

[Recodified as § 296-307-073. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-073, filed 10/31/96, effective 12/1/96.]

WAC 296-307-076 How must farm field equipment be guarded? "Farm field equipment" means tractors or implements, including self-propelled implements, used in agricultural operations.

(1) All power transmission components must be guarded according to WAC 296-306A-280.

(2) The manufacturer's instruction manual, if published by the manufacturer and currently available, must be the source of information for the safe operation and maintenance of field equipment.

(3) You must ensure that all power takeoff shafts, including rear, mid-mounted or side-mounted shafts, are guarded by a master shield, as follows:

(a) The rear power takeoff has a master shield. The master shield is strong enough to prevent permanent deformation of the shield when a 250-pound operator mounts or dismounts the tractor using the shield as a step.

(b) Power takeoff driven equipment is guarded to prevent employee contact with rotating members of the power drive system. When the tractor master shield must be removed to use specific power takeoff driven equipment, the equipment must provide protection from the part of the tractor power takeoff shaft that protrudes from the tractor.

(c) Signs are placed at prominent locations on the tractor and on power takeoff driven equipment requiring that safety shields are kept in place.

(4) The following functional components must be shielded to a degree consistent with the intended function and operator's vision of the component.

- Snapping or husking rolls;
- Straw spreaders and choppers;
- Cutterbars;
- Flail rotors;
- Rotary beaters;
- Mixing augers;
- Feed rolls;
- Conveying augers;
- Rotary tillers; and
- Similar units that must be exposed for proper function

(5) Where removing a guard or access door will expose an employee to any component that continues to rotate after the power is disengaged, you must provide, in the immediate area:

(a) A safety sign warning the employee to look and listen for evidence of rotation and to wait until all components have stopped before removing the guard or access door.

(b) A readily visible or audible warning of rotation on equipment manufactured after October 25, 1976.

(6) If the mounting steps or ladder and the handholds of the propelling vehicle are made inaccessible by installation of other equipment, other steps and handholds must be provided on the equipment.

(7) You must ensure that the operator's steps and platform have a slip-resistant covering to minimize the possibility of slipping.

(8) Powered machines not driven by an individual motor must have a clutch or other effective means of stopping.

(9) All friction clutches must have sufficient clearance and be kept adjusted to prevent drag or creeping when disengaged.

[Recodified as § 296-307-076. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-076, filed 10/31/96, effective 12/1/96.]

WAC 296-307-080 Rollover protective structures (ROPS) for tractors.

[Recodified as § 296-307-080. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-080, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08003 Which agricultural tractors are covered by this section? All agricultural tractors manufactured after October 25, 1976, must meet the requirements of WAC 296-306A-080. An agricultural tractor manufactured on or before October 25, 1976, must meet the requirements of WAC 296-306A-080 if:

(1) The tractor was built or sold with rollover protective structures (ROPS) as an optional accessory; or

(2) According to the manufacturer, the tractor was designed to accommodate the addition of ROPS.

[Recodified as § 296-307-08003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08006 What definitions apply to rollover protective structures (ROPS) for agricultural tractors? "Agricultural tractor" means a two-wheel-drive or four-wheel-drive vehicle, or a track vehicle of more than twenty net engine horsepower, designed to furnish the power to pull, carry, propel, or drive implements that are designed for agriculture. All human-powered implements are excluded.

"Low profile tractor" means a wheel or track-equipped vehicle with the following characteristics:

- The front wheel spacing is equal to the rear wheel spacing, as measured between the centerlines of the wheels;
- The clearance from the bottom of the tractor chassis to the ground is eighteen inches or less;
- The highest point of the hood is sixty inches or less, and
- The tractor is designed so that the operator straddles the transmission when seated.

[Recodified as § 296-307-08006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08009 What requirements apply to the testing and performance of ROPS used on agricultural tractors? You must provide a rollover protective structure (ROPS) for each employee-operated tractor that is covered by WAC 296-306A-080. ROPS used on wheel-type tractors must meet the test and performance requirements of OSHA 1928.52 CFR, Protective Frames for Wheel Type Agricultural Tractors, and ROPS used on track-type tractors must meet the test and performance requirements of SAE Standard J334a (July 1970) and the portions of SAE Standard J167 (1971) pertaining to overhead protection requirements.

[Recodified as § 296-307-08009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08012 What requirements apply to seatbelts used with ROPS on agricultural tractors? (1) Where ROPS are required by WAC 296-306A-080, you must:

- (a) Provide each tractor with a seatbelt;
- (b) Require that each employee use the seatbelt while the tractor is moving; and
- (c) Require that each employee tighten the seatbelt sufficiently to confine the employee to the ROPS protected area.

(2) Each seatbelt and seatbelt anchorage must meet the requirements of ANSI/SAE J800 April 1986, Motor Vehicle Seat Belt Assemblies.

(a) Where a suspended seat is used, the seatbelt must be fastened to the movable portion of the seat.

(b) The seatbelt webbing material must be at least as resistant to acids, alkalis, mildew, aging, moisture and sunlight as untreated polyester fiber.

[Recodified as § 296-307-08012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08015 When are ROPS not required on agricultural tractors? ROPS are not required on agricultural tractors that are used as follows:

(1) Low profile tractors used in orchards, vineyards or hop yards where the vertical clearance requirements would substantially interfere with normal operations, and for work related to these uses.

(2) Low profile tractors while used inside a farm building or greenhouse in which the vertical clearance is insufficient to allow a ROPS equipped tractor to operate.

(3) Tractors while used with mounted equipment that is incompatible with ROPS (for example, cornpickers, cotton strippers, vegetable pickers, and fruit harvesters).

(4) Track-type agricultural tractors whose overall width (measured between the outside edges of the tracks) is at least three times the height of the rated center of gravity, and whose rated maximum speed in forward or reverse is not greater than seven miles per hour, when used only for tillage or harvesting operations, and which:

(a) Does not involve operating on slopes in excess of forty percent from horizontal; and

(b) Does not involve operating on piled crop products or residue (for example: Silage in stacks or pits); and

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(c) Does not involve operating in close proximity to irrigation ditches, streams or other excavations more than two feet deep that contain slopes of more than forty percent from horizontal; and

(d) Does not involve construction-type operation, such as bulldozing, grading, or land clearing.

[Recodified as § 296-307-08015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08018 What employee training requirements apply to ROPS used on agricultural tractors? (1) You must ensure that every employee who operates an agricultural tractor is informed of the operating practices listed below and of any other practices dictated by the work environment. You must provide the information at the time of initial assignment and at least annually thereafter.

EXHIBIT A

EMPLOYEE OPERATING INSTRUCTIONS

1. Securely fasten your seat belt if the tractor has a ROPS.
2. Where possible, avoid operating the tractor near ditches, embankments and holes.
3. Reduce speed when turning, crossing slopes and on rough, slick or muddy surfaces.
4. Stay off slopes too steep for safe operation.
5. Watch where you are going, especially at row ends, on roads and around trees.
6. Passengers, other than persons required for instruction or machine operation, shall not be permitted to ride on equipment unless a passenger seat or other protective device is provided.
7. Operate the tractor smoothly—no jerky turns, starts, or stops.
8. Hitch only to the drawbar and hitch points recommended by tractor manufacturers.
9. When tractor is stopped, set brakes securely and use park lock if available.

(2) You must ensure that every employee who operates an agriculture tractor is trained specifically in the operation of the tractor to be used. The training must include an orientation of the operator to the topographical features of the land where the tractor will be operated. Training must emphasize safe operating practices to avoid rollover.

(3) The tractor training program must be described in the written accident prevention program required by WAC 296-306A-030.

[Recodified as § 296-307-08018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-08-051A, § 296-306A-08018, filed 3/31/97, effective 5/1/97; 96-22-048, § 296-306A-08018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08021 What other requirements apply to ROPS used on agricultural tractors? (1) You must ensure that batteries, fuel tanks, oil reservoirs, and coolant systems are constructed and located or sealed to ensure that no spillage comes in contact with the operator in the event of an upset.

(2) All sharp edges and corners at the operator's station must be designed to minimize operator injury in the event of an upset.

(3) When ROPS are removed, they must be remounted to meet the requirements of WAC 296-306A-080.

(4) You must ensure that each ROPS has a label, permanently affixed to the structure, that states:

(a) Manufacturer's or fabricator's name and address;

(b) ROPS model number, if any;

(c) Tractor makes, models, or series numbers that the structure is designed to fit; and

(d) That the ROPS model was tested in accordance with the requirements of this section.

[Recodified as § 296-307-08021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-08021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-085 When must ROPS be provided for material handling equipment? (1) This section applies to the following types of material handling equipment: Rubber-tired, self-propelled scrapers; rubber-tired front-end loaders; rubber-tired dozers; wheel-type agricultural and industrial tractors; crawler tractors; crawler-type loaders; and motor graders, with or without attachments, that are used in agricultural work. This section does not apply to side-boom pipelaying tractors.

(2) You must ensure that material handling equipment manufactured on or after October 25, 1976, is equipped with ROPS that meet the minimum performance standards of WAC 296-306A-08009.

(3) ROPS and supporting attachments must meet the minimum performance standards of OSHA 1928.52 CFR, Protective Frames for Wheel Type Agricultural Tractors, or must be designed, fabricated, and installed in a manner that will support, based on the ultimate strength of the metal, at least two times the weight of the prime mover applied at the point of impact.

(a) The ROPS must be designed to minimize the likelihood of a complete overturn and to minimize the possibility of the operator being crushed in a rollover.

(b) The design must provide a vertical clearance of at least fifty-two inches from the work deck to the ROPS at the entrance.

(4) When ROPS are removed, they must be remounted so as to meet the requirements of this section.

(5) Each ROPS must have a label, permanently affixed to the structure, that states:

(a) Manufacturer's or fabricator's name and address;

(b) ROPS model number, if any;

(c) Tractor makes, models, or series numbers that the structure is designed to fit; and

(d) That the ROPS model was tested in accordance with the requirements of this section.

[Recodified as § 296-307-085. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-085, filed 10/31/96, effective 12/1/96.]

WAC 296-307-090 What requirements apply to overhead protection for operators of agricultural and industrial tractors? This section applies to wheel-type

agricultural tractors used in construction work and to wheel-type industrial tractors used in agriculture work.

(1) If grid or mesh is used for overhead protection, the largest permissible opening is 1.5 in. (38 mm.) in diameter. The overhead protection must not be installed in such a way as to become a hazard in the case of upset.

(2) All equipment used in site clearing operations must have rollover guards meeting the requirements of this chapter. You must ensure that rider-operated equipment is equipped with an overhead and rear canopy guard meeting the following requirements:

(a) The overhead covering is at least eighth-inch steel plate or quarter-inch woven wire mesh with openings no greater than one inch, or equivalent.

(b) The opening in the rear of the canopy structure is covered with not less than quarter-inch woven wire mesh with openings no greater than one inch.

(3) Overhead protection that meets the provisions of SAE Standard J334 (July 1970) for rubber-tired dozers and rubber-tired loaders also meets the requirements of this standard.

[Recodified as § 296-307-090. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-090, filed 10/31/96, effective 12/1/96.]

WAC 296-307-095 Field sanitation.

[Recodified as § 296-307-095. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-095, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09503 What does this section cover? WAC 296-306A-095 applies to any agricultural employer with one or more employees engaged in any hand-labor operations in the field.

Exception: WAC 296-306A-09515 (handwashing facilities) and 296-306A-09518 (toilet facilities) do not apply if your employees:

(1) Are engaged in field activities for the production of grains, seeds, livestock, or livestock feed; or

(2) Use vehicles, machinery, or animals as part of their field activities and, when needed, can transport themselves to and from toilet and handwashing facilities.

[Recodified as § 296-307-09503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09506 What definitions apply to this section? "Accessible" means a maximum of one-quarter mile or five minutes travel time from the worksite.

"Hand-labor operations" means agricultural operations performed by hand or with hand tools.

For example: The hand cultivation, weeding, planting or harvesting of vegetables, nuts, fruit, seedlings or other crops, including mushrooms, and hand packing into containers.

Exception: Hand-labor does not include logging operations, the care or feeding of livestock, or hand-labor operations in permanent structures (e.g., canning facilities or packing houses).

"Handwashing facility" means a facility that meets the requirements of WAC 296-306A-09515 and is approved by the local health authority.

"Toilet" means a fixed or portable facility designed for the purpose of adequate collection and containment of both defecation and urination. "Toilet" includes biological, chemical, flush, and combustion toilets, or sanitary out-houses.

[Recodified as § 296-307-09506. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09506, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09509 What orientation must employers provide for field sanitation? You must provide each employee with verbal orientation on field sanitation facilities. The orientation must be understandable to each employee and must include:

- (1) The location of potable water supplies;
- (2) Identification of all nonpotable water at the worksite and prohibition of the use of nonpotable water with an explanation of the hazards associated with using nonpotable water;
- (3) The location of handwashing facilities with an explanation of when and how they should be used and the hazards associated with not using them; and
- (4) The location of toilet facilities; an explanation that facilities are for employee convenience and health considerations; the necessity to keep them sanitary; and that using the fields, orchards, or forests is not an option.

[Recodified as § 296-307-09509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09512 What potable water sources must an employer provide? You must provide potable water for employees engaged in hand-labor operations in the field, without cost to the employee. Potable water must meet the following requirements:

- (1) Potable water is in locations that are accessible to all employees.
- (2) Potable water containers are refilled daily or more often as necessary.
- (3) Potable water dispensers are designed, constructed, and serviced so that sanitary conditions are maintained. They are closeable and equipped with a tap.
- (4) Open containers such as barrels, pails, or tanks for drinking water from which water must be dipped or poured, whether or not they are fitted with a cover, are prohibited.
- (5) Any container used to distribute drinking water is clearly marked in English and with the appropriate international symbol describing its contents.
- (6) Any container used to distribute drinking water is only used for that purpose.
- (7) Potable water is suitably cool and provided in sufficient amounts, taking into account the air temperature, humidity, and the nature of the work performed, to meet employees' needs.

Note: Suitably cool water should be sixty degrees Fahrenheit or less. During hot weather, employees may require up to three gallons of water per day.

(8) The use of common drinking cups or dippers is prohibited. Water is dispensed in single-use drinking cups, personal containers, or by water fountains.

"Single-use drinking cups" means containers of any type or size, disposable or not, and including personal containers if the choice to use a personal container is made by the employee, not the employer.

(9) Employees must be prohibited from drinking from irrigation ditches, creeks or rivers. Potable water must meet the quality standards for drinking purposes of the state or local authority, or must meet quality standards of the United States Environmental Protection Agency's National Interim—Primary Drinking Water Regulations, published in 40 CFR Part 141 and 40 CFR 147.2400.

[Recodified as § 296-307-09512. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09512, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09515 What handwashing facilities must an employer provide? You must provide handwashing facilities for employees engaged in hand-labor operations in the field, without cost to the employee. Handwashing facilities must meet the following requirements:

- (1) One handwashing facility with a tap and an adequate supply of water, soap, single-use hand towels, and either a basin or other suitable container for washing is provided for each twenty employees or fraction of twenty.

Note: Nonpotable water must not be used for washing any part of a person, except as permitted by the local health authority.

- (2) Each facility has running water.
- (3) Each facility has a dispenser containing handsoap or a similar cleansing agent.
- (4) Each facility has individual single-use hand towels.
- (5) Facilities are maintained in a clean and sanitary condition according to appropriate public health sanitation practices.
- (6) Waste receptacles are provided. Disposal of wastes from the facilities does not create a hazard nor cause an unsanitary condition.
- (7) Employees are allowed reasonable time during the work period to use the facilities.
- (8) Handwashing facilities are near toilet facilities and within one-quarter mile of each employee's worksite in the field.

Exception: Where it is not feasible to locate facilities as required above, the facilities must be located at the point of closest vehicular access.

[Recodified as § 296-307-09515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09518 What toilet facilities must an employer provide? You must provide toilet facilities for employees engaged in hand-labor operations in the field, without cost to the employee. Toilet facilities must meet the following requirements:

- (1) One toilet facility is provided for each twenty employees or fraction of twenty.

(2) You must ensure, at the beginning of each day, that the toilets are inspected. If any toilet facility fails to meet the requirements of this section, immediate corrective action is taken. Inspections are documented and the record maintained at the worksite for at least seventy-two hours.

(3) Toilet facilities are adequately ventilated; appropriately screened, and have self-closing doors that can be closed and latched from the inside. Toilet facilities are constructed to ensure privacy.

(4) Facilities are maintained in a clean, sanitary, and functional condition and according to appropriate public health sanitation practices.

(5) Toilets are supplied with toilet paper.

(6) Disposal of wastes from the facilities does not create a hazard or cause an unsanitary condition.

(7) Employees are allowed reasonable time during the work period to use the facilities.

(8) Facilities are near handwashing facilities and within one-quarter mile of each employee's worksite in the field.

Exception: Where it is not feasible to locate facilities as required above, the facilities must be located at the point of closest vehicular access.

[Recodified as § 296-307-09518. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-09518, filed 10/31/96, effective 12/1/96.]

WAC 296-307-100 Personal protective equipment.

[Recodified as § 296-307-100. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-100, filed 10/31/96, effective 12/1/96.]

WAC 296-307-10005 Who must provide personal protective equipment? (1) You must ensure that employees are protected from injury or impairment of any bodily function that might occur through absorption, inhalation or physical contact of any substance, vapor, radiation, or physical hazard. Wherever appropriate, you must ensure that employees use protective clothing; respiratory devices; shields; barriers; and adequate protective equipment for eyes, face, head, and extremities.

(2) You must provide personal protective equipment at no cost to employees, including replacement due to normal wear and tear. The equipment must be maintained in sanitary and reliable condition.

Exception: You may require employees to provide their own normal work clothing, including long-sleeved shirts, long-legged pants, and socks.

(3) If employees provide their own protective equipment, then you must ensure that the equipment is adequate, properly maintained, and sanitary.

[Recodified as § 296-307-10005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-10005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-10010 What requirements apply to eye protection? You must require eye protection wherever employees are exposed to flying objects, welding or cutting glare, injurious liquids, or injurious radiation. Eye protectors

must meet the criteria of the American National Standard for Occupational and Educational Eye and Face Protection.

[Recodified as § 296-307-10010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-10010, filed 10/31/96, effective 12/1/96.]

WAC 296-307-10015 How must personal protective equipment be used? (1) You must ensure that employees use personal protective equipment according to the manufacturer's instructions.

(2) You must ensure that, before each use, employees inspect all personal protective equipment for leaks, holes, tears, or worn places, and any damaged equipment is repaired or discarded.

(3) The employee must use personal protective equipment according to instructions and training received.

(4) The employee shall notify you of any defects in personal protective equipment or when the equipment becomes contaminated.

[Recodified as § 296-307-10015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-10015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-10020 What must an employer do to prevent heat-related illness? You must take appropriate measures to prevent heat-related illness that may be caused by employees wearing any required personal protective equipment.

[Recodified as § 296-307-10020. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-10020, filed 10/31/96, effective 12/1/96.]

WAC 296-307-10025 What instruction on personal protective equipment must an employer give to employees? You must instruct each employee in the proper use of personal protective equipment. The instruction must include any special limitations or precautions indicated by the manufacturer.

[Recodified as § 296-307-10025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-10025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-107 Federal worker protection standards—Washington state department of agriculture. This chapter contains the federal Environmental Protection Agency worker protection standards as listed in 40 CFR, Part 170. Revisions to the federal language have been incorporated into this chapter in order to be consistent with other requirements of Washington state law. These rules are adopted in conjunction with rules adopted by the Washington state department of agriculture in chapter 16-233 WAC.

[Recodified as § 296-307-107. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-107, filed 9/30/96, effective 11/1/96.]

WAC 296-307-110 Scope and purpose—Worker protection standards—40 CFR, § 170.1. This part contains standards designed to reduce the risks of illness or injury resulting from workers' and handlers' occupational exposures to pesticides used in the production of agricultural plants on

farms or in nurseries, greenhouses, and forests and also to reduce the accidental exposure of workers and other persons to such pesticides. It requires workplace practices designed to reduce or eliminate exposure to pesticides and establishes procedures for responding to exposure-related emergencies.

[Recodified as § 296-307-110. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-110, filed 9/30/96, effective 11/1/96.]

WAC 296-307-11005 Definitions—Worker protection standards—40 CFR, § 170.3. Terms used in this part have the same meanings they have in the Federal Insecticide, Fungicide, and Rodenticide Act, as amended. In addition, the following terms, when used in this part, shall have the following meanings:

"Agricultural emergency" means a sudden occurrence or set of circumstances which the agricultural employer could not have anticipated and over which the agricultural employer has no control, and which requires entry into a pesticide treated area during a restricted-entry interval, when no alternative practices would prevent or mitigate a substantial economic loss.

"Agricultural employer" means any person who hires or contracts for the services of workers, for any type of compensation, to perform activities related to the production of agricultural plants, or any person who is an owner of or is responsible for the management or condition of an agricultural establishment that uses such workers.

Note: This definition does not conflict with the definition of employer in WAC 296-306A-012.

"Agricultural establishment" means any farm, forest, nursery, or greenhouse.

Note: This applies to all the Standard Industrial Classification (SIC) Codes listed in WAC 296-306A-010.

"Agricultural plant" means any plant grown or maintained for commercial or research purposes and includes, but is not limited to, food, feed, and fiber plants; trees; turfgrass; flowers, shrubs; ornamentals; and seedlings.

"Animal premise" means the actual structure used to house, cage or confine animals such as: Barns, poultry houses, mink sheds, corrals, or structures used for shelter.

"Chemigation" means the application of pesticides through irrigation systems.

"Commercial pesticide handling establishment" means any establishment, other than an agricultural establishment, that:

- Employs any person, including a self-employed person, to apply on an agricultural establishment, pesticides used in the production of agricultural plants.

- Employs any person, including a self-employed person, to perform on an agricultural establishment, tasks as a crop advisor.

"Crop advisor" means any person who is assessing pest numbers or damage, pesticide distribution, or the status or requirements of agricultural plants and who holds a current Washington state department of agriculture commercial consultant license in the agricultural areas in which they are advising. The term does not include any person who is performing hand labor tasks.

"Early entry" means entry by a worker into a treated area on the agricultural establishment after a pesticide application is complete, but before any restricted-entry interval for the pesticide has expired.

"Farm" means any operation, other than a nursery or forest, engaged in the outdoor production of agricultural plants.

"Forest" means any operation engaged in the outdoor production of any agricultural plant to produce wood fiber or timber products.

"Fumigant" means any pesticide product that is a vapor or gas, or forms a vapor or gas on application, and whose method of pesticidal action is through the gaseous state.

"Greenhouse" means any operation engaged in the production of agricultural plants inside any structure or space that is enclosed with nonporous covering and that is of sufficient size to permit worker entry. This term includes, but is not limited to, polyhouses, mushroom houses, rhubarb houses, and similar structures. It does not include such structures as malls, atriums, conservatories, arboretums, or office buildings where agricultural plants are present primarily for aesthetic or climatic modification.

"Hand labor" means any agricultural activity performed by hand or with hand tools that causes a worker to have substantial contact with surfaces (such as plants, plant parts, or soil) that may contain pesticide residues. These activities include, but are not limited to, harvesting, detasseling, thinning, weeding, topping, planting, sucker removal, pruning, disbudding, roguing, and packing produce into containers in the field. Hand labor does not include operating, moving, or repairing irrigation or watering equipment or performing the tasks of crop advisors.

"Handler" means any person, including a self-employed person:

- Who is employed for any type of compensation by an agricultural establishment or commercial pesticide handling establishment to which WAC 296-306A-130 applies and who is:

- Mixing, loading, transferring, or applying pesticides.
- Disposing of pesticides or pesticide containers.
- Handling opened containers of pesticides.
- Acting as a flagger.
- Cleaning, adjusting, handling, or repairing the parts of mixing, loading, or application equipment that may contain pesticide residues.
- Assisting with the application of pesticides.
- Entering a greenhouse or other enclosed area after the application and before the inhalation exposure level listed in the labeling has been reached or one of the ventilation criteria established by WAC 296-306A-12015 (3)(c) or in the labeling has been met:
 - ◆ To operate ventilation equipment.
 - ◆ To adjust or remove coverings used in fumigation.
 - ◆ To monitor air levels.
- Entering a treated area outdoors after application of any soil fumigant to adjust or remove soil coverings such as tarpaulins.
- Performing tasks as a crop advisor:
 - ◆ During any pesticide application.
 - ◆ Before the inhalation exposure level listed in the labeling has been reached or one of the ventilation criteria

established by WAC 296-306A-12015 (3)(c) or in the labeling has been met.

◆ During any restricted-entry interval.

• The term does not include any person who is only handling pesticide containers that have been emptied or cleaned according to pesticide product labeling instructions or, in the absence of such instructions, have been subjected to triple-rinsing or its equivalent.

"Handler employer" means any person who is self-employed as a handler or who employs any handler, for any type of compensation.

"Immediate family" includes only spouse, children, stepchildren, foster children, parents, stepparents, foster parents, brothers, and sisters.

"Nursery" means any operation engaged in the outdoor production of any agricultural plant to produce cut flowers and ferns or plants that will be used in their entirety in another location. Such plants include, but are not limited to, flowering and foliage plants or trees; tree seedlings; live Christmas trees; vegetable, fruit, and ornamental transplants; and turfgrass produced for sod.

"Owner" means any person who has a present possessory interest (fee, leasehold, rental, or other) in an agricultural establishment covered by this chapter. A person who has both leased such agricultural establishment to another person and granted that same person the right and full authority to manage and govern the use of such agricultural establishment is not an owner for purposes of this part.

"Restricted-entry interval" means the time after the end of a pesticide application during which entry into the treated area is restricted.

"Substantial economic loss" means a loss in profitability greater than that which would be expected based on the experience and fluctuations of crop yields in previous years. Only losses caused by the agricultural emergency specific to the affected site and geographic area are considered. The contribution of mismanagement cannot be considered in determining the loss.

"Treated area" means any area to which a pesticide is being directed or has been directed.

"Worker" means any person, including a self-employed person, who is employed for any type of compensation and who is performing activities relating to the production of agricultural plants on an agricultural establishment to which WAC 296-306A-120 applies. While persons employed by a commercial pesticide handling establishment are performing tasks as crop advisors, they are not workers covered by the requirements of WAC 296-306A-120.

[Recodified as § 296-307-11005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-11005, filed 9/30/96, effective 11/1/96.]

WAC 296-307-11010 General duties and prohibited actions—Worker protection standards—40 CFR, § 170.7.

(1) General duties. The agricultural employer or the handler employer, as appropriate, shall:

(a) Assure that each worker subject to WAC 296-306A-120 or each handler subject to WAC 296-306A-130 receives the protections required by this part.

(b) Assure that any pesticide to which WAC 296-306A-130 applies is used in a manner consistent with the labeling of the pesticide, including the requirements of this part.

(c) Provide, to each person who supervises any worker or handler, information and directions sufficient to assure that each worker or handler receives the protections required by this part. Such information and directions shall specify which persons are responsible for actions required to comply with this part.

(d) Require each person who supervises any worker or handler to assure compliance by the worker or handler with the provisions of this part and to assure that the worker or handler receives the protections required by this part.

(2) Prohibited actions. The agricultural employer or the handler employer shall not take any retaliatory action for attempts to comply with this part or any action having the effect of preventing or discouraging any worker or handler from complying or attempting to comply with any requirement of this part.

[Recodified as § 296-307-11010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-11010, filed 9/30/96, effective 11/1/96.]

WAC 296-307-11015 Violations of this part—Worker protection standards—40 CFR, § 170.9.

(1) RCW 15.58.150 (2)(c) provides that it is unlawful for any person ". . . to use or cause to be used any pesticide contrary to label directions . . ." When 40 CFR, Part 170 is referenced on a label, users must comply with all of its requirements except those that are inconsistent with product specific instructions on the labeling. For purposes of this chapter, the term "use" is interpreted to include:

(a) Preapplication activities, including, but not limited to:

- (i) Arranging for the application of the pesticide;
- (ii) Mixing and loading the pesticide; and
- (iii) Making necessary preparations for the application of the pesticide, including responsibilities related to worker notification, training of handlers, decontamination, use and care of personal protective equipment, emergency information, and heat stress management.

(b) Application of the pesticide.

(c) Post-application activities necessary to reduce the risks of illness and injury resulting from handlers' and workers' occupational exposures to pesticide residues during the restricted-entry interval plus thirty days. These activities include, but are not limited to, responsibilities related to worker training, notification, and decontamination.

(d) Other pesticide-related activities, including, but not limited to, providing emergency assistance, transporting or storing pesticides that have been opened, and disposing of excess pesticides, spray mix, equipment wash waters, pesticide containers, and other pesticide-containing materials.

(2) A person who has a duty under this chapter, as referenced on the pesticide product label, and who fails to perform that duty, violates RCW 15.58.330 and 17.21.315, and is subject to civil penalties under RCW 15.58.335, 15.58.260 and 17.21.315.

(3) FIFRA section 14 (b)(4) provides that a person is liable for a penalty under FIFRA if another person employed

by or acting for that person violates any provision of FIFRA. The term "acting for" includes both employment and contractual relationships.

(4) The requirements of this chapter, including the decontamination requirements, shall not, for the purposes of section 653 (b)(1) of Title 29 of the U.S. Code, be deemed to be the exercise of statutory authority to prescribe or enforce standards or regulations affecting the general sanitary hazards addressed by the WISHA Field Sanitation Standard, WAC 296-24-120, or other agricultural, nonpesticide hazards.

[Recodified as § 296-307-11015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-11015, filed 9/30/96, effective 11/1/96.]

WAC 296-307-120 Applicability of this section—Standards for workers—40 CFR, § 170.102. Requirement. Except as provided by WAC 296-306A-12005 and 296-306A-12010, WAC 296-306A-120 applies when any pesticide product is used on an agricultural establishment in the production of agricultural plants.

[Recodified as § 296-307-120. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-120, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12005 Exceptions—Standards for workers—40 CFR, § 170.103. This section does not apply when any pesticide is applied on an agricultural establishment in the following circumstances:

(1) For mosquito abatement, Mediterranean fruit fly eradication, or similar wide-area public pest control programs sponsored by governmental entities.

(2) On livestock or other animals, or in or about animal premises.

(3) On plants grown for other than commercial or research purposes, which may include plants in habitations, home fruit and vegetable gardens, and home greenhouses.

(4) On plants that are in ornamental gardens, parks, and public or private lawns and grounds that are intended only for aesthetic purposes or climatic modification.

(5) By injection directly into agricultural plants. Direct injection does not include "hack and squirt," "frill and spray," chemigation, soil-incorporation, or soil-injection.

(6) In a manner not directly related to the production of agricultural plants, including, but not limited to, structural pest control, control of vegetation along rights-of-way and in other noncrop areas, and pasture and rangeland use.

(7) For control of vertebrate pests.

(8) As attractants or repellents in traps.

(9) On the harvested portions of agricultural plants or on harvested timber.

(10) For research uses of unregistered pesticides.

[Recodified as § 296-307-12005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12005, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12010 Exemptions—Standards for workers—40 CFR, § 170.104. The workers listed in this section are exempt from the specified provisions of WAC 296-306A-120.

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(1) Owners of agricultural establishments.

(a) The owner of an agricultural establishment is not required to provide to himself/herself or members of his/her immediate family who are performing tasks related to the production of agricultural plants on their own agricultural establishment the protections of:

(i) WAC 296-306A-12020 (3)(e) through (i);

(ii) WAC 296-306A-12020 (3)(e) through (i); as referenced in WAC 296-306A-12020 (4)(b)(iii) and (5);

(iii) WAC 296-306A-12025;

(iv) WAC 296-306A-12030;

(v) WAC 296-306A-12040;

(vi) WAC 296-306A-12045;

(vii) WAC 296-306A-12050;

(viii) WAC 296-306A-12055.

(b) The owner of the agricultural establishment must provide the protections listed in (a)(i) through (viii) of this subsection to other workers and other persons who are not members of his/her immediate family.

(2) Crop advisors.

(a) Provided that the conditions of this section are met, a person who is certified or licensed as a crop advisor by a program acknowledged as appropriate in writing by EPA or a State or Tribal lead agency for pesticide enforcement, and persons performing crop advising tasks under such qualified crop advisor's direct supervision, are exempt from the provisions of:

(i) WAC 296-306A-12050.

(ii) WAC 296-306A-12055.

A person is under the direct supervision of a crop advisor when the crop advisor exerts the supervisory controls set out in (b)(iii) and (iv) of this subsection. Direct supervision does not require that the crop advisor be physically present at all times, but the crop advisor must be readily accessible to the employees at all times.

(b) Conditions of exemption.

(i) The certification or licensing program requires pesticide safety training that includes, at least, all the information in WAC 296-306A-13025 (3)(d).

(ii) Applies only when performing crop advising tasks in the treated area.

(iii) The crop advisor must make specific determinations regarding the appropriate PPE, appropriate decontamination supplies, and how to conduct the tasks safely. The crop advisor must convey this information to each person under his direct supervision in a language that the person understands.

(iv) Before entering a treated area, the certified or licensed crop advisor must inform, through an established practice of communication, each person under his/her direct supervision of the pesticide product and active ingredient(s) applied, method of application, time of application, the restricted entry interval which tasks to undertake, and how to contact the crop advisor.

[Recodified as § 296-307-12010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12010, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12015 Restrictions associated with pesticide applications—Standards for workers—40 CFR, § 170.110. (1) Farms and forests. During the application of

any pesticide on a farm or in a forest, the agricultural employer shall not allow or direct any person, other than an appropriately trained and equipped handler, to enter or to remain in the treated area.

(2) Nurseries. In a nursery, during any pesticide application described in column A of Table 1 of this section, the agricultural employer shall not allow or direct any person, other than an appropriately trained and equipped handler, to enter or to remain in the area specified in column B of Table 1 of this section. After the application is completed, until the end of any restricted-entry interval, the entry-restricted area is the treated area.

Table 1.—Entry-Restricted Areas in Nurseries During Pesticide Applications

A. During Application of a Pesticide:	B. Workers are Prohibited in:
<p>(1)(a) Applied:</p> <ul style="list-style-type: none"> (i) Aerially, or (ii) In an upward direction, or (iii) Using a spray pressure greater than 150 psi, or <p>(b) Applied as a:</p> <ul style="list-style-type: none"> (i) Fumigant, or (ii) Smoke, or (iii) Mist, or (iv) Fog, or (v) Aerosol. 	<p>Treated area plus 100 feet in all directions on the nursery</p>
<p>(2)(a) Applied downward using:</p> <ul style="list-style-type: none"> (i) A height of greater than 12 inches from the planting medium, or (ii) A fine spray, or (iii) A spray pressure greater than 40 psi and less than 150 psi. <p>(b) Not as in 1 or 2(a) above but for which a respiratory protection device is required for application by the product labeling.</p>	<p>Treated area plus 25 feet in all directions on the nursery</p>
<p>(3) Applied otherwise.</p>	<p>Treated area</p>
<p>(3) Greenhouses.</p> <p>(a) When a pesticide application described in column A of Table 2 under (d) of this subsection takes place in a greenhouse, the agricultural employer shall not allow or direct any person, other than an appropriately trained and equipped handler, to enter or to remain in the area specified in column B of Table 2 until the time specified in column C of Table 2 has expired.</p> <p>(b) After the time specified in column C of Table 2 under (d) of this subsection has expired, until the expiration of any restricted-entry interval, the agricultural employer shall not allow or direct any worker to enter or to remain in the treated area as specified in column D of Table 2 under (d) of this subsection, except as provided in WAC 296-306A-12020.</p> <p>(c) When column C of Table 2 under (d) of this subsection specifies that ventilation criteria must be met, ventilation shall continue until the air concentration is</p>	<p>measured to be equal to or less than the inhalation exposure level the labeling requires to be achieved. If no inhalation exposure level is listed on the labeling, ventilation shall continue until after:</p> <ul style="list-style-type: none"> (i) Ten air exchanges are completed; or (ii) Two hours of ventilation using fans or other mechanical ventilating systems; or (iii) Four hours of ventilation using vents, windows or other passive ventilation; or (iv) Eleven hours with no ventilation followed by one hour of mechanical ventilation; or (v) Eleven hours with no ventilation followed by two hours of passive ventilation; or (vi) Twenty-four hours with no ventilation. <p>(d) The following Table 2 applies to (a), (b) and (c) of this subsection.</p>

Table 2.—Greenhouse Entry Restrictions Associated With Pesticide Applications

A. When a Pesticide is Applied:	B. Workers are Prohibited in:	C. Until:	D. After the Expiration of Time in Column C Until the Restricted-Entry Interval Expires, the Entry-Restricted Area is:
(1) As a fumigant	Entire greenhouse plus any adjacent structure that cannot be sealed off from the treated area	The ventilation criteria of (c) of this subsection are met	No entry restrictions after criteria in column C are met
(2) As a:	Entire enclosed area	The ventilation criteria of (c) of this subsection are met	Entire enclosed area is the treated area
(i) Smoke, or (ii) Mist, or (iii) Fog, or (iv) Aerosol			
(3) Not in 1 or 2 above, and for which a respiratory protection device is required for application by the product labeling	Entire enclosed area	The ventilation criteria of (c) of this subsection are met	Treated area
(4) Not in 1, 2, or 3 above, and:	Treated area plus 25 feet in all directions in the enclosed area	Application is complete	Treated area
(i) From a height of greater than 12 in. from the planting medium, or (ii) As a fine spray, or (iii) Using a spray pressure greater than 40 psi			
(5) Otherwise	Treated area	Application is complete	Treated area

[Recodified as § 296-307-12015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12015, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12020 Entry restrictions—Standards for workers—40 CFR, § 170.112. (1) General restrictions.

(a) After the application of any pesticide on an agricultural establishment, the agricultural employer shall not allow or direct any worker to enter or to remain in the treated area before the restricted-entry interval specified on the pesticide labeling has expired, except as provided in this section.

(b) Entry-restricted areas in greenhouses are specified in column D in Table 2 under WAC 296-306A-12015 (3)(d).

(c) When two or more pesticides are applied at the same time, the restricted-entry interval shall be the longest of the applicable intervals.

(d) The agricultural employer shall assure that any worker who enters a treated area under a restricted-entry interval as permitted by subsections (3), (4), and (5) of this section uses the personal protective equipment specified in

the product labeling for early entry workers and follows any other requirements on the pesticide labeling regarding early entry.

(2) Exception for activities with no contact. A worker may enter a treated area during a restricted-entry interval if the agricultural employer assures that both of the following are met:

(a) The worker will have no contact with anything that has been treated with the pesticide to which the restricted-entry interval applies, including, but not limited to, soil, water, air, or surfaces of plants; and

(b) No such entry is allowed until any inhalation exposure level listed in the labeling has been reached or any ventilation criteria established by WAC 296-306A-12015 (3)(c) or in the labeling have been met.

(3) Exception for short-term activities. A worker may enter a treated area during a restricted-entry interval for short-term activities if the agricultural employer assures that the following requirements are met:

(a) No hand labor activity is performed.

(b) The time in treated areas under a restricted-entry interval for any worker does not exceed one hour in any twenty-four-hour period.

(c) No such entry is allowed for the first four hours following the end of the application, and no such entry is allowed thereafter until any inhalation exposure level listed in the labeling has been reached or any ventilation criteria established by WAC 296-306A-12015 (3)(c) or in the labeling have been met.

(d) The personal protective equipment specified on the product labeling for early entry is provided to the worker. Such personal protective equipment shall conform to the following standards:

(i) Personal protective equipment (PPE) means devices and apparel that are worn to protect the body from contact with pesticides or pesticide residues, including, but not limited to, coveralls, chemical-resistant suits, chemical-resistant gloves, chemical-resistant footwear, respiratory protection devices, chemical-resistant aprons, chemical-resistant headgear, and protective eyewear.

(ii) Long-sleeved shirts, short-sleeved shirts, long pants, short pants, shoes, socks, and other items of work clothing are not considered personal protective equipment for the purposes of this section and are not subject to the requirements of this section, although pesticide labeling may require that such work clothing be worn during some activities.

(iii) When "chemical-resistant" personal protective equipment is specified by the product labeling, it shall be made of material that allows no measurable movement of the pesticide being used through the material during use.

(iv) When "waterproof" personal protective equipment is specified by the product labeling, it shall be made of material that allows no measurable movement of water or aqueous solutions through the material during use.

(v) When a "chemical-resistant suit" is specified by the product labeling, it shall be a loose-fitting, one-piece or two-piece, chemical-resistant garment that covers, at a minimum, the entire body except head, hands, and feet.

(vi) When "coveralls" are specified by the product labeling, they shall be a loose-fitting, one-piece or two-piece garment, such as a cotton or cotton and polyester coverall, that covers, at a minimum, the entire body except head, hands, and feet. The pesticide product labeling may specify that the coveralls be worn over a layer of clothing. If a chemical-resistant suit is substituted for coveralls, it need not be worn over a layer of clothing.

(vii) Gloves shall be of the type specified by the product labeling. Gloves or glove linings made of leather, cotton, or other absorbent materials must not be worn for early entry activities unless these materials are listed on the product labeling as acceptable for such use. If chemical-resistant gloves with sufficient durability and suppleness are not obtainable for tasks with roses or other plants with sharp thorns, leather gloves may be worn over chemical-resistant liners. However, once leather gloves have been worn for this use, thereafter they shall be worn only with chemical-resistant liners and they shall not be worn for any other use.

(viii) When "chemical-resistant footwear" is specified by the product labeling, it shall be one of the following types of footwear: Chemical-resistant shoes, chemical-resistant boots, or chemical-resistant shoe coverings worn over shoes or

boots. If chemical-resistant footwear with sufficient durability and a tread appropriate for wear in rough terrain is not obtainable for workers, then leather boots may be worn in such terrain.

(ix) When "protective eyewear" is specified by the product labeling, it shall be one of the following types of eyewear: Goggles; face shield; safety glasses with front, brow, and temple protection; or a full-face respirator.

(x) When "chemical-resistant headgear" is specified by the product labeling, it shall be either a chemical-resistant hood or a chemical-resistant hat with a wide brim.

(e) The agricultural employer shall assure that the worker, before entering the treated area, either has read the product labeling or has been informed, in a manner that the worker can understand, of all labeling requirements related to human hazards or precautions, first aid, symptoms of poisoning, personal protective equipment specified for early entry, and any other labeling requirements related to safe use.

(f) The agricultural employer shall assure that:

(i) Workers wear the personal protective equipment correctly for its intended purpose and use personal protective equipment according to manufacturer's instructions.

(ii) Before each day of use, all personal protective equipment is inspected for leaks, holes, tears, or worn places, and any damaged equipment is repaired or discarded.

(iii) Personal protective equipment that cannot be cleaned properly is disposed of in accordance with any applicable federal, state, and local regulations.

(iv) All personal protective equipment is cleaned according to manufacturer's instructions or pesticide product labeling instructions before each day of reuse. In the absence of any such instructions, it shall be washed thoroughly in detergent and hot water.

(v) Before being stored, all clean personal protective equipment is dried thoroughly or is put in a well-ventilated place to dry.

(vi) Personal protective equipment contaminated with pesticides is kept separately and washed separately from any other clothing or laundry.

(vii) Any person who cleans or launders personal protective equipment is informed that such equipment may be contaminated with pesticides, of the potentially harmful effects of exposure to pesticides, and of the correct way(s) to handle and clean personal protective equipment and to protect themselves when handling equipment contaminated with pesticides.

(viii) All clean personal protective equipment is stored separately from personal clothing and apart from pesticide-contaminated areas.

(ix) Each worker is instructed how to put on, use, and remove the personal protective equipment and is informed about the importance of washing thoroughly after removing personal protective equipment.

(x) Each worker is instructed in the prevention, recognition, and first aid treatment of heat-related illness.

(xi) Workers have a clean place(s) away from pesticide-storage and pesticide-use areas for storing personal clothing not in use; putting on personal protective equipment at the start of any exposure period; and removing personal protective equipment at the end of any exposure period.

(g) When personal protective equipment is required by the labeling of any pesticide for early entry, the agricultural employer shall assure that no worker is allowed or directed to perform the early entry activity without implementing, when appropriate, measures to prevent heat-related illness.

(h) During any early entry activity, the agricultural employer shall provide a decontamination site in accordance with WAC 296-306A-12050.

(i) The agricultural employer shall not allow or direct any worker to wear home or to take home personal protective equipment contaminated with pesticides.

(4) Declaration of an agricultural emergency.

(a) The director of the Washington state department of agriculture may declare the existence of circumstances causing an agricultural emergency on a particular establishment or establishments.

(b) The director may declare an agricultural emergency based on the reasonably expected certainty of circumstances occurring based on weather or other forecasts that would create conditions that would normally be anticipated to cause an agricultural emergency.

(c) The agricultural employer may determine if the establishment under his/her control is subject to the agricultural emergency declared by the director.

(d) Emergency repair of equipment that is in use and sited within a pesticide treated area under a restricted-entry interval, such as frost protection devices, shall be considered to be an agricultural emergency. The conditions in WAC 16-228-655 shall be met.

(e) Activities that require immediate response such as fire suppression, relocation of greenhouse plants due to power failure, and similar conditions, shall be considered to be agricultural emergencies. The conditions in WAC 16-228-655 shall be met.

(5) Agricultural activities permitted under an agricultural emergency.

(a) A worker may enter a pesticide treated area under a restricted-entry interval in an agricultural emergency to perform tasks, including hand labor tasks, necessary to mitigate the effects of the agricultural emergency if the agricultural employer assures that all the following requirements are met:

(i) No entry is permitted for the first four hours after the pesticide application or the minimum reentry interval allowed by EPA for that product, whichever is less;

(ii) The personal protective equipment specified on the product labeling for early entry is provided to the worker;

(iii) The agricultural employer shall assure that the worker, before entering the treated area, either has read the product labeling or has been informed, in a manner the worker can understand, of all labeling requirements related to human hazards or precautions, first aid, symptoms of poisoning, personal protective equipment specified for early entry, and any other labeling requirements related to safe use;

(iv) The agricultural employer shall assure that the worker wears the proper PPE and that the PPE is in operable condition and that the worker has been trained in its proper use;

(v) The agricultural employer shall assure that measures have been taken, when appropriate, to prevent heat-related illness;

(vi) A decontamination site has been provided in accordance with EPA regulations;

(vii) The agricultural employer shall not allow or direct any worker to wear home or take home personal protective equipment contaminated with pesticides.

(b) If the agricultural emergency is due to equipment failure, then the agricultural employer shall assure that all the requirements in subsection (1) of this section are met plus the following additional requirement. The only permitted activity until the restricted-entry interval has elapsed is equipment repair that would mitigate the effect of the equipment failure.

(6) Recordkeeping required for agricultural emergencies.

(a) If the employer declares that his/her establishment is affected by an agricultural emergency and that activities regulated by the worker protection standard have been performed, the employer shall keep the following records for seven years from the date of the agricultural emergency:

(i) Date of the agricultural emergency;

(ii) Time of the agricultural emergency, start and end;

(iii) Reason for the agricultural emergency, such as frost, fire, equipment failure, etc.;

(iv) Crop/site;

(v) Pesticide(s) - name, EPA number, REI;

(vi) Name, date, time of entry and exit of early entry person(s);

(vii) Estimated potential of economic loss which would have occurred had no early entry been allowed.

(b) Records shall be completed within twenty-four hours of the early entry exposure and be available to the department and/or department of health and/or medical facility or treating physician if requested by the above or the employee.

(7) Exception to entry restrictions requiring EPA approval. EPA may in accordance with 40 CFR, Part 170.112(e) grant an exception from the requirements of this section. A request for an exception must be submitted to the Director, Office of Pesticide Programs (H-7501C), Environmental Protection Agency, 401 "M" Street SW, Washington, DC 20460 and must be accompanied by two copies of the information specified in 40 CFR, Part 170.112(e).

[Recodified as § 296-307-12020. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12020, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12025 Notice of applications—Standards for workers—40 CFR, § 170.120. (1) Notification to workers of pesticide applications in greenhouses. The agricultural employer shall notify workers of any pesticide application in the greenhouse in accordance with this subsection.

(a) All pesticide applications shall be posted in accordance with subsection (3) of this section.

(b) If the pesticide product labeling has a statement requiring both the posting of treated areas and oral notification to workers, the agricultural employer shall also provide oral notification of the application to the worker in accordance with subsection (4) of this section.

(c) Notice need not be given to a worker if the agricultural employer can assure that one of the following is met:

(i) From the start of the application until the end of the application and during any restricted-entry interval, the worker will not enter, work in, remain in, or pass through the greenhouse; or

(ii) The worker applied (or supervised the application of) the pesticide for which the notice is intended and is aware of all information required by subsection (4)(a) through (c) of this section.

(2) Notification to workers on farms, in nurseries, or in forests of pesticide applications. The agricultural employer shall notify workers of any pesticide application on the farm or in the nursery or forest in accordance with this subsection.

(a) If the pesticide product labeling has a statement requiring both the posting of treated areas and oral notification to workers, the agricultural employer shall post signs in accordance with subsection (3) of this section and shall provide oral notification of the application to the worker in accordance with subsection (4) of this section.

(b) For any pesticide other than those for which the labeling requires both posting and oral notification of applications, the agricultural employer shall give notice of the application to the worker either by the posting of warning signs in accordance with subsection (3) of this section or orally in accordance with subsection (4) of this section, and shall inform the workers as to which method of notification is in effect.

(c) Notice need not be given to a worker if the agricultural employer can assure that one of the following is met:

(i) From the start of the application until the end of the application and during any restricted-entry interval, the worker will not enter, work in, remain in, or pass through on foot the treated area or any area within one-quarter mile of the treated area; or

(ii) The worker applied (or supervised the application of) the pesticide for which the notice is intended and is aware of all information required by subsection (4)(a) through (c) of this section.

(3) Posted warning signs. The agricultural employer shall post warning signs in accordance with the following criteria:

(a) The warning sign shall have a background color that contrasts with red. The words "DANGER" and "PELIGRO," plus "PESTICIDES" and "PESTICIDAS," shall be at the top of the sign, and the words "KEEP OUT" and "NO ENTRE" shall be at the bottom of the sign. Letters for all words must be clearly legible. A circle containing an upraised hand on the left and a stern face on the right must be near the center of the sign. The inside of the circle must be red, except that the hand and a large portion of the face must be in a shade that contrasts with red. The length of the hand must be at least twice the height of the smallest letters. The length of the face must be only slightly smaller than the hand. Additional information such as the name of the pesticide and the date of application may appear on the warning sign if it does not detract from the appearance of the sign or change the meaning of the required information. A black and white example of a warning sign meeting these requirements, other than the size requirements, follows:



(b) The standard sign shall be at least fourteen inches by sixteen inches with letters at least one inch in height. Farms and forests shall use the standard size sign unless a smaller sign is necessary because the treated area is too small to accommodate a sign of this size. In nurseries and greenhouses, the agricultural employer may, at any time, use a sign smaller than the standard size sign. Whenever a small sign is used on any establishment, there are specific posting distances depending on the size of the lettering and symbol on the sign. If a sign is used with DANGER and PELIGRO in letters at least 7/8 inch in height and the remaining letters at least 1/2 inch and a red circle at least three inches in diameter containing an upraised hand and a stern face, the signs shall be no further than fifty feet apart. If a sign is used with DANGER and PELIGRO in letters at least 7/16 inch in height and the remaining letters at least 1/4 inch in height and a red circle at least 1 1/2 inches in diameter containing an upraised hand and stern face, the signs shall be no further than twenty-five feet apart. A sign with DANGER and PELIGRO in letters less than 7/16 inch in height or with any words in letters less than 1/4 inch in height, or a red circle smaller than 1 1/2 inches in diameter containing an upraised hand and a stern face will not satisfy the requirements of the rule. All signs must meet the requirements of (a) of this subsection.

(c) The employer may replace the Spanish portion of the warning sign with a non-English language read by the largest group of workers who do not read English. The replacement sign must be in the same format as the original sign and must be visible and legible.

(d) On farms and in forests and nurseries, the signs shall be visible from all usual points of worker entry to the treated area, including at least each access road, each border with any labor camp adjacent to the treated area, and each footpath and other walking route that enters the treated area. When there are no usual points of worker entry, signs shall be posted in the corners of the treated area or in any other location affording maximum visibility.

(e) In greenhouses, the signs shall be posted so they are visible from all usual points of worker entry to the treated area including each aisle or other walking route that enters the treated area. When there are no usual points of worker entry to the treated area, signs shall be posted in the corners of the treated area or in any other location affording maximum visibility.

(f) The signs shall:

(i) Be posted no sooner than twenty-four hours before the scheduled application of the pesticide.

(ii) Remain posted throughout the application and any restricted-entry interval.

(iii) Be removed within three days after the end of the application and any restricted-entry interval and before agricultural-worker entry is permitted, other than entry permitted by WAC 296-306A-12020.

(g) The signs shall remain visible and legible during the time they are posted.

(h) When several contiguous areas are to be treated with pesticides on a rotating or sequential basis, the entire area may be posted. Worker entry, other than entry permitted by WAC 296-306A-12020, is prohibited for the entire area while the signs are posted.

(4) Oral warnings. The agricultural employer shall provide oral warnings to workers in a manner that the worker can understand. If a worker will be on the premises during the application, the warning shall be given before the application takes place. Otherwise, the warning shall be given at the beginning of the worker's first work period during which the application is taking place or the restricted-entry interval for the pesticide is in effect. The warning shall consist of:

(a) The location and description of the treated area.

(b) The time during which entry is restricted.

(c) Instructions not to enter the treated area until the restricted-entry interval has expired.

[Recodified as § 296-307-12025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12025, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12030 Providing specific information about applications—Standards for workers—40 CFR, § 170.122. When workers are on an agricultural establishment and, within the last thirty days, a pesticide covered by this part has been applied on the establishment or a restricted-entry interval has been in effect, the agricultural employer shall display, in accordance with this section, specific information about the pesticide.

(1) Location, accessibility, and legibility. The information shall be displayed in the location specified for the pesticide safety poster in WAC 296-306A-12045(4) and shall be accessible and legible, as specified in WAC 296-306A-12045 (4) and (6).

(2) Timing.

(a) If warning signs are posted for the treated area before an application, the specific application information for that application shall be posted at the same time or earlier.

(b) The information shall be posted before the application takes place, if workers will be on the establishment during application. Otherwise, the information shall be posted at the beginning of any worker's first work period.

(c) The information shall continue to be displayed for at least thirty days after the end of the restricted-entry interval (or, if there is no restricted-entry interval, for at least thirty days after the end of the application) or at least until workers are no longer on the establishment, whichever is earlier.

(3) Required information. The information shall include:

(a) The location and description of the treated area.

(b) The product name, EPA registration number, and active ingredient(s) of the pesticide.

(c) The time and date the pesticide is to be applied.

(d) The restricted-entry interval for the pesticide.

[Recodified as § 296-307-12030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12030, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12035 Notice of applications to handler employers—Standards for workers—40 CFR, § 170.124. Whenever handlers who are employed by a commercial pesticide handling establishment will be performing pesticide handling tasks on an agricultural establishment, the agricultural employer shall provide to the handler employer, or assure that the handler employer is aware of,

the following information concerning any areas on the agricultural establishment that the handler may be in (or may walk within one-quarter mile of) and that may be treated with a pesticide or that may be under a restricted-entry interval while the handler will be on the agricultural establishment:

- (1) Specific location and description of any such areas; and
- (2) Restrictions on entering those areas.

[Recodified as § 296-307-12035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-08, § 296-306A-12035, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12040 Pesticide safety training—Standards for workers—40 CFR, § 170.130. (1) General requirement.

(a) Agricultural employer assurance. The agricultural employer shall assure that each worker, required by this section to be trained, has been trained according to this section during the last five years, counting from the end of the month in which the training was completed.

Note: In addition to the training required by this section, the agricultural employer shall assure without exception, that all employees are trained in accordance with WAC 296-62-054 through 296-62-05427, Hazard communication.

(b) Requirement for workers performing early entry activities. Before a worker enters a treated area on the agricultural establishment during a restricted-entry interval to perform early entry activities permitted by WAC 296-306A-12020 and contacts anything that has been treated with the pesticide to which the restricted-entry interval applies, including but not limited to, soil, water, or surfaces of plants, the agricultural employer shall assure that the worker has been trained.

(c) Requirements for other agricultural workers.

(i) Information before entry. Except as provided in (b) of this subsection, before a worker enters any areas on the agricultural establishment where, within the last thirty days a pesticide to which this part applies has been applied or the restricted-entry interval for such pesticide has been in effect, the agricultural employer shall assure that the worker has been provided the pesticide safety information specified in subsection (3) of this section, in a manner that agricultural workers can understand, such as by providing written materials or oral communication or by other means. The agricultural employer must be able to verify compliance with this requirement.

(ii) Training before the start of a work period. The agricultural employer shall assure that a worker has been trained before the worker enters any areas on the agricultural establishment where, within the last thirty days a pesticide to which this chapter applies has been applied or a restricted-entry interval for such pesticide has been in effect, the agricultural employer shall assure that the worker has been trained.

(2) Exceptions. The following persons need not be trained under this section:

(a) A worker who is currently certified as an applicator of restricted-use pesticides under chapter 17.21 RCW.

(b) A worker who satisfies the training requirements of chapter 17.21 RCW.

(c) A worker who satisfies the handler training requirements of WAC 296-306A-13025(3).

(d) A worker who is certified or licensed as a crop advisor by the Washington state department of agriculture under RCW 15.58.230: *Provided*, That a requirement for such certification or licensing is pesticide safety training that includes all the information set out in WAC 296-306A-13025 (3)(d).

(3) Pesticide safety information. The pesticide safety information required by subsection (1)(c)(i) of this section shall be presented to workers in a manner that the workers can understand. At a minimum, the following information shall be provided:

(a) Pesticides may be on or in plants, soil, irrigation water, or drifting from nearby applications.

(b) Prevent pesticides from entering your body by:

(i) Following directions and/or signs about keeping out of treated or restricted areas.

(ii) Washing before eating, drinking, using chewing gum or tobacco, or using the toilet.

(iii) Wearing work clothing that protects the body from pesticide residues.

(iv) Washing/showering with soap and water, shampoo hair, and put on clean clothes after work.

(v) Washing work clothes separately from other clothes before wearing them again.

(vi) Washing immediately in the nearest clean water if pesticides are spilled or sprayed on the body. As soon as possible, shower, shampoo, and change into clean clothes.

(4) Training programs.

(a) General pesticide safety information shall be presented to workers either orally from written materials or audiovisually. The information must be presented in a manner that the workers can understand (such as through a translator) using nontechnical terms. The presenter also shall respond to workers' questions.

(b) The person who conducts the training shall meet at least one of the following criteria:

(i) Be currently certified as an applicator of restricted-use pesticides under chapter 17.21 RCW; or

(ii) Be currently designated as a trainer of certified applicators or pesticide handlers by the Washington state department of agriculture in accordance with chapters 15.58 and 17.21 RCW; or

(iii) Have completed a pesticide safety train-the-trainer program approved by the Washington state department of agriculture in accordance with chapters 15.58 and 17.21 RCW; or

(iv) Satisfy the training requirements in WAC 296-306A-13025(3).

(c) Any person who issues a Washington state department of agriculture-approved Worker Protection Standard worker training card must assure that the worker who receives the training card has been trained in accordance with subsection (4)(d) of this section.

(d) The training materials shall convey, at a minimum, the following information:

(i) Where and in what form pesticides may be encountered during work activities.

(ii) Hazards of pesticides resulting from toxicity and exposure, including acute and chronic effects, delayed effects, and sensitization.

(iii) Routes through which pesticides can enter the body.

(iv) Signs and symptoms of common types of pesticide poisoning.

(v) Emergency first aid for pesticide injuries or poisonings.

(vi) How to obtain emergency medical care.

(vii) Routine and emergency decontamination procedures, including emergency eyeflushing techniques.

(viii) Hazards from chemigation and drift.

(ix) Hazards from pesticide residues on clothing.

(x) Warnings about taking pesticides or pesticide containers home.

(xi) Requirements of this part designed to reduce the risks of illness or injury resulting from workers' occupational exposure to pesticides, including application and entry restrictions, the design of the warning sign, posting of warning signs, oral warnings, the availability of specific information about applications, and the protection against retaliatory acts.

(5) Verification of training.

(a) Except as provided in subsection (5)(b) of this section, if the agricultural employer assures that a worker possesses a Washington state department of agriculture-approved Worker Protection Standard worker training card, then the requirements of subsection (1) of this section will have been met.

(b) If the agricultural employer is aware or has reason to know that a Washington state department of agriculture-approved Worker Protection Standard worker training card has not been issued in accordance with this section, or has not been issued to the worker bearing the card, or the training was completed more than five years before the beginning of the current month, a worker's possession of that certificate does not meet the requirements of subsection (1) of this section.

[Recodified as § 296-307-12040. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12040, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12045 Posted pesticide safety information—Standards for workers—40 CFR, § 170.135. (1) Requirement. When workers are on an agricultural establishment and, within the last thirty days, a pesticide covered by this part has been applied on the establishment or a restricted-entry interval has been in effect, the agricultural employer shall display, in accordance with this section, pesticide safety information.

(2) Pesticide safety poster. A safety poster must be displayed that conveys, at a minimum, the following basic pesticide safety concepts:

(a) Help keep pesticides from entering your body. At a minimum, the following points shall be conveyed:

(i) Avoid getting on your skin or into your body any pesticides that may be on plants and soil, in irrigation water, or drifting from nearby applications.

(ii) Wash before eating, drinking, using chewing gum or tobacco, or using the toilet.

(iii) Wear work clothing that protects the body from pesticide residues (long-sleeved shirts, long pants, shoes and socks, and a hat or scarf).

(iv) Wash/shower with soap and water, shampoo hair, and put on clean clothes after work.

(v) Wash work clothes separately from other clothes before wearing them again.

(vi) Wash immediately in the nearest clean water if pesticides are spilled or sprayed on the body. As soon as possible, shower, shampoo, and change into clean clothes.

(vii) Follow directions about keeping out of treated or restricted areas.

(b) There are federal rules to protect workers and handlers, including a requirement for safety training.

(3) Emergency medical care information.

(a) The name, address, and telephone number of the nearest emergency medical care facility shall be on the safety poster or displayed close to the safety poster.

(b) The agricultural employer shall inform workers promptly of any change to the information on emergency medical care facilities.

(4) Location.

(a) The information shall be displayed in a central location on the farm or in the nursery or greenhouse where it can be readily seen and read by workers.

(b) The information shall be displayed in a location in or near the forest in a place where it can be readily seen and read by workers and where workers are likely to congregate or pass by, such as at a decontamination site or an equipment storage site.

(5) Accessibility. Workers shall be informed of the location of the information and shall be allowed access to it.

(6) Legibility. The information shall remain legible during the time it is posted.

[Recodified as § 296-307-12045. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12045, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12050 Decontamination—Standards for workers—40 CFR, § 170.150. (1) Requirements. The agricultural employer must provide decontamination supplies for workers in accordance with this section whenever:

(a) Any worker on the agricultural establishment is performing an activity in the area where a pesticide was applied or a restricted-entry interval (REI) was in effect within the last thirty days; and

(b) The worker contacts anything that has been treated with the pesticide including but not limited to soil, water, plants, plant surfaces, and plant parts;

(c) *Exception.* The thirty-day time period established in (a) of this subsection shall not apply if the only pesticides used in the treated area are products with an REI of four hours or less on the label (but not a product without an REI on the label). When workers are in such treated areas, the agricultural employer shall provide decontamination supplies for not less than seven days following the expiration of any applicable REI.

(2) General conditions.

(a) The agricultural employer shall provide workers with adequate water for routine washing and emergency eyeflushing. At all times when the water is available to

workers, the employer shall assure that it is of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed.

(b) When water stored in a tank is to be used for mixing pesticides, it shall not be used for decontamination or eyeflushing, unless the tank is equipped with properly functioning valves or other mechanisms that prevent movement of pesticides into the tank.

(c) The agricultural employer shall provide soap and single-use towels in quantities sufficient to meet workers' needs.

(d) To provide for emergency eyeflushing, the agricultural employer shall assure that at least one pint of water is immediately available to each worker who is performing early entry activities permitted by WAC 296-306A-12020 and for which the pesticide labeling requires protective eyewear. The eyeflush water shall be carried by the early entry worker, or shall be on the vehicle the early entry worker is using, or shall be otherwise immediately accessible.

(3) Location.

(a) The decontamination supplies shall be located together and shall be reasonably accessible to and not more than one-quarter mile from where workers are working.

(b) For worker activities performed more than one-quarter mile from the nearest place of vehicular access:

(i) The soap, single-use towels, and water may be at the nearest place of vehicular access.

(ii) The agricultural employer may permit workers to use clean water from springs, streams, lakes, or other sources for decontamination at the remote work site, if such water is more accessible than the water located at the nearest place of vehicular access.

(c) The decontamination supplies shall not be in an area being treated with pesticides.

(d) The decontamination supplies shall not be maintained in an area that is under a restricted-entry interval, unless the workers for whom the decontamination supplies are provided are performing early entry activities permitted by WAC 296-306A-12020 and involving contact with treated surfaces and the decontamination supplies would otherwise not be reasonably accessible to those workers.

(4) Decontamination after early entry activities. At the end of any exposure period for workers engaged in early entry activities permitted by WAC 296-306A-12020 and involving contact with anything that has been treated with the pesticide to which the restricted-entry interval applies, including, but not limited to, soil, water, air, or surfaces of plants, the agricultural employer shall provide, at the site where the workers remove personal protective equipment, soap, clean towels, and an adequate amount of water so that the workers may wash thoroughly. At least ten gallons of water for one employee and twenty gallons of water for two or more employees shall be provided at early entry sites that do not have running water.

[Recodified as § 296-307-12050. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12050, filed 9/30/96, effective 11/1/96.]

WAC 296-307-12055 Emergency assistance—Standards for workers—40 CFR, § 170.160. If there is reason to believe that a person who is or has been employed on an agricultural establishment to perform tasks related to the production of agricultural plants has been poisoned or injured by exposure to pesticides used on the agricultural establishment, including, but not limited to, exposures from application, splash, spill, drift, or pesticide residues, the agricultural employer shall:

(1) Make available to that person prompt transportation from the agricultural establishment, including any labor camp on the agricultural establishment, to an appropriate emergency medical facility.

(2) Provide to that person or to treating medical personnel, promptly upon request, any obtainable information on:

(a) Product name, EPA registration number, and active ingredients of any product to which that person might have been exposed.

(b) Antidote, first aid, and other medical information from the product labeling.

(c) The circumstances of application or use of the pesticide on the agricultural establishment.

(d) The circumstances of exposure of that person to the pesticide.

[Recodified as § 296-307-12055. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-12055, filed 9/30/96, effective 11/1/96.]

WAC 296-307-130 Applicability of this section—Standards for pesticide handlers—40 CFR, § 170.202. (1) Requirement. Except as provided by subsection (2) of this section, WAC 296-306A-130 applies when any pesticide is handled for use on an agricultural establishment.

(2) Exceptions. WAC 296-306A-130 does not apply when any pesticide is handled for use on an agricultural establishment in the following circumstances:

(a) For mosquito abatement, Mediterranean fruit fly eradication, or similar wide-area public pest control programs sponsored by governmental entities.

(b) On livestock or other animals, or in or about animal premises.

(c) On plants grown for other than commercial or research purposes, which may include plants in habitations, home fruit and vegetable gardens, and home greenhouses.

(d) On plants that are in ornamental gardens, parks, and public or private lawns and grounds and that are intended only for aesthetic purposes or climatic modification.

(e) In a manner not directly related to the production of agricultural plants, including, but not limited to, structural pest control, control of vegetation along rights-of-way and in other noncrop areas, and pasture and rangeland use.

(f) For control of vertebrate pests.

(g) As attractants or repellents in traps.

(h) On the harvested portions of agricultural plants or on harvested timber.

(i) For research uses of unregistered pesticides.

(j) Exemptions. Except as provided by WAC 296-306A-130 and 296-306A-13005, WAC 296-306A-130 applies when a pesticide is handled for an agricultural establishment.

[Recodified as § 296-307-130. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-130, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13005 Exemptions—Standards for handlers—40 CFR, § 170.204. The handlers listed in this section are exempt from the specified provisions of this part.

(1) Owners of agricultural establishments.

(a) The owner of an agricultural establishment is not required to provide to himself or members of his immediate family who are performing handling tasks on their own agricultural establishment the protections of:

- (i) WAC 296-306A-13010 (2) and (3).
- (ii) WAC 296-306A-13015.
- (iii) WAC 296-306A-13025.
- (iv) WAC 296-306A-13030.
- (v) WAC 296-306A-13035.
- (vi) WAC 296-306A-13040.
- (vii) WAC 296-306A-13045 (5) through (7).
- (viii) WAC 296-306A-13050.
- (ix) WAC 296-306A-13055.

(b) The owner of the agricultural establishment must provide the protections listed in subsection (1)(a)(i) through (ix) of this section to other handlers and other persons who are not members of his immediate family.

(2) Crop advisors.

(a) Provided that the conditions of (b) of this subsection are met, a person who is certified or licensed as a crop advisor by the Washington state department of agriculture under RCW 15.58.230, and persons performing crop advising tasks under such qualified crop advisor's direct supervision, are exempt from the provisions of:

- (i) WAC 296-306A-13030.
- (ii) WAC 296-306A-13045.
- (iii) WAC 296-306A-13050.
- (iv) WAC 296-306A-13055.

A person is under the direct supervision of a crop advisor when the crop advisor exerts the supervisory controls set out in (b)(iv) and (v) of this subsection. Direct supervision does not require that the crop advisor be physically present at all times, but the crop advisor must be readily accessible to the employees at all times.

(b) Conditions of exemption.

(i) The certification or licensing program requires pesticide safety training that includes, at least, all the information in WAC 296-306A-13025 (3)(d).

(ii) No entry into the treated area occurs until after application ends.

(iii) Applies only when performing crop advising tasks in the treated area.

(iv) The crop advisor must make specific determinations regarding the appropriate PPE, appropriate decontamination supplies, and how to conduct the tasks safely. The crop advisor must convey this information to each person under his direct supervision in a language that the person understands.

(v) Before entering a treated area, the certified or licensed crop advisor must inform, through an established practice of communication, each person under his direct supervision of the pesticide products and active ingredient(s) applied, method of application, time of application, the

restricted-entry interval, which tasks to undertake, and how to contact the crop advisor.

(c) Applies only when the persons are performing crop advising tasks in the treated area.

(d) The crop advisor must make specific determinations regarding the appropriate PPE, appropriate decontamination supplies, and how to conduct the tasks safely. The crop advisor must convey this information to each person under his direct supervision in a language that the person understands.

[Recodified as § 296-307-13005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13005, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13010 Restrictions during applications—Standards for pesticide handlers—40 CFR, § 170.210.

(1) Contact with workers and other persons. The handler employer and the handler shall assure that no pesticide is applied so as to contact, either directly or through drift, any worker or other person, other than an appropriately trained and equipped handler.

(2) Handlers handling highly toxic pesticides. The handler employer shall assure that any handler who is performing any handling activity with a product that has the skull and crossbones symbol on the front panel of the label is monitored visually or by voice communication at least every two hours.

(3) Fumigant applications in greenhouses. The handler employer shall assure:

(a) That any handler who handles a fumigant in a greenhouse, including a handler who enters the greenhouse before the acceptable inhalation exposure level or ventilation criteria have been met to monitor air levels or to initiate ventilation, maintains continuous visual or voice contact with another handler.

(b) That the other handler has immediate access to the personal protective equipment required by the fumigant labeling for handlers in the event entry into the fumigated greenhouse becomes necessary for rescue.

[Recodified as § 296-307-13010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13010, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13015 Providing specific information about applications—Standards for pesticide handlers—40 CFR, § 170.222.

When handlers (except those employed by a commercial pesticide handling establishment) are on an agricultural establishment and, within the last thirty days, a pesticide covered by this part has been applied on the establishment or a restricted-entry interval has been in effect, the handler employer shall display, in accordance with this section, specific information about the pesticide.

(1) Location, accessibility, and legibility. The information shall be displayed in the same location specified for the pesticide safety poster in WAC 296-306A-13040(4) and shall be accessible and legible, as specified in WAC 296-306A-13040 (5) and (6).

(2) Timing.

(a) If warning signs are posted for the treated area before an application, the specific application information for that application shall be posted at the same time or earlier.

(b) The information shall be posted before the application takes place, if handlers (except those employed by a commercial pesticide handling establishment) will be on the establishment during application. Otherwise, the information shall be posted at the beginning of any such handler's first work period.

(c) The information shall continue to be displayed for at least thirty days after the end of the restricted-entry interval (or, if there is no restricted-entry interval, for at least thirty days after the end of the application) or at least until the handlers are no longer on the establishment, whichever is earlier.

(3) Required information. The information shall include:

(a) The location and description of the treated area.

(b) The product name, EPA registration number, and active ingredient(s) of the pesticide.

(c) The time and date the pesticide is to be applied.

(d) The restricted-entry interval for the pesticide.

[Recodified as § 296-307-13015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13015, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13020 Notice of applications to agricultural employers—Standards for pesticide handlers—40 CFR, § 170.224. Before the application of any pesticide on or in an agricultural establishment, the handler employer shall provide the following information to any agricultural employer for the establishment or shall assure that any agricultural employer is aware of:

(1) Specific location and description of the treated area.

(2) Time and date of application.

(3) Product name, EPA registration number, and active ingredient(s).

(4) Restricted-entry interval.

(5) Whether posting and oral notification are required.

(6) Any other product-specific requirements on the product labeling concerning protection of workers or other persons during or after application.

[Recodified as § 296-307-13020. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13020, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13025 Pesticide safety training—Standards for pesticide handlers—40 CFR, § 170.230. (1) Requirement. Before any handler performs any handling task, the handler employer shall assure that the handler has been trained in accordance with this section during the last five years, counting from the end of the month in which the training was completed.

Note: In addition to the training required by this section, the agricultural employer shall assure, without exception, that all employees are trained in accordance with WAC 296-62-054 through 296-62-05427, Hazard communication.

(2) Exceptions. The following persons need not be trained under this section:

(a) A handler who is currently certified as an applicator of restricted-use pesticides under chapter 17.21 RCW.

(b) A handler who is certified or licensed as a crop advisor by the Washington state department of agriculture

under RCW 15.58.230: *Provided*, That a requirement for such certification or licensing is pesticide safety training that includes all the information set out in WAC 296-306A-13025 (3)(d).

(3) Training programs.

(a) General pesticide safety information shall be presented to handlers either orally from written materials or audiovisually. The information must be presented in a manner that the handlers can understand (such as through a translator). The presenter also shall respond to handlers' questions.

(b) The person who conducts the training shall meet at least one of the following criteria:

(i) Be currently certified as an applicator of restricted-use pesticides under chapter 17.21 RCW; or

(ii) Be currently designated as a trainer of certified applicators or pesticide handlers by the Washington state department of agriculture under chapters 15.58 or 17.21 RCW; or

(iii) Have completed a pesticide safety train-the-trainer program approved by a state, federal, or tribal agency having jurisdiction.

(c) Any person who issues a Washington state department of agriculture-approved Worker Protection Standard handler training card must assure that the handler who receives the training card has been trained in accordance with (d) of this subsection.

(d) The pesticide safety training materials must convey, at a minimum, the following information:

(i) Format and meaning of information contained on pesticide labels and in labeling, including safety information such as precautionary statements about human health hazards.

(ii) Hazards of pesticides resulting from toxicity and exposure, including acute and chronic effects, delayed effects, and sensitization.

(iii) Routes by which pesticides can enter the body.

(iv) Signs and symptoms of common types of pesticide poisoning.

(v) Emergency first aid for pesticide injuries or poisonings.

(vi) How to obtain emergency medical care.

(vii) Routine and emergency decontamination procedures.

(viii) Need for and appropriate use of personal protective equipment.

(ix) Prevention, recognition, and first-aid treatment of heat-related illness.

(x) Safety requirements for handling, transporting, storing, and disposing of pesticides, including general procedures for spill cleanup.

(xi) Environmental concerns such as drift, runoff, and wildlife hazards.

(xii) Warnings about taking pesticides or pesticide containers home.

(xiii) Requirements of this part that must be followed by handler employers for the protection of handlers and other persons, including the prohibition against applying pesticides in a manner that will cause contact with workers or other persons, the requirement to use personal protective equip-

ment, the provisions for training and decontamination, and the protection against retaliatory acts.

(4) Verification of training.

(a) Except as provided in (b) of this subsection, if the handler employer assures that a handler possesses a Washington state department of agriculture-approved Worker Protection Standard handler training card, then the requirements of subsection (1) of this section will have been met.

(b) If the handler employer is aware or has reason to know that a Washington state department of agriculture-approved Worker Protection Standard handler training card has not been issued in accordance with this section, or has not been issued to the handler bearing the card, or the handler training was completed more than five years before the beginning of the current month, a handler's possession of that card does not meet the requirements of subsection (1) of this section.

[Recodified as § 296-307-13025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13025, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13030 Knowledge of labeling and site-specific information—Standards for pesticide handlers—40 CFR, § 170.232. (1) Knowledge of labeling information.

(a) The handler employer shall assure that before the handler performs any handling activity, the handler either has read the product labeling or has been informed in a manner the handler can understand of all labeling requirements related to safe use of the pesticide, such as signal words, human hazard precautions, personal protective equipment requirements, first-aid instructions, environmental precautions, and any additional precautions pertaining to the handling activity to be performed.

(b) The handler employer shall assure that the handler has access to the product labeling information during handling activities.

(2) Knowledge of site-specific information. Whenever a handler who is employed by a commercial pesticide handling establishment will be performing pesticide handling tasks on an agricultural establishment, the handler employer shall assure that the handler is aware of the following information concerning any areas on the agricultural establishment that the handler may be in (or may walk within one-quarter mile of) and that may be treated with a pesticide or that may be under a restricted-entry interval while the handler will be on the agricultural establishment:

(a) Specific location and description of any such areas; and

(b) Restrictions on entering those areas.

[Recodified as § 296-307-13030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13030, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13035 Safe operation of equipment—Standards for pesticide handlers—40 CFR, § 170.234. (1) The handler employer shall assure that before the handler uses any equipment for mixing, loading, transferring, or applying pesticides, the handler is instructed in the safe operation of such equipment, including, when relevant, chemigation safety requirements and drift avoidance.

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(2) The handler employer shall assure that, before each day of use, equipment used for mixing, loading, transferring, or applying pesticides is inspected for leaks, clogging, and worn or damaged parts, and any damaged equipment is repaired or is replaced.

(3) Before allowing any person to repair, clean, or adjust equipment that has been used to mix, load, transfer, or apply pesticides, the handler employer shall assure that pesticide residues have been removed from the equipment, unless the person doing the cleaning, repairing, or adjusting is a handler employed by the agricultural or commercial pesticide handling establishment. If pesticide residue removal is not feasible, the handler employer shall assure that the person who repairs, cleans, or adjusts such equipment is informed:

(a) That such equipment may be contaminated with pesticides.

(b) Of the potentially harmful effects of exposure to pesticides.

(c) Of the correct way to handle such equipment.

[Recodified as § 296-307-13035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13035, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13040 Posted pesticide safety information—Standards for pesticide handlers—40 CFR, § 170.235. (1) Requirement. When handlers (except those employed by a commercial pesticide handling establishment) are on an agricultural establishment and, within the last thirty days, a pesticide covered by this part has been applied on the establishment or a restricted-entry interval has been in effect, the handler employer shall display, in accordance with this section, pesticide safety information.

(2) Pesticide safety poster. A safety poster must be displayed that conveys, at a minimum, the following basic pesticide safety concepts:

(a) Help keep pesticides from entering your body. At a minimum, the following points shall be conveyed:

(i) Avoid getting on your skin or into your body any pesticides that may be on plants and soil, in irrigation water, or drifting from nearby applications.

(ii) Wash before eating, drinking, using chewing gum or tobacco, or using the toilet.

(iii) Wear work clothing that protects the body from pesticide residues (long-sleeved shirts, long pants, shoes and socks, and a hat or scarf).

(iv) Wash/shower with soap and water, shampoo hair, and put on clean clothes after work.

(v) Wash work clothes separately from other clothes before wearing them again.

(vi) Wash immediately in the nearest clean water if pesticides are spilled or sprayed on the body. As soon as possible, shower, shampoo, and change into clean clothes.

(vii) Follow directions about keeping out of treated or restricted areas.

(b) There are federal rules to protect workers and handlers including a requirement for safety training.

(3) Emergency medical care information.

(a) The name, address, and telephone number of the nearest emergency medical care facility shall be on the safety poster or displayed close to the safety poster.

(b) The handler employer shall inform handlers promptly of any change to the information on emergency medical care facilities.

(4) Location.

(a) The information shall be displayed in a central location on the farm or in the nursery or greenhouse where it can be readily seen and read by handlers.

(b) The information shall be displayed in a location in or near the forest in a place where it can be readily seen and read by handlers and where handlers are likely to congregate or pass by, such as at a decontamination site or an equipment storage site.

(5) Accessibility. Handlers shall be informed of the location of the information and shall be allowed access to it.

(6) Legibility. The information shall remain legible during the time it is posted.

[Recodified as § 296-307-13040. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13040, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13045 Personal protective equipment—Standards for pesticide handlers—40 CFR, § 170.240. (1) Requirement. Any person who performs tasks as a pesticide handler shall use the clothing and personal protective equipment specified on the labeling for use of the product.

(2) Definition.

(a) Personal protective equipment (PPE) means devices and apparel that are worn to protect the body from contact with pesticides or pesticide residues, including, but not limited to, coveralls, chemical-resistant suits, chemical-resistant gloves, chemical-resistant footwear, respiratory protection devices, chemical-resistant aprons, chemical-resistant headgear, and protective eyewear.

(b) Long-sleeved shirts, short-sleeved shirts, long pants, short pants, shoes, socks, and other items of work clothing are not considered personal protective equipment for the purposes of this section and are not subject to the requirements of this section, although pesticide labeling may require that such work clothing be worn during some activities.

(3) Provision. When personal protective equipment is specified by the labeling of any pesticide for any handling activity, the handler employer shall provide the appropriate personal protective equipment in clean and operating condition to the handler.

(a) When "chemical-resistant" personal protective equipment is specified by the product labeling, it shall be made of material that allows no measurable movement of the pesticide being used through the material during use.

(b) When "waterproof" personal protective equipment is specified by the product labeling, it shall be made of material that allows no measurable movement of water or aqueous solutions through the material during use.

(c) When a "chemical-resistant suit" is specified by the product labeling, it shall be a loose-fitting, one-piece or two-piece chemical-resistant garment that covers, at a minimum, the entire body except head, hands, and feet.

(d) When "coveralls" are specified by the product labeling, they shall be a loose-fitting, one-piece or two-piece garment, such as a cotton or cotton and polyester coverall,

that covers, at a minimum, the entire body except head, hands, and feet. The pesticide product labeling may specify that the coveralls be worn over another layer of clothing.

(e) Gloves shall be of the type specified by the product labeling. Gloves or glove linings made of leather, cotton, or other absorbent material shall not be worn for handling activities unless such materials are listed on the product labeling as acceptable for such use.

(f) When "chemical-resistant footwear" is specified by the product labeling, one of the following types of footwear must be worn:

(i) Chemical-resistant shoes.

(ii) Chemical-resistant boots.

(iii) Chemical-resistant shoe coverings worn over shoes or boots.

(g) When "protective eyewear" is specified by the product labeling, one of the following types of eyewear must be worn:

(i) Goggles.

(ii) Face shield.

(iii) Safety glasses with front, brow, and temple protection.

(iv) Full-face respirator.

(h) When a "chemical-resistant apron" is specified by the product labeling, an apron that covers the front of the body from mid-chest to the knees shall be worn.

(i) When a respirator is specified by the product labeling, it shall be appropriate for the pesticide product used and for the activity to be performed. The handler employer shall assure that the respirator fits correctly by using the procedures consistent with WAC 296-62-071. If the label does not specify the type of respirator to be used, it shall meet the requirements of WAC 296-62-071. The respiratory protection requirements of the general occupational health standards, WAC 296-62-071, shall apply.

(j) When "chemical-resistant headgear" is specified by the product labeling, it shall be either a chemical-resistant hood or a chemical-resistant hat with a wide brim.

(4) Exceptions to personal protective equipment specified on product labeling.

(a) Body protection.

(i) A chemical-resistant suit may be substituted for "coveralls," and any requirement for an additional layer of clothing beneath is waived.

(ii) A chemical-resistant suit may be substituted for "coveralls" and a chemical-resistant apron.

(b) Boots. If chemical-resistant footwear with sufficient durability and a tread appropriate for wear in rough terrain is not obtainable, then leather boots may be worn in such terrain.

(c) Gloves. If chemical-resistant gloves with sufficient durability and suppleness are not obtainable, then during handling activities with roses or other plants with sharp thorns, leather gloves may be worn over chemical-resistant glove liners. However, once leather gloves are worn for this use, thereafter they shall be worn only with chemical-resistant liners and they shall not be worn for any other use.

(d) Closed systems. If handling tasks are performed using properly functioning systems that enclose the pesticide to prevent it from contacting handlers or other persons, and if such systems are used and are maintained in accordance

with that manufacturer's written operating instructions, exceptions to labeling-specified personal protective equipment for the handling activity are permitted as provided in (d)(i) and (ii) of this subsection.

(i) Persons using a closed system to mix or load pesticides with a signal word of DANGER or WARNING may substitute a long-sleeved shirt, long pants, shoes, socks, chemical-resistant apron, and any protective gloves specified on the labeling for handlers for the labeling-specified personal protective equipment.

(ii) Persons using a closed system to mix or load pesticides other than those in (d)(i) of this subsection or to perform other handling tasks may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified personal protective equipment.

(iii) Persons using a closed system that operates under pressure shall wear protective eyewear.

(iv) Persons using a closed system shall have all labeling-specified personal protective equipment immediately available for use in an emergency.

(e) Enclosed cabs. If handling tasks are performed from inside a cab that has a nonporous barrier which totally surrounds the occupants of the cab and prevents contact with pesticides outside of the cab, exceptions to personal protective equipment specified on the product labeling for that handling activity are permitted as provided in (e)(i) through (iv) of this subsection.

(i) Persons occupying an enclosed cab may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified personal protective equipment. If a respiratory protection device is specified on the pesticide product labeling for the handling activity, it must be worn.

(ii) Persons occupying an enclosed cab that has a properly functioning ventilation system which is used and maintained in accordance with the manufacturer's written operating instructions and which is declared in writing by the manufacturer and by the Washington state department of labor and industries to provide respiratory protection equivalent to or greater than a dust/mist filtering respirator may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified personal protective equipment. If a respiratory protection device other than a dust/mist-filtering respirator is specified on the pesticide product labeling, it must be worn.

(iii) Persons occupying an enclosed cab that has a properly functioning ventilation system which is used and maintained in accordance with the manufacturer's written operating instructions and which is declared in writing by the manufacturer and by the Washington state department of labor and industries to provide respiratory protection equivalent to or greater than the vapor-removing or gas-removing respirator specified on pesticide product labeling may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified personal protective equipment. If an air-supplying respirator or a self-contained breathing apparatus (SCBA) is specified on the pesticide product labeling, it must be worn.

(iv) Persons occupying an enclosed cab shall have all labeling-specified personal protective equipment immediately available and stored in a chemical-resistant container, such as a plastic bag. They shall wear such personal protective

equipment if it is necessary to exit the cab and contact pesticide-treated surfaces in the treated area. Once personal protective equipment is worn in the treated area, it must be removed before reentering the cab.

(f) Aerial applications.

(i) Use of gloves. Chemical-resistant gloves shall be worn when entering or leaving an aircraft contaminated by pesticide residues. In the cockpit, the gloves shall be kept in an enclosed container to prevent contamination of the inside of the cockpit.

(ii) Open cockpit. Persons occupying an open cockpit shall use the personal protective equipment specified in the product labeling for use during application, except that chemical-resistant footwear need not be worn. A helmet may be substituted for chemical-resistant headgear. A visor may be substituted for protective eyewear.

(iii) Enclosed cockpit. Persons occupying an enclosed cockpit may substitute a long-sleeved shirt, long pants, shoes, and socks for labeling-specified personal protective equipment.

(g) Crop advisors. Crop advisors entering treated areas while a restricted-entry interval is in effect may wear the personal protective equipment specified on the pesticide labeling for early entry activities instead of the personal protective equipment specified on the pesticide labeling for handling activities, provided:

(i) Application has been completed for at least four hours.

(ii) Any inhalation exposure level listed in the labeling has been reached or any ventilation criteria established by WAC 296-306A-12015 (3)(c) or in the labeling have been met.

(5) Use of personal protective equipment.

(a) The handler employer shall assure that personal protective equipment is used correctly for its intended purpose and is used according to the manufacturer's instructions.

(b) The handler employer shall assure that, before each day of use, all personal protective equipment is inspected for leaks, holes, tears, or worn places, and any damaged equipment is repaired or discarded.

(6) Cleaning and maintenance.

(a) The handler employer shall assure that all personal protective equipment is cleaned according to the manufacturer's instructions or pesticide product labeling instructions before each day of reuse. In the absence of any such instructions, it shall be washed thoroughly in detergent and hot water.

(b) If any personal protective equipment cannot be cleaned properly, the handler employer shall dispose of the personal protective equipment in accordance with any applicable federal, state, and local regulations. Coveralls or other absorbent materials that have been drenched or heavily contaminated with an undiluted pesticide that has the signal word DANGER or WARNING on the label shall be not be reused.

(c) The handler employer shall assure that contaminated personal protective equipment is kept separately and washed separately from any other clothing or laundry.

(d) The handler employer shall assure that all clean personal protective equipment shall be either dried thorough-

ly before being stored or shall be put in a well ventilated place to dry.

(e) The handler employer shall assure that all personal protective equipment is stored separately from personal clothing and apart from pesticide-contaminated areas.

(f) The handler employer shall assure that when dust/mist filtering respirators are used, the filters shall be replaced:

(i) When breathing resistance becomes excessive.

(ii) When the filter element has physical damage or tears.

(iii) According to manufacturer's recommendations or pesticide product labeling, whichever is more frequent.

(iv) In the absence of any other instructions or indications of service life, at the end of each day's work period.

(g) The handler employer shall assure that when gas-removing or vapor-removing respirators are used, the gas-removing or vapor-removing canisters or cartridges shall be replaced:

(i) At the first indication of odor, taste, or irritation.

(ii) According to manufacturer's recommendations or pesticide product labeling, whichever is more frequent.

(iii) In the absence of any other instructions or indications of service life, at the end of each day's work period.

(h) The handler employer shall inform any person who cleans or launders personal protective equipment:

(i) That such equipment may be contaminated with pesticides.

(ii) Of the potentially harmful effects of exposure to pesticides.

(iii) Of the correct way(s) to clean personal protective equipment and to protect themselves when handling such equipment.

(i) The handler employer shall assure that handlers have a clean place(s) away from pesticide storage and pesticide use areas where they may:

(i) Store personal clothing not in use.

(ii) Put on personal protective equipment at the start of any exposure period.

(iii) Remove personal protective equipment at the end of any exposure period.

(j) The handler employer shall not allow or direct any handler to wear home or to take home personal protective equipment contaminated with pesticides.

(7) Heat-related illness. When the use of personal protective equipment is specified by the labeling of any pesticide for the handling activity, the handler employer shall assure that no handler is allowed or directed to perform the handling activity unless appropriate measures are taken, if necessary, to prevent heat-related illness.

[Recodified as § 296-307-13045. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.050 and [49.17.060. 96-20-082, § 296-306A-13045, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13050 Decontamination—Standards for pesticide handlers—40 CFR, § 170.250. (1) Requirement. During any handling activity, the handler employer shall provide for handlers, in accordance with this section, decontamination supplies for washing off pesticides and pesticide residues.

(2) General conditions.

(a) The handler employer shall provide handlers with enough water for routine washing, for emergency eyeflushing, and for washing the entire body in case of an emergency. At all times when the water is available to handlers, the handler employer shall assure that it is of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed. At least ten gallons of water for one employee and twenty gallons of water for two or more employees shall be provided at mixing and loading sites that do not have running water.

(b) When water stored in a tank is to be used for mixing pesticides, it shall not be used for decontamination or eyeflushing, unless the tank is equipped with properly functioning valves or other mechanisms that prevent movement of pesticides into the tank.

(c) The handler employer shall provide soap and single-use towels in quantities sufficient to meet handlers' needs.

(d) The handler employer shall provide one clean change of clothing, such as coveralls for use in an emergency.

(3) Location. The decontamination supplies shall be located together and reasonably accessible to and not more than one-quarter mile from each handler during the handling activity.

(a) Exception for mixing sites. For mixing activities, the decontamination supplies shall be at the mixing site.

(b) Exception for pilots. The decontamination supplies for a pilot who is applying pesticides aerially shall be in the airplane or at the aircraft loading site.

(c) Exception for handling pesticides in remote areas. When handling activities are performed more than one-quarter mile from the nearest place of vehicular access:

(i) The soap, single-use towels, clean change of clothing, and water may be at the nearest place of vehicular access.

(ii) The handler employer may permit handlers to use clean water from springs, streams, lakes, or other sources for decontamination at the remote work site, if such water is more accessible than the water with the decontamination supplies located at the nearest place of vehicular access.

(d) Decontamination supplies in treated areas. The decontamination supplies shall not be in an area being treated with pesticides or in an area under a restricted-entry interval, unless:

(i) The decontamination supplies are in the area where the handler is performing handling activities;

(ii) The soap, single-use towels, and clean change of clothing are in enclosed containers; and

(iii) The water is running tap water or is enclosed in a container.

(4) Emergency eyeflushing. To provide for emergency eyeflushing, the handler employer shall assure that at least one pint of water is immediately available to each handler who is performing tasks for which the pesticide labeling requires protective eyewear. The eyeflush water shall be carried by the handler, or shall be on the vehicle or aircraft the handler is using, or shall be otherwise immediately accessible.

(5) A plumbed or portable emergency eyewash capable of delivering at least 1.5 liters (0.4 gals.) of water per minute for fifteen minutes shall be provided at all pesticide mixing and loading stations or handler decontamination sites when the label requires protective eyewear for mixing, loading or applying. A plumbed or portable system meeting the above requirements shall be provided at all permanent pesticide mixing and loading sites.

(6) Decontamination after handling activities. At the end of any exposure period, the handler employer shall provide at the site where handlers remove personal protective equipment, soap, clean towels, and a sufficient amount of water so that the handlers may wash thoroughly. At least ten gallons of water for one employee and twenty gallons of water for two or more employees shall be provided at mixing and loading sites that do not have running water.

[Recodified as § 296-307-13050. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13050, filed 9/30/96, effective 11/1/96.]

WAC 296-307-13055 Emergency assistance—Standards for pesticide handlers—40 CFR, § 170.260. If there is reason to believe that a person who is or has been employed by an agricultural establishment or commercial pesticide handling establishment to perform pesticide handling tasks has been poisoned or injured by exposure to pesticides as a result of that employment, including, but not limited to, exposures from handling tasks or from application, splash, spill, drift, or pesticide residues, the handler employer shall:

(1) Make available to that person prompt transportation from the place of employment or the handling site to an appropriate emergency medical facility.

(2) Provide to that person or to treating medical personnel, promptly upon request, any obtainable information on:

(a) Product name, EPA registration number, and active ingredients of any product to which that person might have been exposed.

(b) Antidote, first aid, and other medical information from the product labeling.

(c) The circumstances of handling of the pesticide.

(d) The circumstances of exposure of that person to the pesticide.

[Recodified as § 296-307-13055. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-082, § 296-306A-13055, filed 9/30/96, effective 11/1/96.]

WAC 296-307-145 Pesticides recordkeeping.

[Recodified as § 296-307-145. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-20-048, § 296-306A-145, filed 10/31/96, effective 12/1/96.]

WAC 296-307-14505 What records must an employer keep for pesticide applications? (1) If you apply pesticides, or have pesticides applied for you, related to the production of an agricultural crop, you must keep records for each application. The records must include the following:

(a) The address or exact location where the pesticide was applied or stored;

Note: If you apply pesticides to one acre or more, the location must be shown on the map on the required form for at least the first application.

(b) The year, month, day, and time the pesticide was applied or stored;

(c) The product name on the registered label and the United States Environmental Protection Agency registration number, if applicable, of the pesticide that was applied or stored;

(d) The crop or site to which the pesticide was applied (application crop or site);

(e) The amount of pesticide applied per acre, or other appropriate measure;

(f) The concentration of pesticide applied;

(g) The total area to which pesticide was applied;

(h) If applicable, the licensed applicator's name, address, and telephone number and the name of the individual(s) making the application;

(i) The direction and estimated velocity of the wind at the time the pesticide was applied;

Exception: Wind information does not have to be recorded for applications of baits in bait stations and pesticide applications within structures.

(j) Any other reasonable information required by the department.

(2) A commercial pesticide applicator must provide a copy of the pesticide application records to the owner or lessee of the lands to which the pesticide is applied. Pesticide application records may be provided on any form that includes all required information.

(3) You must update records on the same day that a pesticide is applied. You may use a copy as the record of the pesticide application. You must maintain the records for at least seven years after the date of the application.

(4) You must ensure that pesticide application records are readily accessible to employees and their designated representatives in a central location in the workplace. The records must be available beginning on the day the application is made and for at least thirty days after. You may view the pesticide application records and make your own record from that information.

(5) New or newly assigned employees must be made aware of the accessibility of the application records before working with pesticides or in an area containing pesticides.

(6) When storing pesticides, you must, at least once a year, perform an inventory of the pesticides stored in any work area.

(7) The pesticide inventory records must include the following information:

(a) The location where the pesticide is stored;

(b) The year, month, day, and time the pesticide was first stored;

(c) The product name used on the registered label and the United States Environmental Protection Agency Registration Number, if applicable, of the pesticide that is stored; and

(d) The amount of pesticide in storage at the time of the inventory.

(8) You must maintain a record of pesticide purchases made between the annual inventory dates.

(a) Instead of this purchase record, you may obtain from distributors from whom you buy pesticides, a statement obligating the distributor to maintain the purchase records on your behalf to meet the requirements of this section.

(b) We may require you to submit all purchase records covering the purchases during a specified period of time or in a specified geographical area.

(9) When you end all pesticide activities, you must file the records with us. Anyone who succeeds or replaces you must retain the records required by this section, but that person is not liable for any violations you commit.

(10) You must ensure that the records required under this section are readily accessible to us for inspection. You must also provide copies of the records on request, to:

(a) An employee or the employee's designated representative in the case of an industrial insurance claim filed under Title 51 RCW with the department of labor and industries;

(b) Treating health care personnel; or

(c) The pesticide incident reporting and tracking review panel.

(11) The designated representative or treating health care personnel are not required to identify the employee represented or treated.

(12) We will keep the name of any affected employee confidential according to RCW 49.17.080(1).

(13) When treating health care personnel request records under this section, and the record is required to determine treatment, you must provide copies of the record immediately. Information for treating health care personnel must be made immediately available by telephone, if requested, with a copy of the records provided within twenty-four hours. For all other requests, you must provide copies of the records within seventy-two hours.

(14) If requested, you must provide copies of records on a form provided by the department.

(15) If you suspect that an employee is ill or injured because of an exposure to one or more pesticides, you must immediately provide the employee with a copy of the relevant pesticide application records.

(16) If you refuse to provide a copy of a requested record, the requester may notify the department of the request and your refusal.

(a) Within seven working days, we will request that you provide us with all pertinent copies of the records, except that in a medical emergency we will request within two working days.

(b) You must provide copies of the records to us within twenty-four hours after we request.

(17) We inspect for the records required under this section as part of any on-site inspection of a workplace conducted under this chapter or chapter 49.17 RCW. We will determine, during the inspection, whether the records are readily transferable to a form adopted by the department, and readily accessible to employees. However, your records will not be inspected more than once in any calendar year, unless a previous inspection has found recordkeeping violations. If recordkeeping violations are found, we may conduct reasonable multiple inspections, according to department rules. (See WAC 296-27-16018, Compliance inspections, and WAC 296-27-16026, Programmed inspections.) Nothing in

this section limits our inspection of records pertaining to pesticide-related injuries, illnesses, fatalities, accidents, or complaints.

(18) If you fail to maintain the records, or provide access to or copies of the records required under this section, you will be subject to penalties authorized under RCW 49.17.180.

(19) The department of labor and industries and the department of agriculture will jointly adopt by rule, forms that satisfy the information requirements of this section and RCW 17.21.100.

[Recodified as § 296-307-14505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-14505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-14510 What do the pesticides forms look like?

WAC 296-306A-14510 Pesticide application record (version 1).

State of Washington
Department of Agriculture
Olympia, Washington 98504

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application
and it must be retained for 7 years. (Ref. RCW 17.21)

- 1. Date of Application - Year: Month: Day: Time:
2. Name of person for whom the pesticide was applied: Firm Name (if applicable): Street Address: City: State: Zip:
3. Licensed Applicator's Name (if different from #2 above): License No.: Firm Name (if applicable): Tel. No.: Street Address: City: State: Zip:
4. Name of person(s) who applied the pesticide (if different than #3 above): License No(s), if applicable:
5. Application Crop or Site:
6. Total Area Treated (acre., sq. ft., etc):
7. Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) #.....
8. Pesticide information (please list all information for each pesticide in the tank mix):

Table with 5 columns: a) Product Name, b) EPA Reg No., c) Total Amount of Pesticide Applied in Area Treated, d) Pesticide Applied/Acre (or other measure), e) Concentration Applied. Includes multiple rows of blank lines for data entry.

9. Address or exact location of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

- 10. Wind direction and estimated velocity during the application:
11. Temperature during the application:
12. Apparatus license plate number (if applicable):
13. Air Ground Chemigation
14. Miscellaneous Information:

Location of Application (if the application covers more than one township or range, please indicate the township & range for the top left section of the map only):

Township:

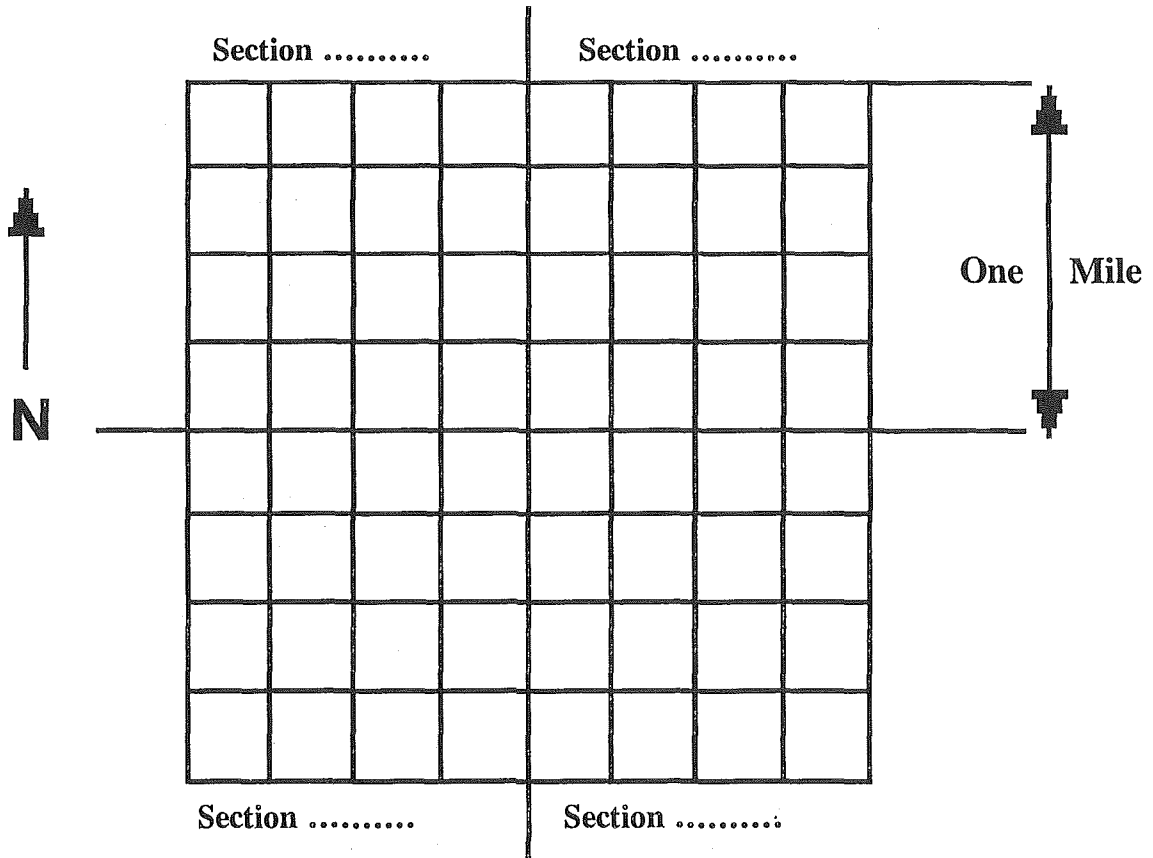
Range: E or W (please indicate)

Section(s):

County:

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:

WAC 296-306A-14510 Pesticide application record (version 2).

State of Washington
 Department of Agriculture
 Olympia, Washington 98504

PESTICIDE APPLICATION RECORD (Version 2)

NOTE: Application information must be completed on the same day as the application and must be retained for seven years. (Ref. RCW 17.21)

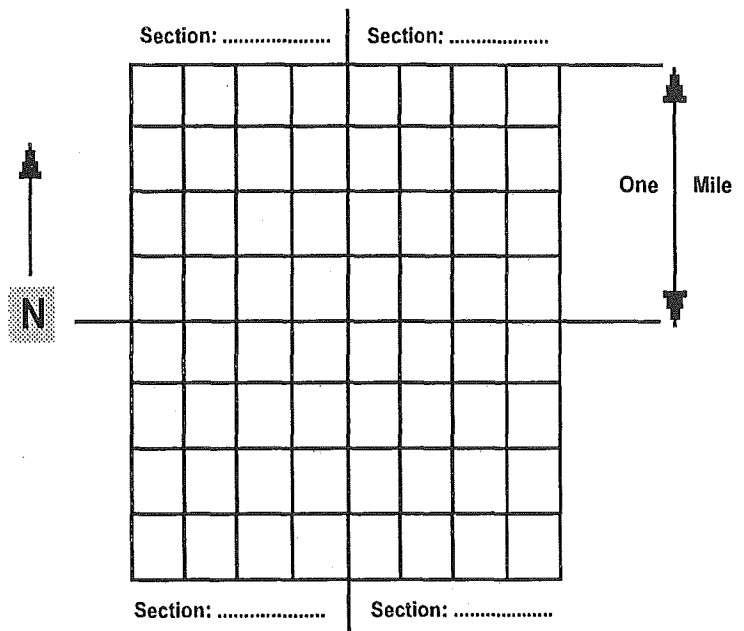
1. Name & Address of Person for Whom Pesticide was Applied: _____ _____ _____				2. Applicator Name and Address (if different from (1)): _____ _____ _____				
3. Address or exact location of application (NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form)				4. Misc. Info.: 				
5. Date and Time of Application	6. Crop or Site Treated	7. Acres Treated (or other measure)	8. PRODUCT NAME	9. EPA Registration Number	10. Amount of Product Applied		11. Concentration	12. Weather Conditions, Apparatus License Plate No. and Name and License No. of person(s) who applied pesticide
					Rate per acre (or other measure)	Total Product Applied		
	<input type="checkbox"/> Air <input type="checkbox"/> Ground <input type="checkbox"/> Chemigation							
	<input type="checkbox"/> Air <input type="checkbox"/> Ground <input type="checkbox"/> Chemigation							
	<input type="checkbox"/> Air <input type="checkbox"/> Ground <input type="checkbox"/> Chemigation							
	<input type="checkbox"/> Air <input type="checkbox"/> Ground <input type="checkbox"/> Chemigation							

Location of Application: (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only)

TOWNSHIP: _____ N
RANGE: _____ E or W
(please indicate)
SECTION(S): _____
COUNTY: _____

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



WAC 296-306A-14510 Pesticide application record (version 3).

State of Washington
 Department of Agriculture
 Olympia, Washington 98504

PESTICIDE APPLICATION RECORD (Version 3)

NOTE: This form must be completed same day as the application and it must be retained for 7 years. (Ref. RCW 17.21)

1. Date of Application - Year: Month: Day(s):
2. Name of person for whom the pesticide was applied:
 Firm Name (if applicable):
 Street Address: City: State: Zip:
3. Licensed Applicator's Name (if different from #2 above): License No.:
 Firm Name (if applicable): Tel. No.:
 Street Address: City: State: Zip:
4. Air Ground Chemigation
5. Application Crop or Site:
6. Total Area Treated (acre., sq. ft., etc):
7. Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) #.....
8. Pesticide information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
_____	_____	_____	_____ / _____	_____
_____	_____	_____	_____ / _____	_____
_____	_____	_____	_____ / _____	_____
_____	_____	_____	_____ / _____	_____
_____	_____	_____	_____ / _____	_____

9. Address or exact location of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Date	11. Name of person(s) making the application	12. License No.	13. Apparatus Lic. Plate No.	14. Time		15. Acres Completed	16. Wind		17. Temp
				Start	Stop		Dir.	Vel.	

Continued on back

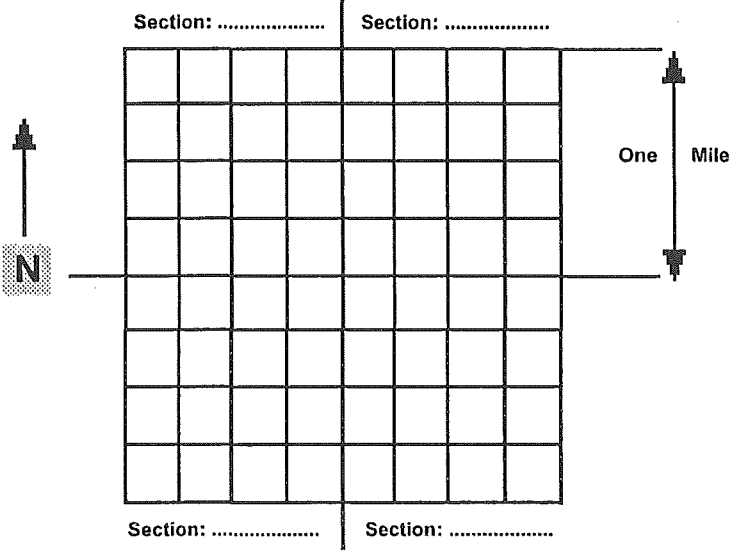
10. Date	11. Name of person(s) making the application	12. License No.	13. Apparatus Lic. Plate No.	14. Time		15. Acres Completed	16. Wind		17. Temp
				Start	Stop		Dir.	Vel.	

Location of Applicaton (if the application covers more than one township or range, please indicate the township & range of the top left section of the map only):

Township: _____ N
 Range: E or W (please indicate) _____
 Section(s): _____
 County: _____

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treat



Miscellaneous Information

WAC 296-306A-14510 Pesticide storage record.

Department of Labor & Industries
Consultation & Compliance Services
PO Box 44600
Olympia, WA 98504-4600

PESTICIDE STORAGE RECORD

1. Name of person storing pesticide			
2. Name of pesticide owner			Telephone
3. Owner's address	City	State	Zip

4. Pesticide Information

Date	Product Information	Active Ingredients (common name)	EPA Reg. No.	Amount Stored

6. Location Storage:

b) Street address

b) If a street location is not appropriate, pinpoint the location of the storage and describe the location:

Township	N
Range	E or W
Section(s)	
County	

7. Type or print name of person completing this form	Date	Signature
--	------	-----------

[Recodified as § 296-307-14510. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-14510, filed 10/31/96, effective 12/1/96.]

WAC 296-307-14520 What are the department's recommendations for cholinesterase monitoring? (Nonmandatory) (1) We recommend that you implement a screening program for cholinesterase monitoring for employees handling organophosphate and carbamate pesticides.

(2) Red blood cell and plasma cholinesterase testing of employees who handle toxicity class 1 or 2 carbamate or organophosphate pesticides is an acceptable bioassay method for determining the extent and effects of exposure to these types of pesticides. The schedule of testing should include a preexposure baseline level, followed by periodic monitoring during the period of exposure.

(3) You should provide baseline cholinesterase tests for all employees handling carbamate or organophosphate pesticides for 30 hours or more in any 30-day period.

(4) Employees should be given baseline tests before actual exposure, at the beginning of the growing season, or upon first hire. These baseline tests should be repeated every two years.

(5) Periodic tests should be conducted every 30 days after the initial baseline for the next three months, and every 60 days thereafter until organophosphate or carbamate pesticide exposure ceases.

(6) You should not allow a monitored employee to be further exposed to carbamate or organophosphate pesticides if any cholinesterase test in comparison to the baseline is less than 70% of red blood cell baseline levels or 60% of plasma baseline levels. These employees should not be further exposed to organophosphate pesticides until their cholinesterase levels return to 80% or more of their baseline levels.

(7) Employees should be monitored for plasma or red blood cell cholinesterase levels.

(8) Monitoring programs should include appropriate follow-up and referrals to health care providers as needed, and should include a mechanism for recordkeeping and report tracking.

[Recodified as § 296-307-14520. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-14520, filed 10/31/96, effective 12/1/96.]

WAC 296-307-150 Employees working near overhead lines.

[Recodified as § 296-307-150. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-150, filed 10/31/96, effective 12/1/96.]

WAC 296-307-15003 What does this section cover? WAC 296-306A-150 does not apply to the construction, reconstruction, operation, or maintenance of overhead electrical conductors (and their supporting structures and associated equipment) by authorized and qualified electrical employees. It also does not apply to authorized and qualified employees engaged in the construction, reconstruction, operations and maintenance of overhead electrical circuits or conductors (and their supporting structures and associated equipment) of rail transportation systems, or electrical

generating, transmission, distribution, and communication systems.

[Recodified as § 296-307-15003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-15003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-15006 What clearance and safeguards are required to protect employees working near overhead lines? (1) All exposed overhead conductors must be isolated from accidental contact by employees or equipment.

(2) Irrigation pipe must not be stored within one hundred feet of overhead conductors.

(3) Upending irrigation pipe within one hundred feet of overhead conductors is prohibited.

(4) Water and irrigation systems, and other devices that discharge a conductive liquid, must be set up and operated so that the discharge from the system is directed more than ten feet away from overhead high-voltage lines, and avoids contact with any exposed electrical power conductor.

(5) Employees are prohibited from entering or working in proximity to high-voltage lines, unless there are guards to prevent accidental contact.

Note: Voltage 600V and higher is considered high voltage.

(6) The following are prohibited if it is possible to bring these objects within ten feet of high-voltage lines:

(a) Operating, erecting, or transporting tools, equipment, or a moving part;

(b) Handling, transporting, or storing materials; or

(c) Moving a building near high-voltage lines.

(7) Equipment or machines must be operated near power lines according to the following:

(a) For lines rated 50 kv. or below, minimum clearance between the lines and any part of the object must be ten feet;

(b) For lines rated over 50 kv. minimum clearance between the lines and any part of the object must be ten feet plus four tenths of an inch for each 1 kv., over 50 kv., or twice the length of the line insulator but never less than ten feet;

(c) In transit, the clearance must be a minimum of four feet for voltages less than 50 kv., ten feet for voltages over 50 kv. up to and including 345 kv., and sixteen feet for voltages up to and including 750 kv.;

(d) You must designate someone to observe clearance and give warning for operations where it is difficult for the operator to see well enough to maintain the necessary clearance.

Exception: You are exempt from this requirement if electrical distribution and transmission lines have been deenergized and visibly grounded at point of work; or if insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines.

[Recodified as § 296-307-15006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-15006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-15009 What signs must an employer post to warn employees working near overhead lines? You must post and maintain in plain view of the operator on

each derrick, power-shovel, drilling-rig, hay loader, hay stacker, or similar apparatus with parts that are capable of vertical, lateral or swinging motion, a durable warning sign legible at twelve feet that says, "unlawful to operate this equipment within ten feet of high-voltage lines."

[Recodified as § 296-307-15009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-15009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-15012 When must an employer notify the utility of employees working near overhead lines? The employer must notify the operator of high-voltage lines when any operations are to be performed, tools or materials handled, or equipment is to be moved or operated within ten feet of any high-voltage line. All required safety measures must be completed before proceeding with any work that would reduce the clearance requirements of this section.

[Recodified as § 296-307-15012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-15012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-160 Temporary labor camps.

[Recodified as § 296-307-160. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-160, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16001 What requirements apply to camp sites? (1) You must ensure that all sites used for temporary labor camps are adequately drained. The site must be free from periodic flooding, and located at least 200 feet from a swamp, pool, sink hole, or other surface collection of water unless the water surface can be subject to mosquito control. Drainage from and through the camp must not endanger any domestic or public water supply. All sites must be free from depressions in which water may become a nuisance.

(2) All sites must be large enough to prevent overcrowding of necessary structures. The principal camp area for sleeping and for food preparation and eating must be at least 500 feet from where livestock are kept.

(3) The grounds and open areas surrounding the shelters must be maintained in a clean and sanitary condition.

(4) Whenever the camp is closed for the season or permanently, all garbage, manure, and other refuse must be collected and disposed of to prevent nuisance. All abandoned toilet pits must be filled with earth, and the grounds and buildings left in a clean and sanitary condition. If outhouse buildings remain, they must be locked or otherwise secured to prevent entrance.

[Recodified as § 296-307-16001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16003 How must camp shelters be constructed? (1) You must ensure that every shelter in the camp is constructed to provide protection against the elements.

(2) Each room used for sleeping purposes must have at least 50 square feet of floor space for each occupant. The room must have at least a 7-foot ceiling.

(3) You must provide beds, cots, or bunks, and suitable storage facilities such as wall lockers for clothing and personal articles in every sleeping room.

(a) Beds must be at least 36 inches apart, both laterally and end to end, and the frame must keep mattresses at least 12 inches off the floor.

(b) Double-deck bunks must be spaced at least 48 inches apart, both laterally and end to end.

(c) The minimum clear space between lower and upper bunks must be at least 27 inches.

(d) Triple-deck bunks are prohibited.

(4) The floors of each shelter must be constructed of wood, asphalt, or concrete. Wooden floors must be smooth and tight. The floors must be kept in good repair.

(5) All wooden floors must be elevated at least 1 foot above ground level at all points to prevent dampness and to permit free air circulation.

(6) You may "bank" around outside walls with earth or other suitable material to guard against extreme low temperatures.

(7) All living quarters must have windows covering a total area equal to at least one-tenth of the floor area. You must ensure that at least one-half of each window can be opened for ventilation.

(8) All exterior openings must be screened with 16-mesh material. All screen doors must have self-closing devices.

(9) You must ensure that each dwelling unit has at least 70 square feet of floor space for the first occupant and at least 50 square feet of floor space for each additional occupant. In a family unit, the husband and wife must have a separate sleeping area whenever living with one or more children over six years old.

(10) In camps with common cooking facilities, you must provide stoves in an enclosed and screened shelter. You must provide sanitary facilities for storing and preparing food. You must provide one stove for every 10 people or one stove for every two families.

(11) If a camp is used during cold weather, you must provide adequate heating equipment.

Note: All heating, cooking, and water heating equipment must be installed according to state and local ordinances, codes, and regulations governing such installations.

[Recodified as § 296-307-16003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-08-051A, § 296-306A-16003, filed 3/31/97, effective 5/1/97; 96-22-048, § 296-306A-16003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16005 What requirements apply to the water supply? (1) In each camp, you must provide an adequate and convenient water supply for drinking, cooking, bathing, and laundry purposes. The water supply must be approved by the appropriate health authority.

"Adequate water supply" means a water supply that is capable of delivering 35 gallons per person per day to the campsite at a peak rate of 2 1/2 times the average hourly demand.

(2) You must ensure that the distribution lines are able to supply water at normal operating pressures to all fixtures for simultaneous operation. If water is not piped to the shelters, water outlets must be distributed throughout the camp so that no shelter is more than 100 feet from a yard hydrant.

(3) Where water under pressure is available, you must provide one or more drinking fountains for each 100 occupants or fraction thereof. The construction of drinking fountains must comply with ANSI Standard Specifications for Drinking Fountains, Z4.2-1942. Common drinking cups are prohibited.

[Recodified as § 296-307-16005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16007 Must an employer provide toilet facilities for the camp? (1) You must provide toilet facilities adequate for the camp capacity.

(2) You must ensure that no one has to pass through a sleeping room to reach a toilet room. Toilet rooms must either have a window of at least 6 square feet opening directly to the outside, or be satisfactorily ventilated. All outside openings must be screened with 16-mesh material. No fixture, water closet, chemical toilet, or urinal must be located in a room used for other than toilet purposes.

(3) A toilet room must be within 200 feet of the door of each sleeping room. An outhouse must be at least 100 feet away from any sleeping room, dining room, lunch area, or kitchen.

(4) Where toilet rooms are shared, such as in multifamily shelters and in barracks type facilities, you must provide separate toilet rooms for each sex. These rooms must be distinctly marked "men" and "women" by signs printed in English and in the native language of the persons occupying the camp, or marked with easily understood pictures or symbols. If the facilities for each sex are in the same building, they must be separated by solid walls or partitions extending from the floor to the roof or ceiling.

(5) Where toilet facilities are shared, you must provide water closets or outhouses for each sex, based on the maximum number of persons of that sex that the camp is designed to house at any one time. Water closets or outhouses must be provided in the ratio of one unit for each 15 persons, and a minimum of two units for any shared facility.

(6) You must provide one urinal or 2 linear feet of urinal trough for each 25 men. The floor from the wall and out at least 15 inches from the outer edge of the urinals must be constructed of materials impervious to moisture. Where water under pressure is available, urinals must have an adequate water flush. Urinal troughs in outhouses must drain freely into the pit or vault and the drain must be constructed to exclude flies and rodents from the pit.

(7) Every water closet installed after the effective date of these standards must be located in a toilet room.

(8) Each outhouse, water closet, or chemical toilet compartment must have an adequate supply of toilet paper.

(9) Toilet rooms must be kept in a sanitary condition and be cleaned at least daily.

[Recodified as § 296-307-16007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16009 Must sewer lines connect to public sewers? All sewer lines and floor drains from buildings must be connected to public sewers when sewers are available.

[Recodified as § 296-307-16009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16011 What facilities must an employer provide for laundry, handwashing, and bathing? (1) Laundry, handwashing, and bathing facilities must be provided in the following ratio:

(a) One handwash basin per family shelter or per six persons in shared facilities.

(b) One shower head for every 10 persons.

(c) One laundry tray or tub for every 30 persons.

(d) One "deepwell" type sink in each building used for laundry, hand washing, and bathing.

(2) Floors must be moisture resistant and smooth but not slippery. All junctions of the curbing and the floor must be coved. The walls and partitions of shower rooms must be smooth and moisture resistant to the height of splash. All shower baths, shower rooms, or laundry rooms must have floor drains to remove waste water and facilitate cleaning.

(3) An adequate supply of hot and cold running water must be provided for bathing and laundry purposes. Facilities for heating water must be provided.

(4) Every service building must be provided with equipment capable of maintaining a temperature of at least 70°F.

(5) Facilities for drying clothes must be provided.

(6) All service buildings must be kept clean.

[Recodified as § 296-307-16011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16013 What lighting must an employer provide in camp buildings? Where electric service is available, each habitable room in a camp must have at least one ceiling-type light fixture and at least one separate floor-type or wall-type convenience outlet. Laundry and toilet rooms and rooms where people congregate must have at least one ceiling-type or wall-type fixture. Light levels in toilet and storage rooms must be at least 20 foot-candles 30 inches from the floor. Other rooms, including kitchens and living quarters, must be at least 30 foot-candles 30 inches from the floor.

[Recodified as § 296-307-16013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-08-051A, § 296-306A-16013, filed 3/31/97, effective 5/1/97; 96-22-048, § 296-306A-16013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16015 What requirements apply to refuse disposal? (1) Cleanable or single service containers that can be securely closed, approved by the state board of health, must be provided for garbage storage. At least one such container must be provided for each family shelter and

must be located within 100 feet of each shelter on a wooden, metal, or concrete pad.

(2) Garbage containers must be kept clean.

(3) Garbage containers must be emptied when full, and at least twice a week.

[Recodified as § 296-307-16015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16017 How must kitchens, dining halls, and feeding facilities be constructed? (1) In all camps where central dining or multiple family feeding operations are permitted or provided, the food handling facilities must comply with the requirements of the "Food Service Sanitation Ordinance and Code," Part V of the Food Service Sanitation Manual, U.S. Public Health Service Publication 934 (1965).

(2) You must provide a properly constructed kitchen and dining hall, adequate in size, and separate from the sleeping quarters, in connection with all food handling facilities. There must be no direct opening from living or sleeping quarters into a kitchen or dining hall.

(3) No person with any communicable disease may work in food handling, in any kitchen or dining room operated in connection with a camp or regularly used by persons living in a camp.

[Recodified as § 296-307-16017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16019 Must an employer provide insect and rodent control? You must take effective measures to prevent and control insect and rodent infestation.

[Recodified as § 296-307-16019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16021 What first-aid facilities must be available in the camp? (1) In every camp, you must provide and maintain adequate first-aid facilities, approved by a health authority, for emergency treatment.

(2) A first-aid trained person must be in charge of first-aid facilities.

[Recodified as § 296-307-16021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-16023 When must an employer report communicable diseases in a camp? (1) You must report immediately to the local health officer the name and address of any individual in the camp known to have or suspected of having a communicable disease.

(2) Whenever suspected food poisoning or an unusual prevalence of fever, diarrhea, sore throat, vomiting, or jaundice occurs, the camp superintendent must report immediately the outbreak to the local health officer or state board of health.

[Recodified as § 296-307-16023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-16023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-185 Guarding powered saws.

[Recodified as § 296-307-185. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-185, filed 10/31/96, effective 12/1/96.]

WAC 296-307-18503 What general requirements apply to powered saws? (1) You must ensure that all cracked saw blades are removed from service, except as indicated in WAC 296-306A-18515(6).

(2) Inserting a wedge between a saw disk and its collar to form a "wobble saw" for rabbeting is prohibited.

Exception: This does not apply to properly designed adjustable rabbeting blades.

(3) You must ensure that any saw used for ripping has anti-kick-back fingers on each side and a spreader.

(4) You must ensure that ripping and ploughing are permitted only against the direction in which the saw turns. Mark the direction of saw rotation on the hood, and attach a permanent warning sign to the rear of the guard that prohibits ripping or ploughing from that position.

(5) You must provide push sticks or push blocks in sizes and types suitable for the work to be done.

[Recodified as § 296-307-18503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-18503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-18506 How must band saws be guarded? (1) You must ensure that all band wheels are completely encased or guarded on both sides. Guards must be constructed of not less than No. 14 U.S. gauge metal, nominal two-inch wood material, or mesh or perforated metal of not less than U.S. gauge No. 20 with openings not greater than three-eighths inch.

(2) You must ensure that all portions of the band saw blade are enclosed or guarded except the working side of the blade between the guide and the table.

(3) You must ensure that the guard for the portion of the blade between the sliding guide and the upper-saw-wheel guard protects the saw blade at the front and outer side.

[Recodified as § 296-307-18506. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-18506, filed 10/31/96, effective 12/1/96.]

WAC 296-307-18509 How must radial arm saws be guarded? (1) You must ensure that the upper hood completely encloses the upper portion of the blade, including the end of the saw arbor. The upper hood must be constructed to protect the operator from flying material, and to deflect sawdust. The sides of the lower exposed portion of the blade must be guarded to the full diameter of the blade by a device that will automatically adjust itself to the thickness of the stock and remain in contact with stock.

(2) You must provide a mechanism to prevent the leading edge of the saw from passing the front edge of the table or roll case.

(3) You must equip radial arm-saws with a mechanism to return the saw and keep it in position at the back of the table.

For example: You may use a counter-weight or a saw retractor device, or tilt the arm sufficiently to maintain the saw at the back when released by the operator.

[Recodified as § 296-307-18509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-18509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-18512 How must table saws be guarded? (1) You must ensure that each circular crosscut table saw is guarded by a standard hood that covers the saw at all times at least to the depth of the teeth. The hood must adjust itself automatically to the thickness of, and must remain in contact with, the material being cut.

Exception: When finished surfaces of stock may be marred by the guard, it may be raised slightly to avoid contact. The hood must be designed to protect the operator from flying material.

(2) While used in performing rabbeting, ploughing, grooving or dado operations they may be used without a spreader, but upon completion of such operations, the spreader must be replaced immediately.

(3) You must ensure that the part of the table saw that is beneath the table is fully guarded.

(4) Power transmission components of table saws must be guarded according to WAC 296-306A-280.

[Recodified as § 296-307-18512. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-18512, filed 10/31/96, effective 12/1/96.]

WAC 296-307-18515 How must circular fuel-wood saws be guarded? (1) You must ensure that fuel-wood saws are guarded by a standard guard that completely encloses the blade to the depth of the teeth, except for the area where material is fed into the blade.

(2) You must ensure that the tables of fuel-wood saws is constructed so that material being sawed is supported on both sides of the blade.

(3) You must provide a mechanism that will prevent the leading edge of the saw from passing the front edge of the table or roll case.

(4) You must provide tilting tables of fuel-wood saws with a backrest for the full length of the table. The backrest must extend upward from the table platform at least to the height of the saw opening. An opening in a backrest must be a maximum of two inches. The backrest frame and filler must be constructed of material strong and rigid enough to prevent distortion under normal use.

(5) Power transmission components of fuel-wood saws must be guarded according to WAC 296-306A-280.

(6) When a circular fuel-wood saw blade develops a crack, you must discontinue its use until properly repaired, according to the following measurements.

Length of crack	Diameter of saw in inches
1/2"	12"
1"	24"
1-1/2"	36"

[Recodified as § 296-307-18515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-18515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-190 Guarding bench grinders and abrasive wheels.

[Recodified as § 296-307-190. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-190, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19003 What definitions apply to this section? "Abrasive wheel" means a cutting tool consisting of abrasive grains held together by organic or inorganic bonds. This includes diamond and reinforced wheels.

"Flanges" means collars, discs, or plates between which wheels are mounted. Also referred to as adapter, sleeve, or back.

"Mounted wheels" means wheels of various dimensions that are usually 2 inches in diameter or smaller. They can be either organic or inorganic bonded abrasive wheels. They are secured to plain or threaded steel mandrels.

"Off-hand grinding" means grinding material or a part that is held in the operator's hand.

"Portable grinding" means the grinding machine is hand-held and may be easily moved from one location to another.

"Reinforced wheels" means a class of organic wheels that contain strengthening fabric or filament. "Reinforced" does not mean wheels using such mechanical additions as steel rings, steel cup backs, or wire or tape winding.

"Safety guard" means an enclosure designed to restrain the pieces of the grinding wheel and protect the operator in the event that the wheel is broken in operation.

[Recodified as § 296-307-19003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19006 What rules apply to guarding abrasive wheels? (1) Abrasive wheels must be used only on machines provided with safety guards.

Exception: This requirement does not apply to the following:
 (a) Wheels used for internal work while the wheel is within the work being ground.
 (b) Mounted wheels 2 inches and smaller in diameter, used in portable operations.
 (c) Types 16, 17, 18, 18R, and 19 cones, plugs, and threaded hole pot balls where the work offers protection.
 (d) Specially shaped "sickle grinding" wheels mounted in mandrel-type bench or floor stands.

(2) The safety guard must cover the spindle end, nut, and flange projections.

Exceptions:
 (a) When the work provides protection to the operator, the spindle end, nut, and outer flange may be exposed. When the work entirely covers the side of the wheel, the side covers of the guard may be omitted.
 (b) The spindle end, nut, and outer flange may be exposed on portable machines designed for, and used with, type 6, 11, 27, and 28 abrasive wheels, cutting off wheels, and tuck pointing wheels.
 (c) The spindle end, nut, and outer flange may be exposed on machines designed as portable saws.

(3) The guard must cover the sides and periphery of the wheel.

Exceptions:

- (a) Bench and floor stands;
- (i) The maximum permissible angle of exposure is 90°. This exposure must begin at a point not more than 65° above the horizontal plane of the wheel spindle.
- (ii) Wherever the nature of the work requires contact with the wheel below the horizontal plane of the spindle, the exposure must not exceed 125°. This exposure must begin at a point not more than 65° above the horizontal plane of the wheel spindle.
- (b) Swing-frame grinders may only be exposed on the bottom half; the top half of the wheel must be enclosed at all times.
- (c) Where the work is applied to the top of the wheel, the exposure of the grinding wheel periphery must not exceed 60°.
- (d) When the work entirely covers the side of the wheel, the side covers of the guard may be omitted.

(4) The safety guard must be mounted to maintain proper alignment with the wheel, and the strength of the fastenings must exceed the strength of the guard.

(5) Take care to see that the safety guard is properly positioned before starting the mounted wheel.

(6) Abrasive wheel machinery guards must meet the design specifications of ANSI B7.1-1970.

(7) Exception: WAC 296-306A-19006 does not apply to natural sandstone wheels and metal, wooden, cloth, or paper discs, with a layer of abrasive on the surface.

[Recodified as § 296-307-19006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19009 What are the use, mounting, and guarding rules for abrasive wheels? (1) Immediately before mounting, the operator must closely inspect and sound (ring test) all wheels to make sure they are not damaged. Before mounting the wheel, the operator must check the spindle speed of the machine to be certain that it does not exceed the maximum operating speed marked on the wheel.

"Ring test" means to tap the wheel gently with a light nonmetallic implement, such as the handle of a screwdriver for light wheels, or a wooden mallet for heavier wheels.

(2) Grinding wheels must fit freely on the spindle and remain free under all grinding conditions. The wheel hole must be made suitably oversized to ensure that heat and pressure do not create a hazard.

(3) All contact surfaces of wheels, blotters, and flanges must be flat and free of foreign matter.

(4) Bushings used in the wheel hole must not exceed the width of the wheel and must not contact the flanges.

(5) On offhand grinding machines, work rests must be used to support the work. The work rest must be rigid and adjustable to compensate for wheel wear. Work rests must be kept adjusted closely to the wheel with a maximum opening of one-eighth inch to prevent the work from jamming between the wheel and the rest. The work rest must be securely clamped after each adjustment and shall not be adjusted with the wheel in motion.

(6) Goggles or face shields must be used when grinding.

(7) Nonportable grinding machines must be securely mounted on substantial floors, benches, foundations, or other adequate structures.

(8) After mounting, abrasive wheels must be run at operating speed with the safety guard in place and properly

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adjusted, or in a protected enclosure for at least one minute before applying work. During this time, no one may stand in front of or in line with the wheel.

(9) Grinders or abrasive wheels that vibrate or are out of balance must be repaired before use.

(10) Abrasive wheels not designed for the machine or guard must not be mounted on a grinder.

(11) Side grinding must only be performed with wheels designed for this purpose.

Note: Light grinding on the side of straight wheels is permitted only when very delicate pressure is applied.

[Recodified as § 296-307-19009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19012 What requirements apply to flanges? (1) Grinding machines must have flanges.

(2) All abrasive wheels must be mounted between flanges that are at least one-third the diameter of the wheel. Regardless of flange type used, the wheel must always be guarded. Blotters must be used according to this section.

(3) Design and material requirements include:

(a) Flanges must be designed to transmit the driving torque from the spindle to the grinding wheel.

(b) Flanges must be made of steel, cast iron, or other material of equal or greater strength and rigidity.

(4) An abrasive wheel that is designed to be held by flanges must not be operated without them. Except for those types requiring flanges of a special design, flanges must be at least one-third the diameter of the wheel.

(5) Facings of compressible material (blotters) must be inserted between the abrasive wheel and flanges to ensure uniform distribution of flange pressure.

(6) All flanges must be maintained in good condition. When the bearing surfaces become damaged, they should be trued or refaced. When refacing or truing, exercise care to make sure that proper relief and rigidity is maintained before starting the wheel.

(7) Where the operator may stand in front of the opening, safety guards must be adjustable to compensate for wheel wear. The distance between the wheel periphery and the adjustable tongue or the guard above the wheel must not exceed one-quarter inch.

[Recodified as § 296-307-19012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19015 How must vertical portable grinders be guarded? Safety guards on right angle head or vertical portable grinders must have a maximum exposure angle of 180°, and the guard must be between the operator and the wheel during use. The guard must be adjusted so that pieces of an accidentally broken wheel will be deflected away from the operator.

[Recodified as § 296-307-19015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19018 How must other portable grinders be guarded? Other portable grinding machines

must be guarded so that only the bottom half of the wheel is exposed. The top half of the wheel must be enclosed at all times.

[Recodified as § 296-307-19018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-195 What rules apply to grounding and "dead man" controls for hand-held portable power tools? (1) Each hand-held, power-driven tool must have a "dead man" control, such as a spring-actuated switch, valve, or equivalent device, so that the power will be automatically shut off whenever the operator releases the control.

(2) The frames and all exposed, noncurrent-carrying metal parts of portable electric machinery, operated at more than fifty volts to ground, must be grounded. Other hand-held portable motors driving electric tools must be grounded if they operate at more than fifty volts to ground. The ground must use a separate ground wire and polarized plug and receptacle.

Exception: Double insulated tools that are designed and used according to the requirements of Article 250-45 of the National Electrical Code (1971 edition) are exempt from the grounding requirements.

[Recodified as § 296-307-195. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-195, filed 10/31/96, effective 12/1/96.]

WAC 296-307-200 Compressed air.

[Recodified as § 296-307-200. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-200, filed 10/31/96, effective 12/1/96.]

WAC 296-307-20005 May compressed air be used for cleaning? Using compressed air for cleaning purposes is prohibited, except where the pressure is reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment.

[Recodified as § 296-307-20005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-20005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-20010 What requirements apply to compressed air tools? (1) When using compressed air tools, use care to prevent the tool from being shot from the gun.

(2) When momentarily out of use, the gun should be laid so that the tool cannot fly out if the pressure is accidentally released. When not in use, all tools should be removed from the gun.

(3) When disconnecting a compressed air tool from the air line, first shut off the pressure and then operate the tool to release the pressure remaining in the hose.

(4) Compressed air hose or guns must not be pointed at or brought into contact with the body of any person.

[Recodified as § 296-307-20010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-20010, filed 10/31/96, effective 12/1/96.]

WAC 296-307-205 Guarding portable powered tools.

[Recodified as § 296-307-205. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-205, filed 10/31/96, effective 12/1/96.]

WAC 296-307-20505 What requirements apply to guarding portable powered tools? (1) All portable, power-driven circular saws with a blade diameter greater than 2 inches must have guards above and below the base plate or shoe.

(a) The upper guard must cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts.

(b) The lower guard must cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work.

(c) When the tool is withdrawn from the work, the lower guard must automatically and instantly return to covering position.

(2) Portable belt sanding machines must have guards at each nip point where the sanding belt runs onto a pulley. These guards must prevent the hands or fingers of the operator from coming in contact with the nip points. The unused run of the sanding belt must be guarded against accidental contact.

(3) Portable electric powered tools must meet the electrical requirements of chapter 296-306A WAC Part T.

[Recodified as § 296-307-20505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-20505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-20510 What requirements apply to switches and controls on portable powered tools? (1) The following powered tools must have a constant pressure switch or control that will shut off the power when the pressure is released:

- All hand-held powered circular saws with a blade diameter-greater than 2 inches;
- Electric, hydraulic or pneumatic chain saws; and
- Percussion tools without positive accessory holding means.

All hand-held gasoline powered chain saws must have a constant pressure throttle control that will shut off the power to the saw chain when the pressure is released.

(2) The following powered tools must have a constant pressure switch or control:

- All hand-held powered drills, tappers, fastener drivers, and horizontal, vertical, and angle grinders with wheels greater than 2 inches in diameter;
- Disc sanders with discs greater than 2 inches in diameter;
- Belt sanders;
- Reciprocating saws;
- Saber, scroll, and jig saws with blade shanks greater than a nominal 1/4 inch; and
- Other similarly operating powered tools.

These tools may have a lock-on control if they can be turned off by a single motion of the same finger or fingers that turn it on.

(3) The following powered tools must have either a positive on-off control, or other controls as described above:

- All other hand-held powered tools, including:
- Platen sanders;
- Grinders with wheels 2 inches in diameter or less;
- Disc sanders with discs 2 inches in diameter or less;
- Routers;
- Planers;
- Laminate trimmers;
- Nibblers;
- Shears; and
- Saber, scroll, and jig saws with blade shanks a nominal 1/4 inch wide or less.

(a) Saber, scroll, and jig saws with nonstandard blade holders may use blades with shanks that are nonuniform in width, if the narrowest portion of the blade shank is an integral part in mounting the blade.

(b) Blade shank width must be measured at the narrowest portion of the blade shank when saber, scroll, and jig saws have nonstandard blade holders.

(c) "Nominal" in this section means +0.05 inch.

(4) The operating control on hand-held power tools must be located to minimize the possibility of accidental operation that would constitute a hazard to employees.

Exception: This section does not apply to concrete vibrators, concrete breakers, powered tampers, jack hammers, rock drills, garden appliances, household and kitchen appliances, personal care appliances, or to fixed machinery.

[Recodified as § 296-307-20510. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-20510, filed 10/31/96, effective 12/1/96.]

WAC 296-307-20515 What requirements apply to pneumatic powered tools and hose? (1) The operating trigger on portable pneumatic powered tools must be located to minimize the possibility of accidental operation and arranged to close the air inlet valve automatically when the operator removes pressure.

(2) A tool retainer must be installed on each tool that would otherwise be ejected from the hose.

(3) Hose and hose connections used for conducting compressed air to utilization equipment must be designed for the pressure and service to which they are subjected.

[Recodified as § 296-307-20515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-20515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-220 Power lawnmowers.

[Recodified as § 296-307-220. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-220, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22003 What definitions apply to this section? "Blade tip circle" means the path described by the outermost point of the blade as it rotates about its shaft axis.

"Catcher assembly" means a part that provides a means for collecting grass clippings or debris.

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"Deadman control" means a control designed to automatically interrupt power to a drive when the operator releases the control.

"Guard" means a part for shielding a hazardous area of a machine.

"Lowest blade position" means the lowest blade position when the mower is not in use.

"Operator area" (walk-behind mowers) means a circular area behind the mower that is no smaller than 30 inches in diameter, the center of which is 30 inches behind the nearest blade tip circle.

"Power reel mower" means a lawn-cutting machine with a power source that rotates one or more helically formed blades about a horizontal axis and creates a shearing action with a stationary cutter bar or bed knife.

"Power rotary mower" means a lawn-cutting machine with a power source that rotates one or more cutting blades about a vertical axis.

"Riding mower" means a powered, self-propelled lawn-cutting vehicle on which the operator rides and controls the machine.

"Sulky type mower" means a walk-behind mower that has been converted to a riding mower by the addition of a sulky.

"Walk-behind mower" means a mower either pushed or self-propelled and normally guided by the operator walking behind the unit.

[Recodified as § 296-307-22003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22006 What are the general guarding requirements for power lawnmowers? (1) Walk-behind, riding-rotary, and reel power lawnmowers designed for use by employees must meet the design specifications in ANSI B71.1-1968.

Exception: These specifications do not apply to sulky-type mowers, flail mowers, sickle-bar mowers, or mowers designed for commercial use.

(2) All power-driven chains, belts, and gears must be positioned or guarded to prevent accidental contact with the operator during normal starting, mounting, and operation of the machine.

(3) The motor must have a shut-off device that requires manual and intentional reactivation to restart the motor.

(4) All positions of the operating controls must be clearly identified.

(5) The words, "Caution — Be sure the operating control(s) is in neutral before starting the engine," or similar wording must be clearly visible at an engine starting control point on self-propelled mowers.

(6) All power lawn mowers must be used according to the manufacturer's instructions.

[Recodified as § 296-307-22006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22009 What rules apply to walk-behind and riding rotary mowers? (1) The mower blade

must be enclosed except on the bottom and the enclosure must extend to or below the lowest blade position.

(2) Guards that must be removed to install a catcher assembly must meet the following requirements:

(a) Warning instructions are attached to the mower near the opening stating that the mower must not be used without either the catcher assembly or the guard in place.

(b) The mower is used only with either the catcher assembly or the guard in place.

(c) The catcher assembly is properly and completely installed.

(3) The word "caution" or stronger wording must be placed on the mower at or near each discharge opening.

(4) Blade(s) must stop rotating from the manufacturer's specified maximum speed within 15 seconds after declutching, or shutting off power.

[Recodified as § 296-307-22009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22012 What rules apply to walk-behind rotary mowers? (1) The horizontal angle of the grass discharge opening(s) in the blade enclosure must not contact the operator area.

(2) There must be one of the following at all grass discharge openings:

(a) A minimum of 3 inches between the end of the discharge chute and the blade tip circle; or

(b) A rigid bar fastened across the discharge opening, secured to prevent removal without the use of tools. The bottom of the bar must be no higher than the bottom edge of the blade enclosure.

(3) The highest point(s) on the blade enclosure front, except discharge-openings, must be a maximum of 1-1/4 inches above the lowest blade position. Mowers with a swingover handle are considered to have no front in the blade enclosure and therefore must comply with WAC 296-306A-22009(1).

(4) The mower handle must be fastened to the mower to prevent loss of control by unintentional uncoupling while in operation.

(5) Mower handles must be locked in the normal operating position(s) so that they cannot be accidentally disengaged during normal mower operation.

(6) A swingover handle must meet the requirements of this section.

(7) Wheel drive disengaging controls, except deadman controls, must move opposite to the direction of the vehicle motion in order to disengage the drive. Deadman controls may operate in any direction to disengage the drive.

[Recodified as § 296-307-22012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22015 What rules apply to riding rotary mowers? (1) The highest point(s) of all openings in the blade enclosure front must be a maximum of 1 1/4 inches above the lowest blade position.

(2) Opening(s) must not allow grass or debris to discharge directly toward the operator seated in normal operator position.

(3) There must be one of the following at all grass discharge openings:

(a) A minimum of 6 inches between the end of the discharge chute and the blade tip circle; or

(b) A rigid bar fastened across the discharge opening secured to prevent removal without the use of tools. The bottom of the bar must be no higher than the bottom edge of the blade enclosure.

(4) Mowers must have stops to prevent jackknifing or locking of the steering mechanism.

(5) The mower must have brakes.

(6) Hand-operated wheel drive disengaging controls must move opposite to the direction of vehicle motion in order to disengage the drive. Foot-operated wheel drive disengaging controls must be depressed to disengage the drive. Deadman controls, both hand and foot operated, may operate in any direction to disengage the drive.

[Recodified as § 296-307-22015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-225 Jacks.

[Recodified as § 296-307-225. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-225, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22503 What definitions apply to this section? "Jack" means an appliance for lifting and lowering or moving horizontally a load using a pushing force.

Note: Jack types include lever and ratchet, screw, and hydraulic.

"Rating" means the maximum working load for which a jack is designed to lift the load safely throughout its travel.

[Recodified as § 296-307-22503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22506 How shall the rated load be marked on a jack? (1) The operator must make sure that the jack used has a load rating sufficient to lift and sustain the load.

(2) The rated load must be legibly and permanently marked in a prominent location on the jack by casting, stamping, or other suitable means.

Note: You should follow the manufacturer's specifications to raise the rated load of a jack.

[Recodified as § 296-307-22506. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22506, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22509 What rules apply to the operation and maintenance of jacks? (1) If the foundation is not firm, you must block the base of the jack. If the cap might slip, you must place a block in between the cap and the load.

(2) The operator must watch the stop indicator, which must be kept clean, in order to determine the limit of travel. The indicated limit must not be overrun.

(3) After the load has been raised, it must immediately be cribbed, blocked, or otherwise secured.

(4) Hydraulic jacks exposed to freezing temperatures must be supplied with an adequate antifreeze liquid.

(5) All jacks must be properly lubricated at regular intervals. The lubricating instructions of the manufacturer should be followed, and only lubricants recommended by the manufacturer should be used.

(6) You must ensure that each jack is thoroughly inspected according to the service conditions and at least:

(a) For constant or intermittent use at one locality, once every 6 months;

(b) For jacks sent out of shop for special work, when sent out and when returned;

(c) For a jack subjected to abnormal load or shock, immediately before and immediately thereafter.

(7) Repair or replacement parts must be examined for possible defects.

(8) Jacks that are out of order must be tagged, and not be used until repaired.

[Recodified as § 296-307-22509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-22509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-230 What are the general requirements for materials handling and storage? (1) Safe clearances of three feet must be allowed for aisles, loading docks, doorways, and wherever turns or passage must be made. Passageways must be kept clear and in good repair, with no obstructions.

(2) Bags, bales, boxes, and other containers stored in tiers must be made secure against sliding or collapse.

(3) Storage areas must be kept free from any accumulation of materials that could cause tripping, fire, or explosion.

(4) Employees must be instructed in proper lifting or moving techniques and methods. Mechanical devices or assistance in lifting must be used when moving heavy objects.

(5) When removing material stored in piles, employees must remove material in a manner that maintains the stability of the pile and prevents collapse.

(6) Storage areas must have proper drainage.

(7) You must provide clearance signs to warn of clearance limits.

(8) For powered industrial truck (forklift) requirements, see WAC 296-306A-520.

[Recodified as § 296-307-230. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-230, filed 10/31/96, effective 12/1/96.]

WAC 296-307-232 What requirements apply to conveyors? Conveyors must be constructed, operated, and maintained according to ANSI B 20.1-1957.

(1) When the return strand of a conveyor operates within seven feet of the floor, there must also be a trough strong enough to carry the weight resulting from a broken chain.

(2) If the strands are over a passageway, a means must be provided to catch and support the ends of the chain in the event of a break.

(3) When the working strand of a conveyor crosses within three feet of the floor level in passageways, a bridge must be provided for employees to cross over the conveyor.

(4) Whenever conveyors pass adjacent to or over working areas or passageways, protective guards must be installed. These guards must be designed to catch and hold any load or materials that may fall off or dislodge and injure an employee.

(5) Employees must be prohibited from walking on the rolls of roller-type conveyors, except in an emergency.

(6) Guards, screens, or barricades that are strong enough to prevent material from falling must be installed on all sides of the shaftway of elevator-type conveyors except at openings where material is loaded or unloaded. Automatic shaftway gates or suitable barriers must be installed at each floor level where material is loaded or unloaded from the platform.

(7) Conveyors must have an emergency stopping device that can be reached from the conveyor. The device must be located near the material entrance to each chopper, mulcher, saw, or similar equipment.

Exception: The emergency stopping device is not required where the conveyor leading into the equipment is under constant control of an operator with full view of the material entrance and the conveyor is located where the operator cannot fall onto it.

(8) Where conveyors are over seven feet high, means must be provided to safely permit essential inspection and maintenance operations.

(9) Any part showing signs of significant wear must be inspected carefully and replaced before it creates a hazard.

(10) Replacement parts must be equal to or exceed the manufacturer's specifications.

[Recodified as § 296-307-232. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-232, filed 10/31/96, effective 12/1/96.]

WAC 296-307-240 Sanitation for fixed, indoor workplaces.

[Recodified as § 296-307-240. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-240, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24001 Must an employer comply with state health regulations? You must comply with the rules and regulations of the state board of health governing sanitation in the workplace. We enforce these regulations according to RCW 43.20.050.

[Recodified as § 296-307-24001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24003 What does this section cover? WAC 296-306A-240 covers sanitation for employees who

normally work in fixed, indoor places of agricultural employment.

A "fixed, indoor workplace" is one where the employees perform a majority of their duties at that site.

This does not cover field employees who only occasionally enter a shop or other farm building as part of their normal duties. Field employees are covered by the field sanitation requirements of WAC 296-306A-095.

This section does not cover measures for the control of toxic materials.

[Recodified as § 296-307-24003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24006 What definitions apply to this section? "Lavatory" means a basin used exclusively for washing hands, arms, face, and head.

"Personal service room" means a room used for activities not directly connected with the business function of the employer. Such activities include but are not limited to, first aid, medical services, dressing, showering, toilet use, washing, and eating.

"Potable water" means water that meets state or local quality standards for drinking water, or water that meets the quality standards of the Environmental Protection Agency's "National Interim Primary Drinking Water Regulations," published in 40 CFR, Part 141, and 40 CFR 147.2400.

"Toilet facility" means a fixture maintained within a toilet room for the purpose of defecation or urination, or both.

"Toilet room" means a room maintained within or on the premises of any place of employment, containing toilet facilities for employee use.

"Toxic material" means a material that exceeds a regulatory limit (such as in chapter 296-62 WAC), or toxicity that causes or is likely to cause death or serious physical harm.

"Urinal" means a toilet facility maintained within a toilet room for the sole purpose of urination.

"Water closet" means a toilet facility maintained within a toilet room for the purpose of both defecation and urination and which is flushed with water.

"Wet process" means any process or operation in a workroom that normally results in walking or standing surfaces becoming wet.

[Recodified as § 296-307-24006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24009 What housekeeping requirements apply to fixed, indoor workplaces? (1) You must ensure that all places of employment are kept clean to the extent that the work allows.

(2) You must ensure that the floor of every workroom is kept as dry as possible. Where wet processes are used, you must maintain drainage. You must provide false floors, platforms, mats, or other dry standing places where practical, or provide appropriate waterproof footwear.

(3) To facilitate cleaning, every floor, working place, and passageway must be kept free from protruding nails, splinters, loose boards and unnecessary holes and openings.

(4) Cleaning and sweeping must be done to minimize dust in the air and when practical, done outside of working hours.

[Recodified as § 296-307-24009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24012 How must the potable water supply be maintained? (1) You must provide potable water in all places of employment, for drinking, washing of the person, cooking, washing food, washing cooking or eating utensils, washing food preparation or processing premises, and for personal service rooms.

(2) Potable drinking water dispensers must be maintained in sanitary condition, be closeable, and have a tap.

(3) Open containers for drinking water from which the water must be dipped or poured, even if fitted with a cover, are prohibited.

(4) A common drinking cup and other common utensils are prohibited.

[Recodified as § 296-307-24012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24015 How must the nonpotable water supply be maintained? (1) You must ensure that nonpotable water is marked as unsafe and is not used for drinking, washing of the person, cooking, washing food, washing cooking or eating utensils, washing food preparation or processing premises, or personal service rooms, or for washing clothes.

(2) Nonpotable water used for cleaning any other work premises must be free of concentrations of chemicals, fecal coliform, or other substances that could create unsanitary conditions or be harmful to employees.

(3) Nonpotable water systems or systems carrying any other nonpotable substance must be constructed to prevent backflow or backsiphonage into a potable water system.

[Recodified as § 296-307-24015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24018 What toilet facilities must an employer provide? (1) You must provide toilet facilities, with separate toilet rooms for each sex, according to the requirements in the table below. You must provide facilities for each sex based on the number of employees of that sex for whom facilities are furnished.

(2) Where single-occupancy rooms have more than one toilet facility, only one facility in each toilet room counts toward these requirements.

In this table, "number of employees" means the maximum number of employees present at any one time on a regular shift.

Number of employees	Minimum number of water closets
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1 to 15	1
16 to 35	2
36 to 55	3
56 to 80	4
81 to 110	5
111 to 150	6
Over 150	One additional fixture for each additional 40 employees

(3) Where toilet rooms are occupied by one person at a time, can be locked from the inside, and contain at least one water closet, separate toilet rooms for each sex need not be provided.

(4) Where toilet facilities will not be used by women, urinals may be provided instead of water closets, except that the number of water closets must not be less than 2/3 of the minimum specified.

(5) The sewage disposal method must not endanger the health of employees.

(6) Toilet paper with holder must be provided for every water closet.

(7) Each water closet must occupy a separate compartment with a door and walls or partitions between fixtures high enough to ensure privacy.

[Recodified as § 296-307-24018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24021 What washing facilities must an employer provide? You must provide facilities for maintaining personal cleanliness in the workplace. The facilities must be convenient for employees and maintained in a sanitary condition.

[Recodified as § 296-307-24021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24024 What requirements apply to lavatories? (1) You must ensure that lavatories are available in all workplaces.

(2) Each lavatory must have hot and cold running water, or tepid running water.

(3) You must provide hand soap or similar cleansing agent.

(4) You must provide individual hand towels, warm air blowers, or clean individual sections of continuous cloth toweling convenient to the lavatories.

[Recodified as § 296-307-24024. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24024, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24027 When must an employer provide change rooms? (1) Whenever employees are required by a WISHA standard to wear protective clothing because of the possibility of contamination with toxic materials, you must provide change rooms with separate storage facilities for street clothes and for the protective clothing.

(2) If you provide work clothes for employees, they must be dry.

[Recodified as § 296-307-24027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24030 What requirements apply to consumption of food and beverages in the workplace?

(1) This section applies to workplaces where employees may consume food, beverages, or both on the premises.

(2) No employee may consume food or beverages in a toilet room nor in any area exposed to a toxic material.

(3) If your workplace exposes employees to injurious dusts or other toxic materials, you must provide a separate lunchroom unless it is convenient for employees to lunch away from the premises. The size of the lunchroom must be based on the maximum number of persons using the room at one time, according to the following table.

Number of persons	Square feet per person
25 and less	13
26 - 74	12
75 - 149	11
150 and over	10

(4) You must provide receptacles of smooth, corrosion resistant, easily cleanable, or disposable materials for the disposal of waste food. You must provide enough receptacles to encourage their use and to prevent overfilling. Receptacles must be emptied at least once a working day and maintained in sanitary condition. Receptacles must have a solid tight-fitting cover unless sanitary condition can be maintained without a cover.

(5) No food or beverages may be stored in toilet rooms or in an area exposed to toxic material.

(6) All employee food service facilities and operations must follow sound hygienic principles. If all or part of the food service is provided, the food dispensed must be wholesome and free from spoilage. Food must be processed, prepared, handled, and stored so as to prevent contamination.

[Recodified as § 296-307-24030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24030, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24033 How must waste be stored and removed? (1) You must ensure that any receptacle used for waste or garbage that may rot is constructed so that it does not leak and can be thoroughly cleaned and maintained in a sanitary condition. A receptacle must have a solid tight-fitting cover, unless it can be maintained in a sanitary condition without a cover. Receptacles designed to maintain sanitary condition may be used in place of this requirement.

(2) All sweepings, solid or liquid wastes, refuse, and garbage must be removed to avoid creating a health menace, and as often as necessary to maintain the workplace in a sanitary condition.

[Recodified as § 296-307-24033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24033, filed 10/31/96, effective 12/1/96.]

[Recodified as § 296-307-24033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24036 When must an employer have a vermin control program? Every building with personal

service, food preparation, or eating rooms must be constructed, equipped, and maintained to restrict infestation by rodents, insects, and other vermin. You must have a continuing and effective extermination program where vermin are present.

[Recodified as § 296-307-24036. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-24036, filed 10/31/96, effective 12/1/96.]

WAC 296-307-250 Walking working surfaces, elevated walkways, and platforms.

[Recodified as § 296-307-250. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-250, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25003 What definitions apply to this section? "Floor hole" means an opening with the smallest dimension between one and 12 inches, in any floor, platform, pavement, or yard, through which materials may fall but not people. Examples are a belt hole, pipe opening, or slot opening.

"Floor opening" means an opening with the smallest dimension of 12 inches or more, in any floor, platform, pavement, or yard, through which people may fall. Examples are a hatchway, stair or ladder opening, pit, or large manhole. Floor openings occupied by elevators, dumb waiters, conveyors, machinery, or containers are excluded from this definition.

"Handrail" means a single bar or pipe supported on brackets from a wall or partition to furnish persons with a handhold in case of tripping.

"Platform" means a working space for people that is elevated above the surrounding floor or ground, such as a balcony or platform for the operation of machinery and equipment.

"Runway" means a passageway used by people that is elevated above the surrounding floor or ground level, such as a footwalk along shafting or a walkway between buildings.

"Standard railing" means a vertical barrier along exposed edges of a floor opening, wall opening, ramp, platform, or runway to prevent people from falling.

"Standard strength and construction" means any construction of railings, covers, or other guards that meets the requirements of this section.

"Stair railing" means a vertical barrier along exposed sides of a stairway to prevent people from falling.

"Toeboard" means a vertical barrier at floor level along exposed edges of a floor opening, wall opening, platform, runway, or ramp to prevent materials from falling.

"Wall hole" means an opening between one and 30 inches high, of any width, in any wall or partition, such as a ventilation hole or drainage scupper.

"Wall opening" means an opening at least 30 inches high and 18 inches wide, in any wall or partition, through which people may fall, such as a yard-arm doorway or chute opening.

[Recodified as § 296-307-25003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25006 When may railings be omitted? Railings may be omitted from sections of open-sided floors, platforms, or walkways where guard rails impair operations, if railings are replaced when they no longer impair operations.

[Recodified as § 296-307-25006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25009 What protection must an employer provide for floor openings? (1) Every stairway floor opening must be guarded by a standard railing constructed according to this section. The railing must guard all exposed sides (except the entrance to the stairway). Infrequently used stairways where traffic across the opening prevents using a fixed standard railing (as when located in aisle spaces, etc.), may use an alternate guarding method. In these cases, the guard must have a hinged floor opening cover of standard strength and construction and removable standard railings on all exposed sides (except at the entrance to the stairway).

(2) Every ladderway floor opening or platform must be guarded by a standard railing with standard toeboard on all exposed sides (except at the entrance to the opening). The passage through the railing must have either a swinging gate or offset so that a person cannot walk directly into the opening.

(3) Every hatchway and chute floor opening must be guarded by one of the following:

(a) A hinged floor opening cover of standard strength and construction with standard railings, or a permanent cover with only one side exposed. When the opening is not in use, the cover must be closed or the exposed side must be guarded at both the top and middle by removable standard railings.

(b) A removable railing with toeboard on a maximum of two sides of the opening and with fixed standard railings and toeboards on all other exposed sides. The removable railings must be kept in place when the opening is not in use and should be hinged or mounted to be easily replaced.

(4) When employees must feed material into any hatchway or chute opening, you must provide protection to prevent people from falling through the opening.

(5) When practical, the area under floor openings must be fenced off. Otherwise, the area must be plainly marked with yellow lines and telltales hanging within 5-1/2 feet of the ground or floor level.

(6) Where floor openings are used to drop materials from one level to another, audible warning systems must be installed and used to indicate to employees on the lower level when material is dropped.

(7) Every skylight opening and hole must be guarded by a standard skylight screen or a fixed standard railing on all exposed sides.

(8) Every infrequently used pit and trapdoor floor opening must be guarded by a floor opening cover of standard strength and construction that should be hinged in

place. When the cover is not in place, the pit or trap opening must be constantly attended or protected on all exposed sides by removable standard railings.

(9) Every manhole floor opening must be guarded by a standard manhole cover. The manhole cover may be left unhinged. When the cover is removed, the manhole opening must be constantly attended or protected by removable standard railings.

(10) Every temporary floor opening must have standard railings or must be constantly attended.

(11) Every floor hole that people can accidentally walk into must be guarded by either:

(a) A standard railing with standard toeboard on all exposed sides; or

(b) A floor hole cover of standard strength and construction that should be hinged in place. While the cover is not in place, the floor hole must be constantly attended or protected by a removable standard railing.

(12) Every floor hole surrounded by fixed machinery, equipment, or walls that prevent people from walking into it, must be protected by a cover that leaves openings a maximum of one inch wide. The cover must be securely held in place to prevent tools or materials from falling through.

(13) Where doors or gates open directly on a stairway, a platform must be provided so that the swing of the door does not reduce the platform width to less than 20 inches.

[Recodified as § 296-307-25009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25012 What protection must an employer provide for wall openings and holes? (1) Every wall opening from which there is a drop of more than 4 feet must be guarded by one of the following:

(a) A rail, roller, picket fence, half door, or equivalent barrier.

The guard may be removable but should be hinged or mounted so it can be easily replaced. When employees working below the opening are exposed to falling materials, a removable toeboard or the equivalent must also be provided. When the opening is unused, the guard must be kept in position even with a door on the opening. In addition, a grab handle must be provided on each side of the opening with its center approximately 4 feet above floor level and of standard strength and mounting.

(b) An extension platform onto which materials can be hoisted for handling, and that has side rails or equivalent guards of standard specifications.

(2) Every chute wall opening from which there is a drop of more than 4 feet must be guarded according to subsection (1) of this section or as required by the conditions.

(3) Every window wall opening at a stairway landing, floor, platform, or balcony, from which there is a drop of more than 4 feet, and where the bottom of the opening is less than 3 feet above the platform or landing, must be guarded by standard slats, standard grillwork according to WAC 296-306A-25042(3), or a standard railing.

Where the window opening is below the landing, or platform, a standard toeboard must be provided.

(4) Every temporary wall opening must have adequate guards that may be of less than standard construction.

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(5) Where there is a hazard of materials falling through a wall hole, and the lower edge of the near side of the hole is less than 4 inches above the floor, and the far side of the hole is more than 5 feet above the next lower level, the hole must be protected by a standard toeboard or a solid enclosing screen, or according to WAC 296-306A-25042(3).

[Recodified as § 296-307-25012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25015 What protection must an employer provide for open-sided floors, platforms, and runways? (1) Every open-sided floor or platform 4 feet or more above an adjacent floor or ground level must be guarded by a standard railing (or the equivalent according to WAC 296-306A-10003(3)) on all open sides, except where there is an entrance to a ramp, stairway, or fixed ladder. The railing must have a toeboard wherever, beneath the open sides:

(a) A person can pass; or

(b) There is moving machinery; or

(c) Materials falling onto equipment would create a hazard.

(2) Every runway must be guarded by a standard railing (or the equivalent according to WAC 296-306A-25027) on all open sides that are 4 feet or more above floor or ground level. Wherever tools, machine parts, or materials are likely to be used on the runway, a toeboard must also be provided on each exposed side.

Runways used exclusively for special purposes (such as oiling, shafting, or filling tank cars) may have the railing on one side omitted when operating conditions require, if the hazard is minimized by using a runway at least 18 inches wide. Where people entering runways become exposed to machinery, electrical equipment, or hazards other than from falling, additional guarding may be necessary.

(3) Regardless of height, all open-sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units, or similar hazardous equipment, must be guarded with a standard railing and toeboard.

(4) Tools and loose materials must not be left on overhead platforms and scaffolds.

[Recodified as § 296-307-25015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25018 What requirements apply to stairway railings and guards? (1) Every flight of stairs having four or more risers must have standard stair railings or standard handrails as follows (stairway widths measured clear of all obstructions except handrails):

(a) Stairways less than 44 inches wide with both sides enclosed must have at least one handrail, preferably on the right side descending.

(b) Stairways less than 44 inches wide with one side open must have at least one stair railing on the open side.

(c) Stairways less than 44 inches wide with both sides open must have one stair railing on each side.

(d) Stairways more than 44 inches wide but less than 88 inches wide must have one handrail on each enclosed side and one stair railing on each open side.

(e) Stairways 88 or more inches wide must have one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing at the approximate middle.

Exception: Vehicle service pit stairways are exempt from this requirement if hand or stair rails would prevent vehicle movement into position over the pit.

(2) Winding stairs must have a handrail that prevents walking on all portions of the treads that are less than 6 inches wide.

(3) Nonindustrial and "monumental" steps are exempt from the requirements of this section. However, public and private building steps at loading or receiving docks, in maintenance areas, etc., and stairs used exclusively by employees, must meet the requirements of this section.

[Recodified as § 296-307-25018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25021 How must a standard railing be constructed? A standard railing must meet the following requirements:

(1) The railing has a top rail, intermediate rail, and posts.

(2) The railing height is between thirty-six and forty-two inches nominal from the upper surface of the top rail to the floor, platform, runway, or ramp level.

(3) The top rail is smooth.

(4) The intermediate rail is approximately halfway between the top rail and the floor, platform, runway, or ramp.

(5) The ends of the rails do not overhang the terminal posts except where the overhang does not create a hazard.

(6) Guardrails taller than 42 inches are constructed so they do not create a hazard. Additional mid-rails are installed so that openings beneath the top rail prevent a spherical object with a 19-inch or larger diameter from falling through.

[Recodified as § 296-307-25021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25024 How must a stair railing be constructed? A stair railing must be constructed similar to a standard railing. The stair railing must be between 34 and 30 inches tall measured from the top of the top rail to the tread surface meeting the face of the riser at the forward edge of the tread.

[Recodified as § 296-307-25024. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25024, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25027 What are the requirements for railing dimensions? Standard railings must meet the following requirements:

(1) For wood railings:

(a) The posts are of at least two inch by four inch nominal stock spaced six feet apart or less; and

(b) The top and intermediate rails are of at least two inch by four inch nominal stock.

(c) If the top rail is made of two right-angle pieces of 1-inch by 4-inch stock, posts are spaced on 8-foot centers, with 2-inch by 4-inch intermediate rail.

(2) For pipe railings:

(a) The posts and top and intermediate railings are at least 1-1/2 inches nominal diameter (outside diameter); and

(b) The posts are spaced on centers of eight feet or less.

(3) For structural steel railings:

(a) The posts and top and intermediate rails are of 2-inch by 2-inch by 3/8-inch angles or other metal shapes of equivalent bending strength; and

(b) The posts are spaced on centers of eight feet or less.

(4) Post anchors and framing parts for all railings are constructed so that the completed structure can withstand a load of at least two hundred pounds applied in any direction at any point on the top rail.

(5) Other types, sizes, and arrangements of railing construction that meet the following requirements are acceptable:

(a) The top rail is smooth;

(b) The top rail is between thirty-six and forty-two inches nominal above the floor, platform, runway, or ramp level;

(c) The railing is strong enough to withstand two hundred pounds of pressure on the top rail;

(d) The railing provides protection between the top rail and the floor, platform, runway, ramp, or stair treads, equivalent to that of a standard intermediate rail;

(e) There are no overhanging rail ends unless the overhang does not create a hazard; such as baluster railings, scrollwork railings, or paneled railings.

Note: The dimensions specified are based on the U.S. Department of Agriculture Wood Handbook, No. 72, 1955 (No. 1 (S4S) Southern Yellow Pine (Modulus of Rupture 7,400 psi)) for wood; ANSI G 41.5-1970, American National Standard Specifications for Structural Steel, for structural steel; and ANSI B 125.1-1970, American National Standard Specifications for Welded and Steamless Steel Pipe, for pipe.

[Recodified as § 296-307-25027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25030 What requirements apply to toeboards? (1) Standard toeboard height is at least four inches nominal from its top edge to the level of the floor, platform, runway, or ramp. The toeboard must be securely fastened in place and with a maximum of 1/4 inch clearance above floor level. It must be made of any substantial material that is either solid or with openings that are a maximum of one inch in diameter.

(2) Where material is piled high enough that a standard toeboard does not provide protection, paneling from the floor to the intermediate rail, or to the top rail, must be provided.

[Recodified as § 296-307-25030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25030, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25033 How must handrails and railings be constructed? (1) A handrail must have a horizontal part mounted directly on a wall or partition by brackets attached to the lower side of the handrail. The brackets must be attached to ensure that there is a smooth surface along the top and both sides of the handrail. The handrail must be rounded or otherwise provide an adequate handhold for anyone grasping it to avoid falling. The ends of the handrail should be turned in to the supporting wall or arranged to prevent a projection hazard.

(2) Handrails must be a maximum of thirty-four inches high and at least thirty inches from the upper surface of the handrail to the surface of the tread in line with the face of the riser or to the surface of the ramp.

(3) The size of handrails must be:

- (a) For hardwood, at least two inches in diameter.
- (b) For metal pipe, at least 1-1/2 inches in diameter.

(4) Brackets must be spaced a maximum of eight feet apart.

(5) Handrail mounting must be strong enough to withstand a load of at least two hundred pounds applied in any direction at any point on the rail.

(6) All handrails and railings shall have a clearance of at least 1-1/2 inches between the handrail or railing and the wall or any other object.

[Recodified as § 296-307-25033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25036 What materials may be used for floor opening covers? Floor opening covers must be made of any material that meets the following strength requirements:

(1) Trench or conduit covers and their supports, when located in plant roadways, must be designed to carry a truck rear-axle load of at least 20,000 pounds.

(2) Manhole covers and their supports, when located in plant roadways, must meet local standard highway requirements if any; otherwise, they must be designed to carry a truck rear-axle of at least 20,000 pounds.

(3) Other floor opening covers must be made of any material that can carry a truck rear-axle load of at least 20,000 pounds. Covers may project a maximum of one inch above the floor level if all edges are chamfered to a maximum angle with the horizontal of thirty degrees. All hinges, handles, bolts, or other parts must set flush with the floor or cover surface.

[Recodified as § 296-307-25036. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25036, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25039 How must skylight screens be constructed and mounted? Skylight screens must be constructed and mounted to withstand a load of at least two hundred pounds applied perpendicularly anywhere on the screen. Skylight screen must be constructed and mounted so that, under ordinary loads or impacts, they will not deflect downward enough to break the glass below them. They must be constructed of grillwork with openings a maximum of four inches long or of slatwork with openings a maximum of two inches wide and any length.

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[Recodified as § 296-307-25039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25042 What protection must an employer provide for wall openings? (1) Wall opening barriers (rails, rollers, picket fences, and half doors) must be constructed and mounted, to withstand a load of at least two hundred pounds applied in any direction (except upward) at any point on the top rail.

(2) Wall opening grab handles must be at least twelve inches long and must be mounted to give 1-1/2 inches clearance from the side framing of the wall opening. The size, material, and anchoring of the grab handle must form a structure that can withstand a load of at least two hundred pounds applied in any direction at any point of the handle.

(3) Wall opening screens must be constructed and mounted to withstand a load of at least two hundred pounds applied horizontally anywhere on the near side of the screen. They must be of solid construction, of grillwork with openings a maximum of four inches long, or of slatwork with openings a maximum of two inches wide and any length.

[Recodified as § 296-307-25042. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-25042, filed 10/31/96, effective 12/1/96.]

WAC 296-307-260 Fixed industrial stairs.

[Recodified as § 296-307-260. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-260, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26003 What does this section cover? WAC 296-306A-260 covers the safe design and construction of fixed general industrial stairs. Fixed general industrial stairs includes interior and exterior stairs around machinery, tanks, and other equipment, and stairs leading to or from floors, platforms, or pits.

This section does not apply to stairs used for fire exits, to construction operations, to private buildings or residences, or to articulated stairs that are installed on floating roof tanks or on dock facilities, where the angle changes with the rise and fall of the base support.

Stairs of public and private buildings at loading or receiving docks, in maintenance areas, etc., or stairs that are used exclusively by employees, are considered "fixed industrial steps" and must meet these requirements.

[Recodified as § 296-307-26003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26006 What definitions apply to this section? "Nose or nosing" means the part of a tread projecting beyond the face of the riser immediately below.

"Open riser" means the air space between the treads of stairways without risers.

"Platform" means an extended step or landing breaking a continuous run of stairs.

"Railing" means a vertical barrier erected along exposed sides of stairways and platforms to prevent people from

falling. The top part of the railing usually serves as a handrail.

"Rise" means the vertical distance from the top of a tread to the top of the next higher tread.

"Riser" means the upright part of a step at the back of a lower tread and near the leading edge of the next higher tread.

"Stairs or stairway" means a series of steps. A series of steps and landings having three or more risers constitutes stairs or a stairway.

"Tread" means the horizontal part of a step.

"Tread run" means the horizontal distance from the leading edge of a tread to the leading edge of an adjacent tread.

"Tread width" means the horizontal distance from front to back of tread, including nosing.

[Recodified as § 296-307-26006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26009 Where are fixed stairs required? Fixed stairs must be provided for:

(1) Employee access from one structure level to another where operations require regular travel between levels.

(2) Employee access to operating platforms on any equipment that requires regular attention during operations.

(3) Employees that need daily access to elevations, or access at each shift, for purposes such as gauging, inspection, regular maintenance, etc., where:

(a) The work may expose employees to acids, caustics, gases, or other harmful substances; or

(b) Employees must normally carry tools or equipment by hand.

Note: This section does not prohibit the use of fixed ladders for access to elevated tanks, towers, and similar structures, overhead traveling cranes, etc., where the use of fixed ladders is common practice.

[Recodified as § 296-307-26009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26012 Where are spiral stairs prohibited? Spiral stairways are prohibited except for special limited use and secondary access when a conventional stairway is not practical. Winding stairways may be installed on tanks and similar round structures where the diameter of the structure is a minimum of five feet.

[Recodified as § 296-307-26012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26015 How strong must fixed stairs be? Fixed stairways must be designed and constructed to carry a load of five times the normal live load anticipated, and must be at least strong enough to carry safely a moving concentrated load of 1,000 pounds.

[Recodified as § 296-307-26015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26018 How wide must fixed stairs be? Fixed stairways must be at least 22 inches wide.

[Recodified as § 296-307-26018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26021 What angles may stairways be installed at? (1) Fixed stairs must be installed at angles to the horizontal of between thirty and fifty degrees. Any uniform combination of rise/tread dimensions may be used that will provide a stairway at an angle within the permissible range.

The following table lists examples of rise/tread dimensions that will produce a stairway within the permissible range. Rise/tread combinations are not limited to those in the table.

Angle to horizontal	Rise (in inches)	Tread run (in inches)
30°35'	6-1/2	11
32°08'	6-3/4	10-3/4
33°41'	7	10-1/2
35°16'	7-1/4	10-1/4
36°52'	7-1/2	10
38°29'	7-3/4	9-3/4
40°08'	8	9-1/2
41°44'	8-1/4	9-1/4
43°22'	8-1/2	9
45°00'	8-3/4	8-3/4
46°38'	9	8-1/2
48°16'	9-1/4	8-1/4
49°54'	9-1/2	8

(2) A permanent stairway may be installed at an angle above the fifty degree critical angle when space limitations require. Such installations (commonly called inclined ladders or ship's ladders) must have handrails on both sides and open risers. They must be capable of sustaining a live load of one hundred pounds per square foot with a safety factor of four. The following preferred and critical angles from the horizontal are recommended for inclined ladders and ship's ladders:

- (a) 35 to 60 degrees—Preferred angle from horizontal.
- (b) 60 to 70 degrees—Critical angle from horizontal.

[Recodified as § 296-307-26021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26024 What requirements apply to stair treads? (1) When risers are used, each tread and the top landing of a stairway should have a nose extending 1/2 to one inch beyond the face of the lower riser.

(2) Noses should have an even leading edge.

(3) All treads must be reasonably slip-resistant and the nosings must be of nonslip finish. Welded bar grating treads without nosings are acceptable if the leading edge can easily be identified by employees descending the stairway and the tread is serrated or is nonslip.

(4) Rise height and tread width must be uniform throughout any flight of stairs including any foundation structure used as one or more treads of the stairs.

[Recodified as § 296-307-26024. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26024, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26027 What requirements apply to the length of stairways? Long flights of stairs, unbroken by landings or intermediate platforms, should be avoided. You should consider providing intermediate platforms where practical and for frequently used stairways. Stairway platforms must be at least as wide as the stairway and at least 30 inches long, measured in the direction of travel.

[Recodified as § 296-307-26027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26030 What requirements apply to railings and handrails on fixed stairs? Standard railings must be provided on the open sides of all exposed stairways and stair platforms. Handrails must be provided on at least one side of closed stairways, preferably on the right side descending. Stair railings and handrails must be installed according to WAC 296-360A-250.

[Recodified as § 296-307-26030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26030, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26033 What requirements apply to alternating tread-type stairs? "Alternating tread-type stairs" means stairs with a series of steps between 50 and 70 degrees from horizontal, attached to a center support rail in an alternating manner so that a user of the stairs never has both feet at the same level at the same time.

(1) Alternating tread-type stairs must be designed, installed, used, and maintained according to the manufacturer's specifications, and must have the following:

- (a) Stair rails on all open sides;
- (b) Handrails on both sides of enclosed stairs;
- (c) Stair rails and handrails that provide an adequate handhold for a user grasping it to avoid a fall;
- (d) A minimum of 17 inches between handrails;
- (e) A minimum width of 22 inches overall;
- (f) A minimum tread depth of 8 inches;
- (g) A minimum tread width of 7 inches; and
- (h) A maximum rise of 9 1/2 inches to the tread surface of the next alternating tread.

(2) Alternating tread-type stairs must have a maximum 20-foot continuous rise. Where more than a 20-foot rise is necessary to reach the top of a required stair, one or more intermediate platforms must be provided according to WAC 296-306A-26027.

(3) Stairs and platforms must be installed so the top landing of the alternating tread stair is flush with the top of the landing platform.

(4) Stair design and construction must sustain a load of at least five times the normal live load, and be at least strong enough to carry safely a moving concentrated load of 1,000 pounds.

(5) Treads must have slip-resistant surfaces.

(6) Where a platform or landing is used, the width must be at least as wide as the stair and at least 30-inches deep in the direction of travel. Stairs must be flush with the top of the landing platform.

[Recodified as § 296-307-26033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26036 What other requirements apply to fixed stairs? (1) Vertical clearance above any stair tread to an overhead obstruction must be at least 7 feet measured from the leading edge of the tread.

(2) Stairs with treads less than 9 inches wide should have open risers.

(3) Open grating type treads are desirable for outside stairs.

[Recodified as § 296-307-26036. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-26036, filed 10/31/96, effective 12/1/96.]

WAC 296-307-270 Aerial manlift equipment.

[Recodified as § 296-307-270. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-270, filed 10/31/96, effective 12/1/96.]

WAC 296-307-27005 What requirements apply to aerial manlift equipment? (1) We will accept safety factor test data on working or structural components from one of the following as evidence that a manlift meets minimum safety requirements:

- (a) The manufacturer;
- (b) A competent testing laboratory;
- (c) A registered engineering firm; or
- (d) A registered engineer.

If, after use, it appears doubtful whether this equipment will meet the above requirements, we may require that tests be conducted, and we may order that you make corrections.

(2) All aerial manlifts must have working brake systems.

(3) Automatic apertures must be installed in the hydraulic systems of aerial manlifts to maintain the boom in position in case any part of the hydraulic pressure system fails.

(4) Controls must be guarded by partial enclosures to minimize accidental contact.

(5) The manufacturer's recommended maximum load limit must be posted conspicuously near the controls and must be kept in a legible condition.

(6) All critical hydraulic and pneumatic components must meet the provisions of ANSI A92.2-1969, Section 4.9 Bursting Safety Factor. Critical components are those which, in case of failure, would cause a free fall or free rotation of the boom. All noncritical components must have a bursting safety factor of at least two to one.

[Recodified as § 296-307-27005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-27005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-27010 What requirements apply to using aerial manlift equipment? (1) The manufacturer's instructional manual, if any, must be used to establish the proper operational sequences and maintenance procedures. If there is no manual, you must develop instructions. The instructions must be available for reference by operators.

(2) The assigned operator must make a daily visual inspection and perform the tests recommended by the manufacturer.

(3) Only employees qualified by training or experience may operate aerial manlifts.

(4) Employees must report defective aerial manlift equipment to you as soon as identified. Using defective equipment is prohibited when the defect may cause an accident.

(5) When moving to and from the job site, the basket of the manlift must be in the low position.

(6) Unsafe practices are prohibited, such as, sitting or standing on the basket edge, standing on material placed across the basket, or working from a ladder set inside the basket.

(7) The basket must not be rested on a fixed object so that the weight of the boom is supported by the basket.

(8) The employee and the aerial manlift equipment must maintain distance from high voltage lines according to WAC 296-306A-150.

[Recodified as § 296-307-27010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-27010, filed 10/31/96, effective 12/1/96.]

WAC 296-307-280 Guarding power transmission machinery.

[Recodified as § 296-307-280. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-280, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28002 What power transmission belts are covered by this section? WAC 296-306A-280 covers all types and shapes of power transmission belts.

Exception: The following power transmission belts are exempt from WAC 296-306A-280 when operating at 250 feet per minute or less:

- (1) Flat belts that are one inch wide or less.
- (2) Flat belts that are 2" wide or less and are free from metal lacings or fasteners.
- (3) Round belts that are 1/2" in diameter or less.
- (4) Single strand V-belts that are 13/32" wide or less.

[Recodified as § 296-307-28002. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28002, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28004 What does "guarded by location" mean? "Guarded by location" means that the location of a component eliminates potential hazards. A component seven feet or more above a working surface is considered guarded by location.

[Recodified as § 296-307-28004. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28004, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28006 What general requirements apply to machine guarding? (1) All power transmission components must be guarded according to the requirements of this section.

(2) You must protect employees from coming into contact with moving machinery parts by:

- (a) A guard or shield or guarding by location; or
- (b) A guardrail or fence whenever a guard or shield or guarding by location is infeasible.

(3) Strength and design of guards.

(a) Guards must be designed and located to prevent inadvertent contact with the hazard.

(b) Unless otherwise specified, each guard and its supports must be strong enough to withstand the force that a 250 pound person would exert leaning on or falling against the guard.

(c) Guards must be securely fastened to the equipment or building.

(4) Shields, guards, and access doors that will prevent accidental contact with rotating machine parts on constant-running drives must be in place when the machine is running.

Exception: This requirement does not apply to combines when guards could create fire hazards.

"Constant-running drives" means drives that continue to rotate when the engine is running and all clutches are disengaged.

(5) A guard or shield on stationary equipment must be provided at the mesh point or pinch point where the chain or belt contacts the sprocket or pulley.

(6) Machines that will throw stock, material, or objects must be covered or provided with a device designed and constructed to minimize this action. (Machines such as rip saws, rotary mowers and beaters, rotary tillers are included in this classification.)

(7) When the periphery of the blades of a fan is less than 7 feet above the floor or working level, the blades must be guarded. The guard must have openings no larger than 1/2 inch.

(8) For requirements relating to the control of hazardous energy (lockout-tagout) see WAC 296-306A-320.

[Recodified as § 296-307-28006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28008 What training must an employer provide for employees who use agricultural equipment? At the time of initial assignment and at least annually thereafter, you must instruct every employee in the safe operation and servicing of all equipment that the employee will use, including at least the following:

(1) Keep all guards in place when the machine is in operation.

(2) Only persons required for instruction or machine operation may ride on equipment, unless a passenger seat or other protective device is provided.

(3) Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning, or unclipping the equipment.

Exception: When the machine must be running to be properly serviced or maintained, you must instruct employees in the steps and procedures necessary to safely service or maintain the equipment.

(4) Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine.

(5) Lock out electrical power before performing maintenance or service on farmstead equipment.

[Recodified as § 296-307-28008. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28008, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28010 What requirements apply to machine controls? (1) If machine operation requires the presence of an operator on the machine, a "stop button" must be provided on the machine within reach of the operator.

(2) Power control devices must be marked to indicate the function and machine they control. "On" and "off" must be marked.

(3) "Stop" buttons must be red or orange. Each machine must have one or more stop buttons according to the working position of the operators.

(4) Power control devices must be located or guarded to prevent unexpected or accidental movement of the control. "Start" buttons must be recessed.

[Recodified as § 296-307-28010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28010, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28012 What requirements apply to guarding steam pipes? (1) All steam pipes or pipes hot enough to burn a person (other than coil pipes, radiators for heating rooms or buildings, or pipes on portable steam engines and boilers) must be guarded with a standard safeguard, unless guarded by location.

(2) All exposed hot pipes within seven feet of the floor or working platform, or within 15 inches measured horizontally from stairways, ramps or fixed ladders, must be covered with insulating material or be guarded to prevent contact.

[Recodified as § 296-307-28012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28014 What requirements apply to prime-mover guards? "Flywheels" include flywheels, balance wheels, and flywheel pulleys mounted and revolving on crankshaft of engine or other shafting.

"Prime movers" include steam, gas, oil, and air engines, motors, steam and hydraulic turbines, and other equipment used as a source of power.

(1) Unless guarded by location, flywheels must be guarded according to the following requirements:

(a) Guard enclosures are made of sheet, perforated, or expanded metal, or woven wire.

(b) Guard rails are between 15 and 20 inches from the rim. When a flywheel extends into a pit or is within 12 inches of the floor, a standard toeboard is provided.

(c) When the upper rim of a flywheel extends through a working floor, it is surrounded by a guardrail and toeboard.

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(d) Exception: When a flywheel with a smooth rim 5 feet or less in diameter cannot be guarded by the above methods, you must guard by meeting the following requirements:

On the exposed side, cover the flywheel spokes with a disk that makes a smooth surface and edge, and provides for inspection. You may leave an open space, less than 4 inches wide, between the outside edge of the disk and the rim of the wheel, to turn the wheel over. If you use a disk, keys or other projections left uncovered by the projections shall be cut off or covered.

Note: This exception does not apply to flywheels with solid web centers.

(e) At the flywheel of a gas or oil engine, you may provide an adjustable guard for starting the engine or for running adjustment. A slot opening for a jack bar is permitted.

(f) For flywheels above working areas, you must install guards that are strong enough to hold the weight of the flywheel if the shaft or wheel mounting fails.

(2) Cranks and connecting rods, when exposed to contact, must be guarded according to WAC 296-306A-28046 and 296-306A-28048, or by a guardrail according to WAC 296-306A-28060.

(3) Tail rods or extension piston rods must be guarded according to WAC 296-306A-28046 and 296-306A-28048, or by a guardrail on the sides and end, with a clearance of between 15 and 20 inches when rod is fully extended.

[Recodified as § 296-307-28014. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28014, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28016 What requirements apply to guarding shafting? Revolving shafts must be guarded by a standard safeguard unless guarded by location.

(1) All shafting must be secured against excessive end movement.

(2) Guarding horizontal shafting.

(a) Unless guarded by location, all exposed parts of horizontal shafting, must be enclosed in a guard that covers the shafting completely or by a trough that covers the sides and top or sides and bottom of the shafting as location requires.

(b) Shafting under bench machines must be enclosed by a guard that covers the shafting completely or by a trough that covers the sides and top or sides and bottom of the shafting as location requires. The sides of the trough must extend to at least 6 inches from the underside of table. If shafting is near the floor, the trough must extend to at least 6 inches from the floor. In every case, the sides of trough must extend at least 2 inches beyond the shafting or projection.

Exception: Maintenance runways are exempt from this requirement. "Maintenance runway" means any permanent runway or platform used for oiling, maintenance, running adjustment, or repair work, but not for passageway.

(3) Unless guarded by location, vertical and inclined shafting must be enclosed according to WAC 296-306A-28046 and 296-306A-28050 through WAC 296-306A-28060.

Exception: Maintenance runways are exempt from this requirement.

(4) Projecting shaft ends.

(a) Projecting shaft ends must have a smooth edge and end and must not project more than one-half the diameter of the shaft unless guarded by nonrotating caps or safety sleeves.

(b) Unused keyways must be filled up or covered.

[Recodified as § 296-307-28016. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28016, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28018 What requirements apply to guarding pulleys? (1) Unless guarded by location, pulleys must be guarded according to WAC 296-306A-28046 and 296-306A-28050 through WAC 296-306A-28060. Pulleys serving as balance wheels (e.g., punch presses) on which the point of contact between belt and pulley is more than 6 feet 6 inches from the floor or platform may be guarded with a disk covering the spokes.

(2) If the distance to the nearest fixed pulley, clutch, or hanger is equal to or less than the width of the belt, then you must provide a guide to prevent the belt from leaving the pulley on the side where insufficient clearance exists.

(3) Where there are overhanging pulleys on line, jack, or countershafts with no bearing between the pulley and the outer end of the shaft, you should provide a guide to prevent the belt from running off the pulley.

(4) Pulleys with cracks, or pieces broken out of rims are prohibited.

(5) Pulleys must be designed and balanced for the operating speed.

(6) Composition or laminated wood pulleys must not be installed where they are likely to deteriorate.

[Recodified as § 296-307-28018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28020 What requirements apply to guarding horizontal belt, rope, and chain drives? "Belts" include all power transmission belts, such as flat belts, round belts, V-belts, etc., unless otherwise specified.

(1) Where both runs of horizontal belts are 7 feet or less from the floor level, the guard must extend to at least 15 inches above the belt or to a standard height. (See Table P-1.)

Exception: Where both runs of a horizontal belt are 42 inches or less from the floor, the belt must be fully enclosed according to WAC 296-306A-28046 and 296-306A-28050 through WAC 296-306A-28060.

(2) In power development rooms, a guardrail may be used instead of the guard.

[Recodified as § 296-307-28020. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28020, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28022 What requirements apply to guarding overhead horizontal belt, rope, and chain drives? (1) Unless guarded by location, overhead horizontal belts must be guarded on the sides and bottom according to WAC 296-306A-28054.

(2) Unless guarded by location, horizontal overhead belts must be guarded for their entire length when:

(a) Located over passageways or work places and traveling 1,800 feet or more per minute.

(b) The center to center distance between pulleys is 10 feet or more.

(c) The belt is 8 inches wide or more.

(3) Where the upper and lower runs of horizontal belts are located so that employees can pass between them, the passage must be either:

(a) Completely barred according to WAC 296-306A-28046 and 296-306A-28050 through WAC 296-306A-28060; or

(b) In a passage that employees must use, there must be a platform over the lower run guarded on either side by a railing that is completely filled in with wire mesh or other filler, or by a solid barrier. The upper run must be guarded to prevent contact by the employee or by objects carried by the employee.

(4) Overhead chain and link belt drives must be guarded according to the same requirements as overhead horizontal belts.

(5) American or continuous system rope drives located where the condition of the rope (particularly the splice) cannot be constantly and conveniently observed, must have an alarm (preferably electric-bell type) that will warn when the rope begins to fray.

[Recodified as § 296-307-28022. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28022, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28024 What requirements apply to guarding vertical and inclined belts? (1) Vertical and inclined belts must be guarded according to WAC 296-306A-28044 and 296-306A-28050 through WAC 296-306A-28060.

(2) All guards for inclined belts must provide a minimum clearance of 7 feet between belt and floor at any point outside of the guard.

(3) A vertical or inclined belt may be guarded with a nip-point belt and pulley guard, if it is:

(a) 2-1/2 inches wide or less;

(b) Running at a speed of less than one thousand feet per minute; and

(c) Free from metal lacings or fastenings.

"Nip-point belt and pulley guard" means a device that encloses the pulley and has rounded or rolled edge slots through which the belt passes.

(4) Vertical belts running over a lower pulley more than seven feet above floor or platform must be guarded according to the same requirements as horizontal overhead belts, if the belt is:

(a) Located over passageways or work places and traveling 1,800 feet or more per minute;

(b) Eight inches wider or more.

[Recodified as § 296-307-28024. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28024, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28026 What requirements apply to guarding cone-pulley belts? (1) The cone belt and pulley must have a belt shifter that adequately guards the nip point of the belt and pulley. If the frame of the belt shifter does not adequately guard the nip point of the belt and pulley, the nip point must be protected by a vertical guard in front of the pulley that extends at least to the top of the largest step of the cone.

"Belt shifter" means a device for mechanically shifting belts from tight to loose pulleys or vice versa, or for shifting belts on cones of speed pulleys.

(2) If the belt is endless or laced with rawhide laces, and no belt shifter is used, the belt may be guarded according to the following:

(a) The nip point of the belt and pulley is protected by a nip point guard in front of the cone;

(b) The guard extends at least to the top of the largest step of the cone; and

(c) The guard is formed to show the contour of the cone.

(3) If the cone is less than 3 feet from the floor or working platform, the cone pulley and belt must be guarded to a height of 3 feet regardless of whether the belt is endless or laced with rawhide.

[Recodified as § 296-307-28026. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28026, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28028 What requirements apply to guarding belt tighteners? (1) Suspended counterbalanced belt tighteners and all components must be substantially constructed and securely fastened. The bearings must be securely capped. You must provide a mechanism to prevent the tightener from falling in case the belt breaks.

(2) Unless guarded by location, suspended counterweights must be encased to prevent accident.

(3) Belt tighteners used for starting and stopping machinery, unless held by gravity in the "off" or "out of service" position, must have a mechanism that will hold the belt tightener away from the belt when not in use. The mechanism must automatically grip, latch or otherwise fasten itself to and hold the belt tightener in "off" or "out of service" position until released by hand.

[Recodified as § 296-307-28028. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28028, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28030 What requirements apply to guarding gears, sprockets, and chains? (1) Gears must be guarded by one of the following methods:

(a) A complete enclosure; or

(b) A standard guard according to WAC 296-306A-28050 through 296-306A-28060, at least 7 feet high extending 6 inches above the mesh point of the gears; or

(c) A band guard covering the face of gear. The guard must have flanges extended inward beyond the root of the teeth on the exposed side or sides. If a part of the train of gears guarded by a band guard is less than 6 feet from the floor, the gear must be guarded by a disk guard or by a complete enclosure at least 6 feet tall.

(2) Hand-operated gears used only to adjust hand-powered machine parts may be unguarded. However, we recommend guarding these gears.

(3) Unless guarded by location, all sprocket wheels and chains must be enclosed. Where the drive extends over other machine or working areas, you must provide protection against falling parts.

Exception: This section does not apply to manually operated sprockets.

(4) When gears require frequent oiling, you must provide openings with hinged or sliding self-closing covers. All points not readily accessible must have oil feed tubes if lubricant is added while machinery is in motion.

[Recodified as § 296-307-28030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28030, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28032 What requirements apply to guarding friction drives? When exposed to contact, the driving point of all friction drives must be guarded. All arm or spoke friction drives and all web friction drives with holes in the web must be entirely enclosed. When exposed to contact, all projecting belts on friction drives must be guarded.

[Recodified as § 296-307-28032. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28032, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28034 What requirements apply to guarding keys, set screws, and other projections? (1) All projecting keys, set screws, and other projections in revolving parts must be removed, or made flush, or guarded by metal covers.

(2) Projections, such as exposed bolts, keys, or set screws that are part of sprockets, grooved pulleys or pulleys on stationary equipment must be shielded unless guarded by location.

Exception: This section does not apply to keys or set screws within gear or sprocket casings or other enclosures, nor to keys, set screws, or oilcups in hubs of pulleys less than 20 inches in diameter where they are within the plane of the rim of the pulley.

Note: We recommend that you not use projecting set screws or oilcups in any revolving pulley or part of machinery.

[Recodified as § 296-307-28034. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28034, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28036 What requirements apply to guarding collars and couplings? (1) All revolving collars, including split collars, must be cylindrical. Screws or bolts used in collars must not project beyond the largest periphery of the collar.

(2) Shaft couplings must be constructed to prevent hazard from bolts, nuts, set screws, or revolving surfaces. Bolts, nuts, and set screws are permitted where they are covered with safety sleeves or where they are used parallel with the shafting and are countersunk or where they do not extend beyond the flange of the coupling.

[Recodified as § 296-307-28036. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28036, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28038 Must self-lubricating bearings be used? We recommend that you use self-lubricating bearings. All drip cups and pans must be securely fastened.

[Recodified as § 296-307-28038. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28038, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28040 What requirements apply to guarding clutches, cutoff couplings, and clutch pulleys? (1) Unless guarded by location, clutches, cutoff couplings, or clutch pulleys with projecting parts must be enclosed by a stationary guard constructed according to WAC 296-306A-28046. You may use a "U" type guard.

(2) In enginerooms, a guardrail, preferably with toeboard, may be used instead of the guard if the room is only occupied by engineroom attendants.

(3) A bearing support next to a friction clutch or cutoff coupling must have self-lubricating bearings that require infrequent maintenance.

[Recodified as § 296-307-28040. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28040, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28042 What requirements apply to guarding belt shifters, clutches, shippers, poles, perches, and fasteners? "Belt pole" (sometimes called a "belt shipper" or "shipper pole") means a device used in shifting belts on and off fixed pulleys on line or countershaft where there are no loose pulleys.

(1) Tight and loose pulleys must have a permanent belt shifter with a mechanical means to prevent the belt from creeping from loose to tight pulley.

(2) Belt shifter and clutch handles must be rounded. They must be as far as possible from danger of accidental contact, but within easy reach of the operator. Where belt shifters are not directly over a machine or bench, the handles must be cut off 6 feet 6 inches above floor level.

(3) All belt and clutch shifters of the same type in each shop should move in the same direction to stop machines, i.e., either all right or all left.

Exception: This requirement does not apply to a friction clutch on a countershaft carrying two clutch pulleys with open and crossed belts. In this case the shifter handle has three positions and the machine is at a standstill when the clutch handle is in the neutral or center position.

(4) When belt poles must be used as a substitute for mechanical shifters, they must be big enough for employees to grasp them securely. Poles must be smooth and preferably of straight grain hardwood, such as ash or hickory. The edges of rectangular poles should be rounded. Poles should extend from the top of the pulley to within approximately 40 inches of the floor or working platform.

(5) Where loose pulleys or idlers are not practical, belt perches such as brackets, rollers, etc., must be used to keep idle belts away from the shafts. Perches should be substantial and designed for safe belt shifting.

(6) Belts that must be shifted by hand and belts within seven feet of the floor or working platform that are not guarded according to WAC 296-306A-28046 must not be fastened with metal, nor with any other fastening that creates a hazard.

[Recodified as § 296-307-28042. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28042, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28044 What materials must be used for standard guards? (1) Standard guards must be made of the following materials:

- (a) Expanded metal;
- (b) Perforated or solid sheet metal;
- (c) Wire mesh on a frame of angle iron; or
- (d) Iron pipe securely fastened to the floor or the frame of the machine.

(2) Wire mesh should have wires that are securely fastened at every cross point either by welding, soldering, or galvanizing.

Exception: Diamond or square wire mesh made of No. 14 gauge wire, 3/4-inch mesh or heavier is exempt from this requirement.

[Recodified as § 296-307-28044. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28044, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28046 How must standard guards be manufactured? (1) Guards must be free from burrs, sharp edges, and sharp corners.

(2) Expanded metal, sheet or perforated metal, and wire mesh must be securely fastened to the frame by one of the following methods:

(a) Rivets or bolts spaced not more than five inches center to center. In case of expanded metal or wire mesh, metal strips or clips must be used to form a washer for rivets or bolts.

(b) Welding to frame every four inches.

(c) Weaving through channel or angle frame, or, if No. 14 gauge 3/4-inch mesh or heavier is used, by bending entirely around rod frames.

(d) To fill openings in pipe railing with expanded metal, wire mesh, or sheet metal, make the filler material into panels with rolled edges or edges bound with "V" or "U" edging. The edging must be of at least No. 24 gauge sheet metal fastened to the panels with bolts or rivets spaced a maximum of 5 inches center to center. The bound panels must be fastened to the railing by sheet-metal clips spaced a maximum of 5 inches center to center.

(e) Diamond or square mesh made of crimped wire fastened into channels, angle iron, or round-iron frames may also be used as a filler in guards. Size of mesh must correspond to Table P-1.

(3) Where guard design requires filler material greater than 12 square feet, additional frame members must be provided to ensure that the panel area is a maximum of 12 square feet.

(4) All joints of framework must be as strong as the material of the frame.

[Recodified as § 296-307-28046. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28046, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28048 What requirements apply to disk, shield, and U-guards? (1) A disk guard must have a sheet-metal disk of at least No. 22 gauge fastened by U-bolts or rivets to the spokes of pulleys, flywheels, or gears. To prevent contact with sharp edges of the disk, the edge must be rolled or wired. In all cases, the nuts must have locknuts on the unexposed side of the wheel.

(2) A shield guard must have a frame filled in with wire mesh or expanded, perforated, or solid sheet metal.

(3) If the shield area is less than six square feet, the wire mesh or expanded metal may be fastened in a framework of 3/8-inch solid rod, 3/4-inch by 3/4-inch by 1/8-inch angle iron, or a metal construction of equivalent strength. Metal shields may have edges entirely rolled around a 3/8-inch solid iron rod.

(4) A U-guard consisting of a flat surface with edge members must cover the under surface and lower edge of a belt, multiple chain, or rope drive. It must be constructed of materials specified in Table P-1, and must meet the requirements of WAC 296-306A-28054 through 296-306A-28058. Edges must be smooth and, if the size of the guard requires, be reinforced by rolling, wiring, or by binding with angle or flat iron.

[Recodified as § 296-307-28048. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28048, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28050 What materials must be used for guards? The materials and dimensions specified in this section apply to all guards. The materials and dimensions specified are minimum requirements. You may choose to provide stronger guards.

Exception: Horizontal overhead belts, rope, cable, or chain guards more than 7 feet above floor, or platform must meet the requirements outlined in Table P-2.

(1) The framework of all guards must have minimum dimensions of 1-inch by 1-inch by 1/8-inch for angle iron, 3/4-inch inside diameter for metal pipe, or metal construction of equivalent strength.

Exception: Guards thirty inches tall or less with a total surface area of ten square feet or less may have a framework of 3/8-inch solid rod, 3/4-inch by 3/4-inch by 1/8-inch angle iron, or metal construction of equivalent strength. The filling material must correspond to the requirements of Table 1.

(a) All guards must be rigidly braced every 3 feet of their height to some fixed part of machinery or building structure. Where a guard is exposed to contact with moving equipment additional strength may be necessary.

(b) The framework for all guards fastened to the floor or working platform and without other support or bracing must consist of 1-1/2-inch by 1-1/2-inch by 1/8-inch angle iron, metal pipe of 1-1/2-inch inside diameter, or metal construction of equivalent strength. All rectangular guards must have at least four upright frame members that extend to the floor and are securely fastened. Cylindrical guards must have at least three supporting members that extend to the floor.

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(2) Where guards are exposed to unusual wear, deterioration, or impact, heavier material and construction should be used to protect against the specific hazards involved.

[Recodified as § 296-307-28050. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28050, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28052 When may wood guards be used? Wood guards may be used where fumes would cause rapid deterioration of metal guards and outdoors where extreme cold or extreme heat make metal guards and railings undesirable.

(1) Wood must be sound, tough, and without loose knots.

(2) Guards must be made of planed lumber not less than 1-inch rough board measure, with rounded edges and corners.

(3) Wood guards must be securely fastened together with wood screws, hardwood dowel pins, bolts, or rivets.

(4) Wood guards must be equal in strength and rigidity to metal guards specified in WAC 296-306A-28050 and Table P-1.

Note: Requirements for the construction of standard wood railings are in WAC 296-306A-28060.

[Recodified as § 296-307-28052. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28052, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28054 What materials may be used for guarding horizontal overhead belts? (1) Guards for horizontal overhead belts must run the entire length of the belt and follow the line of the pulley to the ceiling or extend to the nearest wall.

Exception: Where belts are located so that it is impractical to extend the guard to wall or ceiling, the guard must completely enclose the top and bottom runs of the belt and the face of pulleys.

(2) The guard and its supporting parts must be securely fastened to the wall or ceiling by gimlet-point lag screws or through bolts. In masonry, expansion bolts must be used. We recommend using bolts placed horizontally through floor beams or ceiling rafters.

(3) When necessary, suitable reinforcement must be provided for the ceiling rafters or overhead floor beams to sustain safely the weight and stress imposed by the guard.

(4) The interior surface of all guards must be smooth and free from projections.

Exception: Where construction demands it, protruding shallow roundhead rivets may be used.

[Recodified as § 296-307-28054. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28054, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28056 What clearance must be maintained between guards and power transmission machinery? (1) Overhead belt guards must be at least one-quarter wider than the belt they protect, with a maximum clearance of 6 inches on each side. Overhead rope-drive and block and roller-chain-drive guards must be at least six inches wider than the drive on each side.

(2) Overhead silent chain-drive guards with the chain held on sprockets must have side clearance of:

(a) On drives of 20-inch centers or less, at least 1/4-inch from the nearest moving chain part, and

(b) On drives of over 20-inch centers, a minimum of 1/2-inch from the nearest moving chain part.

(3) Table 2 gives the sizes of materials and construction specifications for guards for belts that are 10 inches wide or more. All materials for overhead belt guards must be at least the size specified in Table 2 for belts 10 to 14 inches wide, even if the overhead belt is less than 10 inches wide. However, No. 20 gauge sheet metal may be used as a filler on guards for belts less than 10 inches wide. Expanded metal, because of the sharp edges, should not be used as a filler in horizontal belt guards.

(4) For clearance between guards and belts, ropes, or chains see Table P-2.

[Recodified as § 296-307-28056. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28056, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28058 How must overhead rope and chain-drive guards be constructed? (1) Overhead-rope and chain-drive guard construction must meet the requirements for overhead-belt guard construction of similar width.

Exception: The filler material must be solid, according to Table P-2, unless fire hazard demands the use of open construction.

(2) A side guard member of the same solid filling material should extend 2 inches above the level of the lower run of the rope or chain drive and 2 inches within the periphery of the pulleys that the guard encloses, forming a trough.

(3) The side filler members should be reinforced on the edges with 1-1/2-inch by 1/4-inch flat steel, riveted to the filling material at 8 inch centers or less. The reinforcing

strip should be fastened or bolted to all guard supporting members with at least one 3/8-inch rivet or bolt at each intersection, and the ends should be secured to the ceiling with lag screws or bolts.

(4) The filling material must be fastened to the framework of the guard and the filler supports by 3/16-inch rivets spaced on 4-inch centers. Measure the width of a multiple drive from the outside of the first to the outside of the last rope or chain in the group accommodated by the pulley.

[Recodified as § 296-307-28058. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28058, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28060 What materials must be used for guardrails and toeboards? (1) A guardrail must be 42 inches tall, with a midrail between the top rail and the floor.

(2) Posts must be 8 feet apart or less. They must be permanent and substantial, smooth, and free from protruding nails, bolts, and splinters. If made of pipe, the post must be at least 1-1/4 inches inside diameter. If posts are made of metal shapes or bars, the section must be as strong as posts made of 1-1/2 by 1-1/2 by 3/16-inch angle iron. If posts are made of wood, the posts must be at least 2 by 4 inches. The upper rail must be 2 by 4 inches, or two 1 by 4 inch strips, one at the top and one at the side of the posts. The midrail must be at least 1 by 4 inches.

(3) The rails (metal shapes, metal bars, or wood), should be on the side of the posts that gives the best protection and support. Where panels are fitted with expanded metal or wire mesh (as noted in Table 1) the middle rails may be omitted. Where guard is exposed to contact with moving equipment, additional strength may be necessary.

(4) Toeboards must be at least 4 inches tall, of wood, metal, or metal grill of a maximum 1-inch mesh. Toeboards at flywheel pits should be placed as close to edge of the pit as possible.

Table P-1
TABLE OF STANDARD MATERIALS AND DIMENSIONS

Material	Clearance from moving part at all points (inches)	Largest mesh or opening allowable (inches)	Minimum gauge (U.S. Standard) or thickness (inches)	Minimum height of guard from floor or platform level (feet)
<i>Woven wire</i>	Under 2	3/8	No. 16	7
	2-4	1/2	No. 16	7
	Under 4	1/2	No. 16	7
	4-15	2	No. 12	7
<i>Expanded metal</i>	Under 4	1/2	No. 18	7
	4-15	2	No. 13	7
<i>Perforated metal</i>	Under 4	1/2	No. 20	7
	4-15	2	No. 14	7
<i>Sheet metal</i>	Under 4		No. 22	7
	4-15		No. 22	7
<i>Wood or metal strip crossed</i>	Under 4	3/8	Wood 3/4 Metal No. 16	7
	4-15	2	Wood 3/4 Metal No. 16	7
<i>Wood or metal strip not crossed</i>	Under 4	1/2 width	Wood 3/4 Metal No. 16	7
	4-15	1 width	Wood 3/4 Metal No. 16	7
<i>Standard rail</i>	Min. 15 Max. 20			

Table P-2
HORIZONTAL OVERHEAD BELTS, ROPES, AND CHAINS
7 FEET OR MORE ABOVE FLOOR OR PLATFORM

	Width 0"-14" inclusive	Material
MEMBERS		
Framework	1 1/2"x1 1/2"x1/4"	Angle iron
Filler (belt guards)	1 1/2"x3/16"	Flat iron
Filler and vertical side member	No. 20 A.W.G.	Solid sheet metal
Filler supports	2"x5/16" flat iron	Flat and angle
Guard supports	2"x5/16"	Flat iron
FASTENINGS		
Filler supports to framework	(2) 3/16"	Rivets
Filler flats to supports (belt guards)	(1) 5/16"	Flush rivets
Filler to frame and supports (chain guards)	3/16"	Rivets spaced
Guard supports to framework	(2) 3/6"	Rivets or bolts
Guard and supports to overhead ceiling	1/4"x3 1/2" lag screws or 1/2" bolts	Lag screws or bolts
DETAILS--SPACING, ETC.		
Width of guards	One-quarter wider than belt, rope, or chain drive	
Spacing between filler supports	20" center to center	
Spacing between filler flats (belt guards)	2" apart	
Spacing between guard supports	36" center to center	
OTHER BELT GUARD FILLING PERMITTED		
Sheet metal fastened as in chain guards	No. 20 A.W.G.	Solid or perforated
Woven wire, 2" mesh	No. 12 A.W.G.	
CLEARANCE FROM OUTSIDE OF BELT, ROPE, OR CHAIN DRIVE TO GUARD		
Distance center to center of shafts	Up to 15' inclusive	Over 40'
Clearance from belt, or chain to guard	16"	120"

	Width over 14" to 24" inclusive	Material
MEMBERS		
Framework	2"x2"x5/16"	Angle iron
Filler (belt guards)	2"x3/16"	Flat iron
Filler and vertical side member	No. 18 A.W.G.	Solid sheet metal
Filler supports	2"x3/8" flat iron	Flat and angle
Guard supports	2"x3/8"	Flat iron
FASTENINGS		
Filler supports to framework	(2) 3/6"	Rivets
Filler flats to supports (belt guards)	(1) 5/16"	Flush rivets
Filler to frame and supports (chain guards)	8" centers on sides and 4" centers on bottom	
Guard supports to framework	(2) 7/16"	Rivets or bolts
Guard and supports to overhead ceiling	5/8"x4" lag screws or 5/8" bolts	Lag screws or bolts
DETAILS--SPACING, ETC.		
Width of guards		(NEED INFO HERE)
Spacing between filler supports		16" C. to C
Spacing between filler flats (belt guards)		2 1/2" apart
Spacing between guard supports		36" C. to C
OTHER BELT GUARD FILLING PERMITTED		
Sheet metal fastened as in chain guards	No. 18 A.W.G.	Solid or perforated
Woven wire, 2" mesh	No. 10 A.W.G.	
CLEARANCE FROM OUTSIDE OF BELT, ROPE, OR CHAIN DRIVE TO GUARD		
Distance center to center of shafts	Over 15' to 25'	Over 40' inclusive
Clearance from belt, or chain to guard	10"	20"

	Width over 24"	Material
MEMBERS		
Framework	3"x3"x3/8"	Angle iron
Filler (belt guards)	2"x5/16"	Flat iron
Filler and vertical side member	No. A.W.G.	Solid sheet metal
Filler supports	2 1/2"x2 1/2"x1/4" angle	Flat and angle
Guard supports	2 1/2"x3/8"	Flat iron
FASTENINGS		
Filler supports to framework	(3) 1/2"	Rivets
Filler flats to supports (belt guards)	(2) 3/8"	Flush rivets
Filler to frame and supports (chain guards)	(NEED INFO HERE)	(NEED INFO HERE)
Guard supports to frame work	(2) 5/8"	Rivets or bolts
Guard and supports to overhead ceiling	3/4" x 6" lag screws or 3/4" bolts	Lag screws or bolts
DETAILS--SPACING, ETC.		
Width of guards		(NEED INFO HERE)
Spacing between filler supports		16" C. to C.
Spacing between filler flats (belt guards)		4" apart
Spacing between guard supports		36" C. to C.
OTHER BELT GUARD FILLING PERMITTED		
Sheet metal fastened as in chain guards	No. 18 A.W.G.	Solid or perforated
Woven wire, 2" mesh	No. 8 A.W.G.	
CLEARANCE FROM OUTSIDE OF BELT, ROPE, OR CHAIN DRIVE TO GUARD		
Distance center to center of shafts	Over 25' to 40' inclusive	Over 40'
Clearance from belt, or chain to guard	15"	20"

[Recodified as § 296-307-28060. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28060, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28062 How must shafting be maintained? (1) Shafting must be kept in alignment, and free from rust and excess oil or grease.

(2) Where explosives, explosive dusts, flammable vapors or flammable liquids exist, guards must take into account the hazard of static sparks from shafting.

[Recodified as § 296-307-28062. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28062, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28064 How must pulleys be maintained? (1) Pulleys must be kept in proper alignment to prevent belts from running off.

(2) Any pulley carrying a nonshifting belt should have a crowned face.

(3) Cast-iron pulleys should be tested frequently with a hammer to detect cracks in rim or spokes. The sound is different depending on whether the belt is or is not on the pulley.

(4) Split pulleys should be inspected to be sure that all bolts holding together the sections of the pulley are tight.

[Recodified as § 296-307-28064. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28064, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28066 How must belts be maintained? (1) Quarter-twist belts without an idler can be used on drives running in one direction only. They will run off a pulley when direction is reversed.

(2) You must inspect belts, lacings, and fasteners to be sure they are kept in good repair.

(3) Dressing should not be applied when the belt or rope is in motion; but, when necessary, it should be applied where belts or rope leave the pulley, not where they approach. The same precautions apply to lubricating chains. In the case of V-belts, belt dressing is neither necessary nor advisable.

[Recodified as § 296-307-28066. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28066, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28068 How must other equipment be maintained? (1) You must inspect all power-transmission equipment at least every 60 days and ensure that it is kept in good working condition at all times.

(2) Bearings must be kept in alignment and properly adjusted.

(3) Hangers must be inspected to ensure that all supporting bolts and screws are tight and that supports of hanger boxes are adjusted properly.

(4) The oilers must wear tightfitting clothing and should use cans with long spouts to keep their hands out of danger. Machinery must be oiled when not in motion, wherever possible.

[Recodified as § 296-307-28068. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-28068, filed 10/31/96, effective 12/1/96.]

WAC 296-307-290 Auger conveying equipment.

[Recodified as § 296-307-290. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-290, filed 10/31/96, effective 12/1/96.]

WAC 296-307-29005 What requirements apply to auger conveying equipment? "Augers" means screw conveyors and related accessories designed primarily for conveying agricultural materials on farms.

(1) Power take-off shafts must be guarded according to WAC 296-306A-28046.

(2) All augers must be covered or guarded when exposed to contact.

(3) You must ensure that each sweep auger has its top half shielded by a guard. All guard openings must be no larger than 4 3/4 inches across.

(4) You must ensure that the exposed auger at the hopper and the intake is guarded or designed to prevent accidental contact with the rotating inlet area. The guard must extend at least 2 1/2 inches above and below the exposed auger. Openings in the guard, for the free flow of material, must be no larger than 4 3/4 inches across and must be strong enough to support 250 pounds at mid span.

(5) The hand raising winch must have a control that will hold the auger at any angle, and that will only respond to the control. You must ensure that the operator is able to lower the auger without disengaging the control. The maximum force required on the handle to raise or lower the auger manually must be 50 pounds.

(6) The wire rope lifting pulleys must be grooved to fit the wire rope used.

(7) In order to avoid separation, you must provide a positive restraint between the auger tube and the under-carriage lifting arm. You must provide stops that restrict the maximum raised angle and minimum lowered angle.

(8) Wire ropes (cables) must be rust resistant and selected for the design load and service intended.

(9) You must provide the auger operator with service and operation instructions that include safe operation and servicing practices.

[Recodified as § 296-307-29005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-29005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-29010 What other requirements apply to auger conveying equipment manufactured after October 25, 1976? You must ensure that auger conveying equipment manufactured after October 25, 1976, is guarded as follows:

(1) Sweep-arm material-gathering mechanisms used on the top surface of materials within silo structures are guarded. The lower or leading edge of the guard is no more than 12 inches above the material surface and no less than 6 inches in front of the leading edge of the rotating member of the gathering mechanism. The guard is parallel to and extends the fullest practical length of the material gathering mechanism.

(2) Exposed auger flighting on portable grain augers is guarded with either grating type guards or solid baffle style covers as follows:

(a) The largest dimensions or openings in grating type guards through which materials flow is 4-3/4 inches. The opening area is a maximum of 10 square inches. The opening is least 2-1/2 inches from the rotating flighting.

(b) Slotted openings in solid baffle style covers are a maximum of 1-1/2 inches wide, or less than 3-1/2 inches from the exposed flighting.

[Recodified as § 296-307-29010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-29010, filed 10/31/96, effective 12/1/96.]

WAC 296-307-300 Guarding farmstead equipment.

[Recodified as § 296-307-300. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-300, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30003 What does this section cover?

WAC 296-306A-300 applies to the guarding and care of farmstead equipment.

"Farmstead equipment" means agricultural equipment normally used in a stationary manner. This includes, but is not limited to, materials handling equipment and accessories for such equipment whether or not the equipment is an integral part of a building.

[Recodified as § 296-307-30003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30006 How must power takeoff shafts of farmstead equipment be guarded? (1) You must ensure that all power takeoff shafts, including rear-mounted, mid-mounted or side-mounted shafts, are guarded either by a master shield or by other protective guarding. The master shield must be strong enough to prevent damaging the shield when a 250-pound operator mounts or dismounts the tractor using the shield as a step.

(2) Power takeoff driven equipment must be guarded to prevent employee contact with rotating parts of the power drive system. Where power takeoff driven equipment requires removal of the tractor master shield, the equipment must also include protection from any portion of the tractor power takeoff shaft that protrudes from the tractor.

(3) Signs must be placed at prominent locations on power takeoff driven equipment specifying that power drive system safety shields must be kept in place.

[Recodified as § 296-307-30006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30009 How must other power transmission components of farmstead equipment be guarded? (1) The mesh or nip-points of all power driven gears, belts, chains, sheaves, pulleys, sprockets, and idlers must be guarded.

(2) All revolving shafts, including projections such as bolts, keys, or set screws, must be guarded.

Exception: The following may be unguarded:

(a) Smooth shafts and shaft ends (without any projecting bolts, keys, or set screws), revolving at less than 10 RPM, on feed handling equipment used on the top surface of materials in bulk storage facilities.

(b) Smooth shaft ends protruding less than one-half the outside diameter of the shaft and its locking means.

[Recodified as § 296-307-30009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30012 How must functional components of farmstead equipment be guarded? The following functional components must be shielded to a degree consistent with the intended function and operator's vision of the component:

- Snapping or husking rolls;
- Straw spreaders and choppers;
- Cutterbars;
- Flail rotors;
- Rotary beaters;
- Mixing augers;
- Feed rolls;
- Rotary tillers; and
- Similar units that must be exposed for proper function.

[Recodified as § 296-307-30012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30015 When may guards be removed on farmstead equipment? (1) Guards, shields and access doors must be in place when the equipment is in operation.

(2) Where removal of a guard or access door will expose an employee to any component that continues to rotate after the power is disengaged, you must provide in the immediate area, a safety sign warning the employee:

- (a) To look and listen for evidence of rotation; and
- (b) To refrain from removing the guard or access door until all components have stopped.

(3) On equipment manufactured after October 25, 1976, a readily visible or audible warning of rotation is required.

[Recodified as § 296-307-30015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30018 What requirements apply to electrical control for maintaining and servicing farmstead equipment? (1) You must ensure that only the employee maintaining or servicing equipment has control of the electrical power source by:

(a) Providing an exclusive, positive locking means on the main switch that can be operated only by the employee performing the maintenance or service; or

(b) For material handling equipment in a bulk storage structure, by providing on the equipment an electrical or mechanical means to disconnect the power. Minimum lockout means must meet the requirements of WAC 296-306A-320.

(2) All circuit protection devices, including those that are an integral part of a motor, must have a manual reset, except where:

(a) A manual reset is infeasible because of the nature of the operation, distances involved, and the amount of time normally spent by employees in the area of the affected equipment;

(b) An electrical disconnect switch is available to the employee within fifteen feet of the equipment being maintained or serviced; and

(c) A sign, prominently posted near each hazardous component, warns the employee that unless the electrical disconnect switch is utilized, the motor could automatically reset while the employee is working on the hazardous component.

[Recodified as § 296-307-30018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30021 What additional guarding requirements apply to farmstead equipment?

(1) You must ensure that carton or bag stitching machines are properly safeguarded to prevent anyone from coming in contact with the stitching head and other pinch or nip points.

(2) The point of operation of all machines must be guarded. The guard must be designed and constructed to prevent the operator from having any part of the body in the danger zone during the operating cycle.

Note: The distance from the point-of-operation guards to the danger line depends on the size of the opening. The required distances are outlined in the table below:

Guarding line or distance of opening from point of operation hazard (inches)	Maximum width of opening (inches)
1/2 to 1 1/2	1/4
1 1/2 to 2 1/2	3/8
2 1/2 to 3 1/2	1/2
3 1/2 to 5 1/2	5/8
5 1/2 to 6 1/2	3/4
6 1/2 to 7 1/2	7/8
7 1/2 to 12 1/2	1 1/4
12 1/2 to 15 1/2	1 1/2
15 1/2 to 17 1/2	1 7/8
17 1/2 to 31 1/2	2 1/8

[Recodified as § 296-307-30021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-30021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-320 Control of hazardous energy (lockout-tagout).

[Recodified as § 296-307-320. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-320, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32001 What does this section cover?

(1) WAC 296-306A-320 covers the servicing and maintenance of machines and equipment in which the unexpected start up of the machine or equipment or release of stored energy could cause injury to employees. This standard

establishes minimum performance requirements for the control of such hazardous energy.

(2) Normal production operations are not covered by this standard. Servicing and/or maintenance that takes place during normal production operations is covered by this standard only if:

(a) An employee is required to remove or bypass a guard or other safety device; or

(b) An employee is required to place a body part into a point of operation or where an associated danger zone exists during a machine operating cycle.

Exception: Minor servicing activities, that take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures that provide effective protection.

[Recodified as § 296-307-32001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 97-08-051A, § 296-306A-32001, filed 3/31/97, effective 5/1/97; 96-22-048, § 296-306A-32001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32003 When does this section not apply? (1) WAC 296-306A-320 does not apply to work on cord and plug connected electric equipment when:

(a) Unexpected energization or start up of the equipment is controlled by unplugging the equipment from the energy source; and

(b) The plug is under the exclusive control of the employee performing the servicing or maintenance.

(2) WAC 296-306A-320 does not apply to hot tap operations involving transmission and distribution systems for substances such as gas, steam, water, or petroleum products when they are performed on pressurized pipelines, when:

(a) Continuity of service is essential;

(b) Shutdown of the system is impractical; and

(c) Documented procedures are followed, and special equipment is used that will provide proven effective protection for employees.

(3) WAC 296-306A-320 does not cover exposure to electrical hazards from work on, near, or with conductors or equipment in electric utilization installations. These hazards are covered in chapter 296-306A WAC Part T.

[Recodified as § 296-307-32003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32005 What definitions apply to this section? "Affected employee" means an employee who uses a machine or equipment while it is serviced or maintained under lockout or tagout, or who works where such servicing or maintenance is being performed.

"Authorized employee" means a person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this part.

"Capable of being locked out" means an energy isolating device that has a hasp or other means for a lock to be

affixed, or has a locking mechanism built into it. It also means that the device can be locked out without dismantling, rebuilding, or replacing the energy isolating device or permanently altering its energy control capability.

"Energized" means connected to an energy source or containing residual or stored energy.

"Energy isolating device" means a mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

- A manually operated electrical circuit breaker;
- A disconnect switch;
- A manually operated switch with conductors of circuit that can be disconnected from all ungrounded supply conductors and allows no pole to operate independently;
- A line valve;
- A block; and
- Any similar device used to block or isolate energy.

Push buttons, selector switches, and other control circuit devices are not energy isolating devices.

"Energy source" means any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy, including gravity.

"Hot tap" means a procedure used in repair, maintenance, and service activities that involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or accessories. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

"Lockout" means placing a lockout device on an energy isolating device, in accordance with an established procedure, to ensure that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

"Lockout device" means a device with a positive means such as a lock (key or combination type) to hold an energy isolating device in the safe position and prevents the energizing of a machine or equipment. Blank flanges and bolted slip blinds are included.

"Normal production operations" means using a machine or equipment for its intended production function.

"Servicing and/or maintenance" means workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning, or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or start up of the equipment or release of hazardous energy.

"Setting up" means any work performed to prepare a machine or equipment to perform its normal production operation.

"Tagout" means placing a tagout device on an energy isolating device, according to an established procedure, to indicate that the energy isolating device and the equipment being controlled must not be operated until the tagout device is removed.

"Tagout device" means a prominent warning device, such as a tag and attachment, that can be securely fastened to an energy isolating device according to an established procedure, to indicate that the energy isolating device and

the equipment being controlled must not be operated until the tagout device is removed.

[Recodified as § 296-307-32005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32007 What are the required elements of an energy control program? You must establish a written energy control program consisting of:

- An energy control procedure;
- Employee training; and
- Periodic inspections.

The purpose of the program is to ensure that before any employee services or maintains a machine or equipment where the unexpected energizing, start up, or release of stored energy could occur and cause injury, the machine or equipment is isolated from the energy source, and rendered inoperative.

[Recodified as § 296-307-32007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32009 How does an employer determine when to use lockout vs. tagout? (1) If an energy isolating device is not capable of being locked out, your energy control program must use a tagout system.

(2) If an energy isolating device is capable of being locked out, your energy control program must use lockout unless a tagout system will provide full employee protection according to WAC 296-306A-32011.

(3) Whenever major replacement or major repair, renovation, or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machines or equipment must be designed to accept a lockout device.

[Recodified as § 296-307-32009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32011 What requirements must be met to substitute tagout for lockout? (1) You must ensure that when a tagout device is used on an energy isolating device that is capable of being locked out, the tagout device is attached at the same location that the lockout device would have been attached. You must also ensure that the tagout program will provide safety that is equivalent to a lockout program.

(2) To demonstrate that a tagout program provides safety that is equivalent to a lockout program, you must demonstrate full compliance with all tagout requirements and any other measures necessary to provide equivalent safety. Other measures include:

- (a) Implementing additional safety measures such as the removal of an isolating circuit element;
- (b) Blocking a controlling switch;
- (c) Opening an extra disconnecting device; or
- (d) Removing a valve handle to reduce the likelihood of inadvertent energization.

[Recodified as § 296-307-32011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32013 What are the required elements of energy control procedures? (1) You must develop, document, and use procedures to control potentially hazardous energy when employees are engaged in activities covered by this section.

Exception: You are exempt from documenting procedures for a particular machine or equipment only when all of the following elements exist:

- (a) The machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shut down that could endanger employees;
- (b) The machine or equipment has a single energy source that can be readily identified and isolated;
- (c) The isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment;
- (d) The machine or equipment is isolated from that energy source and locked out during servicing or maintenance;
- (e) A single lockout device will achieve lockout;
- (f) The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance;
- (g) The servicing or maintenance does not create hazards for other employees; and
- (h) The worksite has experienced no accidents involving the unexpected activation or reenergization of the machine or equipment during servicing or maintenance.

(2) The procedures must clearly and specifically outline the scope, purpose, authorization, rules, and techniques for the control of hazardous energy, and the means to enforce compliance including, but not limited to, the following:

(a) A specific statement of the intended use of the procedure;

(b) Specific procedural steps for shutting down, isolating, blocking, and securing machines or equipment to control hazardous energy;

(c) Specific procedural steps for the placement, removal, and transfer of lockout devices or tagout devices and the responsibility for them; and

(d) Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.

[Recodified as § 296-307-32013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32015 What requirements apply to lockout and tagout devices and materials? (1) You must provide locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware for isolating, securing, or blocking machines or equipment from energy sources.

(2) Lockout and tagout devices must be singularly identified; must be the only device(s) used for controlling energy; must not be used for other purposes.

(3) Lockout and tagout devices must be durable and meet the following requirements:

(a) Lockout and tagout devices must be able to withstand the environment to which they are exposed for the maximum period of time that exposure is expected.

(b) Tagout devices must be constructed and printed so that exposure to weather conditions or wet and damp locations will not deteriorate the tag or make the tag's message illegible.

(c) Tags must not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.

(4) Lockout and tagout devices must be the same within the facility in at least color, shape, or size. Also, tagout devices must have the same print and format.

(5) Lockout and tagout devices must be substantial and meet the following requirements:

(a) Lockout devices must be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools.

(b) Tagout devices and their means of attachment must be substantial enough to prevent accidental removal. Tagout device attachment means must be single-use, attachable by hand, self-locking, releasable with an unlocking strength of at least 50 pounds, and having the general design and basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

(c) Lockout and tagout devices must indicate the name of employee applying the device(s).

(6) Tagout devices must warn against hazardous conditions if the machine or equipment is energized and must include a message such as: "Do not start," "do not open," "do not close," "do not energize," "do not operate."

[Recodified as § 296-307-32015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32017 How often must the energy control procedure be inspected? (1) You must conduct an inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of this standard are followed.

(a) An authorized employee, other than the one(s) using the energy control procedure, must perform the inspection.

(b) The inspection must be conducted to correct any deviations or inadequacies identified.

(c) Where lockout is used for energy control, the inspection must include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure.

(d) Where tagout is used for energy control, the inspection must include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure, and the elements of WAC 296-306A-32021.

(2) You must certify that the inspections have been performed. The certification must identify the machine or equipment on which the energy control procedure was being used, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

[Recodified as § 296-307-32017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32019 What general requirements apply to energy control program training and communication? You must provide training to ensure that employees understand the purpose and function of the energy control program, and that employees have the knowledge and skills required for the safe application, use, and removal of the energy controls. The training must include the following:

(1) Each authorized employee must receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.

(2) Each affected employee must be instructed in the purpose and use of the energy control procedure.

(3) All other employees who work in an area where energy control procedures must be used, must be instructed about the procedure and the prohibition against attempting to restart or reenergize machines or equipment that are locked out or tagged out.

[Recodified as § 296-307-32019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32021 What additional requirements apply to tagout training and communication? When tagout systems are used, employees must also be trained in the following limitations of tags:

(1) Tags are warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.

(2) When a tag is attached to an energy isolating means, it is not to be removed without approval of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.

(3) Tags must be legible and understandable by all authorized, affected, and other employees working in the area.

(4) Tags and their means of attachment must be made of materials that will withstand the environmental conditions encountered in the workplace.

(5) Tags may create a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

(6) Tags must be securely attached to energy isolating devices so that they cannot be accidentally detached during use.

[Recodified as § 296-307-32021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32023 What requirements apply to employee retraining? (1) Authorized and affected employees must be retrained whenever there is a change in job assignments, machines, equipment, or processes that present a new hazard, or when there is a change in the energy control procedures.

(2) Additional retraining must also be provided whenever an inspection reveals, or whenever you believe, that the employee's knowledge or use of the energy control procedures is inadequate.

(3) Retraining must reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

[Recodified as § 296-307-32023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32025 What training records must an employer keep? You must keep records that certify that employee training has been completed and is up to date. The records must contain each employee's name and dates of training.

[Recodified as § 296-307-32025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32027 Who may perform lockout or tagout? Lockout or tagout must be performed only by authorized employees performing the service or maintenance.

[Recodified as § 296-307-32027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32029 Who must be notified of lockout and tagout? Affected employees must be notified of the application and removal of lockout or tagout devices. Notification must be given before controls are applied and after they are removed.

[Recodified as § 296-307-32029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32031 What order of events must lockout or tagout procedures follow? The established lockout or tagout procedures must cover the following elements in the following sequence:

Machinery or equipment shutdown before lockout or tagout:

(1) Before an authorized or affected employee turns off a machine or equipment, the authorized employee must have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.

(2) The machine or equipment must be turned off or shut down using the procedures established for the machine or equipment. The shutdown must be done in the prescribed order to avoid increased hazards to employees.

(3) All necessary energy isolating devices must be physically located and operated in such a manner as to isolate the machine or equipment from the energy source. Application of the lockout or tagout device:

(4) Lockout or tagout devices must be affixed to each energy isolating device by authorized employees.

(5) Lockout devices, where used, must be affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position.

(6) Tagout devices, where used, must be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.

(a) Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment must be fastened at the same point at which the lock would have been attached.

(b) Where a tag cannot be affixed directly to the energy isolating device, the tag must be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

Eliminating the hazards of stored energy:

(7) After applying lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy must be relieved, disconnected, restrained, and otherwise rendered safe.

(8) If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation must be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists. Before beginning service or maintenance:

(9) Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee must verify that the machine or equipment has been isolated and deenergized.

[Recodified as § 296-307-32031. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32031, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32033 What order of events must be followed to remove lockout or tagout devices? (1) Before removing lockout or tagout devices, the authorized employee must complete the following procedures:

(a) Inspect the work area to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact.

(b) Check the work area to ensure that all employees have been safely positioned or removed.

(2) After lockout or tagout devices have been removed and before a machine or equipment is started, affected employees must be notified that the lockout or tagout device(s) have been removed.

(3) Each lockout or tagout device must be removed from each energy isolating device by the authorized employee who applied the device.

Exception: When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under your direction, if specific procedures and training for such removal have been developed, documented, and incorporated into the energy control program.

You must ensure that the specific procedure provides equivalent safety to the removal of the device by the authorized employee who applied it. The specific procedure must include at least the following elements:

(a) Verification by the employer that the authorized employee who applied the device is not at the facility;

(b) Making all reasonable efforts to inform the authorized employee that the lockout or tagout device has been removed; and

(c) Ensuring that the authorized employee has this knowledge before resuming work at that facility.

[Recodified as § 296-307-32033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32035 What requirements apply to testing and positioning machines and equipment? When lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine or equipment, the following sequence of actions must be followed:

(1) Clear the machine or equipment of tools and materials according to WAC 296-306A-32033 (1)(a).

(2) Remove employees from the machine or equipment area according to WAC 296-306A-32033 (1)(b).

(3) Remove the lockout or tagout devices as specified in WAC 296-306A-32033(3).

(4) Energize and proceed with testing or positioning.

(5) Deenergize all systems and reapply energy control measures in accordance with WAC 296-306A-32031 to continue the servicing and/or maintenance.

[Recodified as § 296-307-32035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32035, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32037 What requirements apply to outside servicing contractors? (1) Whenever outside servicing contractors are to be engaged in activities covered by this standard, you and the outside employer must inform each other of your respective lockout or tagout procedures.

(2) The outside employer must ensure that employees understand and comply with the restrictions and prohibitions of your energy control program.

[Recodified as § 296-307-32037. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32037, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32039 What requirements apply to group lockout or tagout? (1) When servicing and/or maintenance is performed by a crew or other group, they must use a procedure that provides a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.

(2) Group lockout or tagout devices must be used according to the procedures required by WAC 296-306A-32013 including, but not limited to, the following:

(a) An authorized employee has primary responsibility for a set number of employees working under the protection of a group lockout or tagout device (such as an operations lock); and

(b) A method for the authorized employee to determine if individual group members are exposed to release of stored energy hazards; and

(c) When more than one crew or group is involved, assignment of overall lockout or tagout control responsibility to an authorized employee designated to coordinate individual group members and ensure continuity of protection; and

(d) Each authorized employee must affix a personal lockout or tagout device to the group lockout device when beginning work, and must remove those devices when the work is complete.

[Recodified as § 296-307-32039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32041 What requirements apply to lockout/tagout during shift changes? During shift or personnel changes, you must ensure that employees follow specific procedures to ensure the continuity of lockout or tagout protection. The procedures must include orderly transfer of lockout or tagout protection between off-going and oncoming employees, to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment, or release of stored energy.

[Recodified as § 296-307-32041. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-32041, filed 10/31/96, effective 12/1/96.]

WAC 296-307-330 Safety color coding; accident prevention signs and tags.

[Recodified as § 296-307-330. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-330, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33001 What definitions apply to this section? "Accident prevention sign" ("sign") means a surface with text or pictographs, meant to warn or instruct employees who may be exposed to hazards. Safety posters and education bulletins are not included in this definition.

"Accident prevention tag" ("tag") means a card that identifies a hazardous condition, generally related to unsafe equipment.

"Major message" means the sign's or tag's text that is more specific than the signal word and that identifies the specific hazardous condition or safety instruction. Examples include: "High Voltage," "Close Clearance," "Do Not Start," or "Do Not Use" or a corresponding pictograph.

"Pictograph" means a pictorial representation that identifies a specific hazardous condition or safety instruction.

"Signal word" means the sign's or tag's text that contains the word, usually "danger" or "caution" that is intended to capture the employee's immediate attention.

[Recodified as § 296-307-33001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33003 What does red identify in safety color coding? Use red to identify:

- (1) Fire protection equipment;
 - (2) Safety cans or other portable containers of flammable liquids;
 - (3) Danger signs and tags;
 - (4) Emergency stop bars on hazardous machines; and
 - (5) Stop buttons or electrical switches used to stop machinery in an emergency;
- Red lights must be provided at barricades and at temporary obstructions, as specified in ANSI Safety Code for Building Construction, A10.2-1944.

[Recodified as § 296-307-33003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33005 What does yellow identify in safety color coding? Use yellow to identify:

- (1) Caution signs and tags; and
- (2) Physical hazards.

[Recodified as § 296-307-33005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33007 When should signs and tags use "danger" versus "caution"? (1) Danger signs and tags.

(a) Use danger signs and tags when an immediate hazard presents a threat of death or serious injury to employees.

(b) Instruct all employees that danger signs and tags indicate immediate danger and that special precautions are necessary.

(2) Caution signs and tags.

(a) Use caution signs and tags to warn against potential hazards or to caution against unsafe practices.

(b) Instruct all employees that caution signs and tags indicate a possible hazard against which proper precaution should be taken.

[Recodified as § 296-307-33007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33009 What are the design and color specifications for accident prevention signs? (1) All signs must have rounded or blunt corners and be free from sharp edges. The ends or heads of bolts or other fastening devices must be located so that they do not constitute a hazard.

(2) Danger, caution, directional, informational, exit, and safety instruction signs must comply with the specification of safety colors of the ANSI Z53.1-1971.

[Recodified as § 296-307-33009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33011 What are the proper uses of accident prevention tags? (1) Use tags as a temporary means of warning employees of a hazardous condition, especially defective equipment. Tags are not a complete warning method, but should be used until the hazard can be eliminated.

For example: You may use a "do not start" tag on power equipment for a short time until the switch in the system can be locked out; you may use a "defective equipment" tag on a damaged ladder while arrangements are made for the ladder to be taken out of service and repaired.

(2) Use of accident prevention tags.

(a) Use tags as a warning to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment or operations that are out of the ordinary, unexpected or not readily apparent.

(b) Use tags until the identified hazard is eliminated or the hazardous operation is completed. Tags are not necessary if signs, guarding, or other protection is used.

(c) Place "do not start" tags in a conspicuous location and, if possible, so that they block the starting mechanism that would cause hazardous conditions if the equipment was energized.

(3) General accident prevention tag specifications.

(a) Tags must contain a signal word and a major message. The signal word must be either "danger" or "caution."

(b) The signal word must be readable at least five feet from the hazard.

(c) The signal word and the major message must be understandable to all employees who may be exposed to the identified hazard.

(d) Inform all employees of the meaning of the tags used throughout the workplace and what special precautions are necessary.

(e) Attach tags as closely as is safely possible to the hazard. Attach the tags so as to prevent loss or unintentional removal.

(f) The tag and attachment method must be constructed of material that is not likely to deteriorate.

(4) You may use warning tags to represent a hazard level between "caution" and "danger," instead of the required "caution" tag, if they have a signal word of "warning" and an appropriate major message.

(5) Use "out of order" tags only to indicate that a piece of equipment, machinery, etc., is out of order and that it might present a hazard if used.

[Recodified as § 296-307-33011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-33011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-340 Portable fire extinguishers.

[Recodified as § 296-307-340. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-340, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34003 What does this section cover?

(1) WAC 296-306A-340 applies to the placement, use, maintenance, and testing of portable fire extinguishers provided for employee use. WAC 296-306A-34012 does not apply to extinguishers provided for employee use on the outside of workplace buildings or structures. If you do not intend for employees to use extinguishers, and your emergency action plan and fire prevention plan meet the requirements of WAC 296-306A-35018, then only the requirements of WAC 296-306A-34015 and 296-306A-34018 apply.

(2) All standpipe and hose systems, automatic sprinkler systems, fixed extinguishing systems, dry-chemical fixed extinguishing systems, water-spray and foam, and fire detection systems, must be installed according to state and local ordinances, codes, and regulations governing such installations.

[Recodified as § 296-307-34003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34006 Who is exempt from the requirements of this section? (1) You are exempt from all requirements of this section, if:

(a) You have implemented a written fire safety policy that requires all employees to evacuate immediately when the fire alarm sounds; and

(b) You have an emergency action plan and a fire prevention plan meeting the requirements of WAC 296-306A-35015 and 296-306A-35018; and

(c) Extinguishers are not available for employee use in the workplace.

Note: If a specific section of this chapter requires you to provide a portable fire extinguisher, this exemption does not apply.

(2) You are exempt from the distribution requirements in WAC 296-306A-34012, if:

(a) You have an emergency action plan meeting the requirements of WAC 296-306A-35015 that authorizes only certain employees to use the available portable fire extinguishers; and

(b) The plan requires all other employees to evacuate immediately when the fire alarm sounds.

[Recodified as § 296-307-34006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34009 What general requirements apply to portable fire extinguishers?

(1) You must provide portable fire extinguishers that are readily accessible to employees without subjecting the employees to possible injury.

(2) You must only use approved portable fire extinguishers.

(3) Portable fire extinguishers using carbon tetrachloride or chlorobromomethane extinguishing agents are prohibited.

(4) Water type fire extinguishers with a soldered or riveted shell that use self-generating soda acid or self-generating foam or gas cartridges are prohibited.

(5) You must ensure that all portable fire extinguishers are fully charged, operable, and kept in their designated places at all times except during use.

(6) You must ensure that all portable fire extinguishers are tested, constructed, and used according to the National Fire Protection Association's pamphlet No. 10A-1970.

Note: The supplier of the extinguisher or local fire official can furnish this information.

(7) You must post "no smoking" signs in areas where fire or explosion hazards exist. You must prohibit smoking within fifty feet of all refueling operations. Take precautions to prevent open flames, sparks, or electric arcs in refueling areas.

(8) You must keep a portable fire extinguisher with a rating of at least 12-B units outside the door of any room used to store flammables or combustibles. This extinguisher must not be more than ten feet from the door.

[Recodified as § 296-307-34009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34012 How should portable fire extinguishers be selected and distributed? (1) You must select and distribute portable fire extinguishers based on the classes of anticipated workplace fires and on the size and degree of hazard that would affect their use.

(2) Distribution of portable fire extinguishers.

(a) For Class A fires: You must distribute portable fire extinguishers so that no employee must travel more than 75 feet (22.9 m) to a fire extinguisher.

Exception: You may use uniformly spaced standpipe systems or hose stations connected to a sprinkler system for emergency use by employees instead of Class A portable fire extinguishers, if:

- The system meets all regulatory requirements governing total coverage of the area to be protected; and
- Employees are trained at least annually in their use.

(b) For Class B fires: You must distribute portable fire extinguishers so that no employee must travel more than 50 feet (15.2 m) to a fire extinguisher.

(c) For Class C fires: You must distribute portable fire extinguishers on the basis of the appropriate pattern for the existing Class A or Class B hazards.

(d) For Class D fires: You must distribute portable fire extinguishers or other containers of Class D extinguishing agent so no employee must travel more than 75 feet (22.9 m) from the combustible metal working area to any extinguishing agent. Portable fire extinguishers for Class D hazards are required in those combustible metal working areas where combustible metal powders, flakes, shavings, or similarly sized products are generated at least once every two weeks.

[Recodified as § 296-307-34012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34015 What are the requirements for inspection, maintenance and testing of portable fire extinguishers? (1) You are responsible for the inspection, maintenance, and testing of all portable fire extinguishers in the workplace.

(2) You must visually inspect portable extinguishers or hose at least once a month.

(3) You must ensure that portable fire extinguishers receive an annual maintenance check. You must keep records of the maintenance dates for one year after the previous entry or the life of the shell, whichever comes first. You must provide us with a copy of the record if we ask for it.

(4) You must ensure that stored-pressure dry chemical extinguishers that require a twelve-year hydrostatic test are emptied and undergo applicable maintenance procedures every six years.

Exception: Dry chemical extinguishers with nonrefillable disposable containers are exempt from this requirement.

The six years begins when recharging or hydrostatic testing is performed.

(5) You must ensure that alternate equivalent protection is provided when portable fire extinguishers are removed from service for maintenance and recharging.

[Recodified as § 296-307-34015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34018 What requirements apply to hydrostatic testing? (1) You must ensure that a trained person performs hydrostatic testing with suitable testing equipment and facilities.

(2) You must ensure that portable extinguishers are hydrostatically tested at the intervals listed in the table below.

Type of Extinguishers	Test interval (years)
Soda acid (stainless steel shell)	5
Cartridge operated water and/or antifreeze	5
Stored pressure water and/or antifreeze	5
Wetting agent	5
Foam (stainless steel shell)	5
Aqueous film forming form (AFFF)	5
Loaded stream	5
Dry chemical with stainless steel	5
Carbon dioxide	5
Dry chemical, stored pressure, with mild steel, brazed brass or aluminum shells	12
Dry chemical, cartridge or cylinder operated, with mild steel shells	12
Halon 1211	12
Halon 1301	12
Dry powder, cartridge or cylinder operated, with mild steel shell	12

Exception: Extinguishers must not be hydrostatically tested if the following conditions exist:

- (a) When the unit has been repaired by soldering, welding, brazing, or use of patching compounds;
- (b) When the cylinder or shell threads are damaged;
- (c) When there is corrosion that has caused pitting, including corrosion under removable name plate assemblies;
- (d) When the extinguisher has been burned in a fire; or
- (e) When a calcium chloride extinguishing agent has been used in a stainless steel shell.

(3) In addition to an external visual examination, you must ensure that the cylinders and shells are examined internally before the hydrostatic testing.

(4) You must ensure that portable fire extinguishers are hydrostatically tested whenever they show new evidence of corrosion or mechanical injury.

(5) You must ensure that hydrostatic tests are performed on extinguisher hose assemblies that are equipped with a shut-off nozzle at the discharge end of the hose. The test interval must be the same as specified for the extinguisher on which the hose is installed.

(6) Carbon dioxide hose assemblies with a shut-off nozzle must be hydrostatically tested at 1,250 psi (8,620 kPa).

(7) Dry chemical and dry powder hose assemblies with a shut-off nozzle must be hydrostatically tested at 300 psi (2,070 kPa).

(8) Hose assemblies passing a hydrostatic test do not require any type of recording or stamping.

(9) You must ensure that hose assemblies for carbon dioxide extinguishers that require a hydrostatic test are tested within a protective cage device.

(10) You must ensure that carbon dioxide extinguishers and nitrogen or carbon dioxide cylinders used with wheeled extinguishers are tested every five years at 5/3 of the service pressure as stamped into the cylinder. Nitrogen cylinders that comply with 29 CFR 173.34(e)(15) may be hydrostatically tested every ten years.

(11) You must ensure that all stored pressure and Halon 1211 types of extinguishers are hydrostatically tested at the factory test pressure not to exceed two times the service pressure.

(12) You must ensure that self-generating type soda acid and foam extinguishers are tested at 350 psi (2,410 kPa).

(13) Air or gas pressure used for hydrostatic testing is prohibited.

(14) You must remove from the workplace all extinguisher shells, cylinders, or cartridges that fail a hydrostatic pressure test, or that are not fit for testing.

(15)(a) Water-jacket equipment must be used for testing compressed gas type cylinders. The equipment must have an expansion indicator that operates with an accuracy within one percent of the total expansion or 0.1 cc (.1 mL) of liquid.

(b) The following equipment must be used to test noncompressed gas type cylinders:

(i) A hydrostatic test pump, hand or power operated, capable of producing not less than one hundred fifty percent of the test pressure, which must include appropriate check valves and fittings;

(ii) A flexible connection for attachment to fittings to test through the extinguisher nozzle, test bonnet, or hose outlet, as is applicable; and

(iii) A protective cage or barrier for personal protection of the tester, designed to provide visual observation of the extinguisher under test.

(16) You must maintain records of the hydrostatic testing. Your records must include:

- The date of test;
- The test pressure used;
- The serial number, or other identifier of the fire extinguisher that was tested; and
- The person or agency performing the test.

You must keep the records until the next testing, or until the extinguisher is taken out of service, whichever comes first. You must provide us with copies of the records if we ask for them.

[Recodified as § 296-307-34018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34021 What are the training requirements for portable fire extinguishers? (1) If you provide portable fire extinguishers for employee use, then you must also provide training to familiarize employees with the general principles of fire extinguisher use and the hazards involved in fighting fires when they first appear.

You must provide the training when the employee is first hired and at least annually thereafter.

(2) For employees who have been designated to use fire fighting equipment as part of an emergency action plan, you must provide training in the use of the appropriate equipment.

You must provide the training upon initial assignment to the designated group of employees and at least annually thereafter.

[Recodified as § 296-307-34021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-345 Employee alarm systems.

[Recodified as § 296-307-345. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-345, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34503 What does this section cover?

(1) WAC 296-306A-345 applies to all emergency employee alarms required by a specific WAC chapter. This section does not apply to discharge or supervisory alarms required on various fixed extinguishing systems or to supervisory alarms on fire suppression, alarm or detection systems unless they are intended to be employee alarm systems.

(2) The maintenance, testing, and inspection requirements of this section apply to all local fire alarm signaling systems used for alerting employees regardless of the other functions of the system.

(3) All pre-discharge employee alarms required by this chapter must meet the requirements of WAC 296-306A-34506 and 296-306A-34512.

[Recodified as § 296-307-34503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34506 What general requirements apply to employee alarm systems?

(1) Your employee alarm system must provide warning for necessary emergency action called for in the emergency action plan, or safe escape of employees from the workplace.

(2) You must ensure that all employees can see or hear your employee alarm above normal noise or light levels in the workplace. You may use tactile devices to alert employees who can not see or hear the alarm.

(3) You must ensure that your employee alarm is recognizable as an evacuation signal or signal to perform actions designated under the emergency action plan.

(4) You must explain to each employee how to report emergencies. For example: They may use manual pull box alarms, public address systems, radio or telephones. You must post emergency telephone numbers near telephones, or employee notice boards when telephones serve as a means of reporting emergencies. When your communication system also serves as the employee alarm system, you must ensure that all emergency messages have priority over all non-emergency messages.

(5) You must establish procedures for sounding emergency alarms in the workplace. If you have ten or fewer employees in a workplace, direct voice communication is an

acceptable procedure for sounding the alarm if all employees can hear it. In this case, you do not need a back-up system.

[Recodified as § 296-307-34506. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34506, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34509 What are the installation and restoration requirements for employee alarm systems?

(1) You must ensure that all systems installed to comply with this standard are approved. Steam whistles, air horns, strobe lights or similar lighting devices, or tactile devices meeting the requirements of this section must also be approved.

(2) After each test or alarm, you must ensure that all employee alarm systems are restored to normal operating condition as soon as possible. You must ensure that you have spare alarm components available in sufficient quantities and locations for prompt restoration of the system.

[Recodified as § 296-307-34509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34512 How must employee alarm systems be maintained and tested?

(1) You must ensure that all employee alarm systems are maintained in operating condition except when undergoing repairs or maintenance.

(2) You must ensure that a test of the reliability and adequacy of nonsupervised employee alarm systems is made every two months. You must use a different actuation device in each test of a multiactuation device system so that no individual device is used for two consecutive tests.

(3) You must maintain or replace power supplies as often as necessary to ensure fully operational condition. You must provide back-up alarms, such as employee runners or telephones, when systems are out of service.

(4) You must ensure that supervised employee alarm circuitry is supervised and that it will provide positive notification to assigned personnel whenever a deficiency exists in the system. You must ensure that all supervised employee alarm systems are tested at least annually for reliability and adequacy.

(5) You must ensure that employee alarms are serviced, maintained, and tested by someone trained in the operation and functions necessary for reliable and safe operation of the system.

[Recodified as § 296-307-34512. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34512, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34515 Where must manually operated devices be located?

You must ensure that manually operated actuation devices used with employee alarms are easy to find and accessible.

[Recodified as § 296-307-34515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-34515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-350 Exit routes.

[Recodified as § 296-307-350. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-350, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35003 What does this section cover?

WAC 296-306A-350 requires you to provide exit routes for employees to leave the workplace safely during emergencies. This section does not apply to mobile workplaces, such as vehicles or vessels.

[Recodified as § 296-307-35003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35006 What definitions apply to this section?

"Exit" means the portion of an exit route that is generally separated from other areas to provide a protected way of travel out of the workplace.

"Exit route" means a continuous and unobstructed path of exit travel from any point within a workplace to safety outside. An exit route generally consists of three parts: Access to an exit; the area which provides a way of travel out of the workplace; and the way from the exit to the outside. An exit route includes all vertical and horizontal areas.

[Recodified as § 296-307-35006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35009 What are the design requirements for exit routes?

You must ensure that each workplace meets each of the following requirements:

(1) Each exit is a permanent part of the workplace.

(2) Two exit routes, remote from one another, are available to provide alternate means for employees to safely leave the workplace during an emergency.

(a) A single exit route is permitted where the number of employees, the size of the building, its occupancy, or the arrangement of the workplace indicate that a single exit will allow all employees to exit safely during an emergency. Other means of escape, such as fire exits or accessible windows, should be available where fewer than two exit routes are provided.

(b) More than two exit routes are available to allow employees to safely leave the workplace during an emergency where the number of employees, the size of the building, its occupancy, or the arrangement of the workplace reasonably suggest that reliance on two exit routes could endanger employees.

(3) An exit has only those openings necessary to permit access to, or exit from, occupied areas of the workplace. An opening into an exit is protected by a self-closing fire door that remains closed. Each fire door, its frame, and hardware are listed or approved by a nationally recognized testing laboratory.

(4) Construction materials used to separate an exit have a 1-hour fire resistance rating if the exit connects three or fewer stories. Construction materials used to separate an exit have a 2-hour fire resistance rating if the exit connects 4 or more stories.

(5) Free and unobstructed access to each exit route is provided to ensure safe exit during an emergency.

(a) The exit route is free of material or equipment.

(b) Employees are not required to travel through a room that can be locked, such as a bathroom, or toward a dead end to reach an exit.

(c) Stairs or a ramp are used if the exit route is not substantially level.

(6) An exit leads directly outside or to a street, walkway, refuge area, or to an open space with access to the outside.

(a) The street, walkway, refuge area, or open space to which an exit leads is large enough to accommodate all building occupants likely to use that exit.

(b) A refuge area is:

(i) A space along an exit route protected from the effects of fire either by separation from other spaces within the building or by its location; or

(ii) A floor with at least two spaces separated by smoke-resistant partitions, in a building where each floor is protected by an automatic sprinkler system. An automatic sprinkler system complies with NFPA No. 13, Automatic Sprinkler Systems.

(c) Exit stairs that continue beyond the floor of exit discharge are interrupted by doors, partitions, or other effective means.

(7) Where a doorway or corner of a building is located near a railroad or trolley track so that an employee is liable to walk upon the track in front of an approaching engine or cars, a standard safeguard must be installed with a warning sign.

(8) An exit door can be readily opened from the inside without keys, tools, or special knowledge. A device, such as a panic bar, that locks only from the outside is permitted. An exit door is free of any device or alarm that, if it fails, can restrict emergency use of an exit.

Note: An exit door may be locked or blocked from the inside in a mental, penal, or correctional institution, if supervisory personnel are continually on duty and a plan exists to remove occupants during an emergency.

(9) The opening device on all doors of walk-in refrigerated or freezer rooms must be the type, when locked from the outside with a lock, can be opened from inside.

(10) A side-hinged exit door is used to connect any room to an exit route. A door that connects any room to an exit route swings out if the room may be occupied by more than 50 persons or highly flammable or explosive materials may be used inside.

(11) Each exit route supports the maximum-permitted occupant load for each floor served by the exit route. The capacity of an exit does not decrease with the direction of exit travel.

(12) Minimum height and width requirements:

(a) The ceiling for an exit route is at least 7 feet 6 inches high and the exit route is at least 6 feet 8 inches high at all points.

(b) The width of an exit route is at least 28 inches wide at all points between handrails. An exit route is wider than 28 inches if necessary to accommodate the expected occupant load.

(c) Objects that project into the exit route do not reduce the minimum height and width of an exit route.

(13) An outdoor exit route is permitted if it meets the requirements for an indoor exit route and the following additional requirements.

(a) The exit has guardrails to protect exposed sides.

(b) The exit route is covered if accumulation of snow or ice is likely and is not removed regularly.

(c) The exit route is reasonably straight with smooth, solid, substantially level floors.

(d) The exit route has no dead ends longer than 20 feet.

[Recodified as § 296-307-35009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35012 What are the operation and maintenance requirements for exit routes? You must ensure that each workplace meets the following requirements:

(1) The workplace exit route is maintained to minimize danger to employees during an emergency.

(a) The workplace exit route is free of explosive or highly flammable furnishings or decorations.

(b) Accumulations of flammable or combustible waste materials are controlled.

(c) An exit route does not require employees to travel toward materials that burn very quickly, emit poisonous fumes, or are explosive, unless those materials are effectively shielded from the exit route.

(2) Each exit route is adequately lit.

(3) Each exit is clearly visible and is marked by a distinctive sign reading "exit."

(a) An exit door is free of signs or decorations that obscure its visibility.

(b) Signs are posted along the exit route indicating the direction of travel to the nearest exit.

(c) The line-of-sight to an exit sign is uninterrupted.

(d) Any doorway or passage that might be mistaken for an exit is marked "not an exit" or with an indication of its actual use.

(e) An exit sign is illuminated to a surface value of at least 5 foot candles by a reliable light source and shows a designated color. Self-luminous or electroluminescent signs have a minimum luminance surface value of .06 footlamberts.

(4) Fire retardant paints or other coatings used in the workplace are maintained.

(5) Each safeguard to protect employees during an emergency is maintained in proper working order.

(6) Employees do not occupy a workplace under construction until an exit route that meets these requirements is available for the portion of the workplace to be occupied.

(a) Employees do not occupy a workplace during repair or alteration unless either all exits and existing fire protection are maintained or alternate fire protection is provided that ensures an equivalent level of safety.

(b) Flammable or explosive materials used during construction or repair do not expose employees to hazards not otherwise present in the workplace or impede emergency escape from the workplace.

(7) An operable employee alarm system with a distinctive signal to warn employees of fire or other emergencies is installed and maintained. No employee alarm system is

required if employees can see or smell a fire or other hazard so that it would provide adequate warning to them. The employee alarm system complies with the requirements of WAC 296-306A-345.

[Recodified as § 296-307-35012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35015 What are the requirements for an emergency action plan? (1) You must develop an emergency action plan for each part of the workplace whenever a WISHA standard requires one.

(a) The plan must be in writing, kept in the workplace, and made available to employees on request.

(b) An employer of 10 or fewer employees may communicate the plan orally to employees rather than develop a written plan.

(2) An emergency action plan must include:

(a) Procedures for emergency evacuation, including exit route assignments;

(b) Procedures to account for all employees after evacuation;

(c) Procedures for reporting a fire or other emergency;

(d) Procedures to follow for emergency operation or shut down of critical equipment before evacuation;

(e) Procedures to follow for rescue and medical duties;

(f) Procedures for operating and maintaining an emergency alarm system; and

(g) Names or job titles of employees to be contacted to get more information about what to do in an emergency.

(3) You must designate employees to assist in the safe emergency evacuation of other employees. You must ensure that the designated employees receive training in emergency evacuation procedures.

(4) You must review the emergency action plan with each employee covered by the plan:

(a) When the plan is developed or the employee is assigned initially to the job;

(b) When the employee's responsibilities under the plan change; and

(c) When the plan is changed.

[Recodified as § 296-307-35015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35018 What are the requirements for a fire prevention plan? (1) You must develop a fire prevention plan for each part of the workplace whenever another WISHA standard requires one.

(a) The plan must be in writing, kept in the workplace, and made available to employees on request.

(b) An employer of 10 or fewer employees may communicate the plan orally to employees rather than develop a written plan.

(2) A fire prevention plan must include:

(a) A list of all major fire hazards, including proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard;

(b) Procedures to control accumulations of flammable and combustible waste materials;

(c) Procedures for regular maintenance of safeguards installed on heat producing equipment to prevent accidental ignition of combustible materials;

(d) Names or job titles of employees responsible for maintaining equipment to prevent or control sources of ignition or fires;

(e) Names or job titles of employees responsible for control of fuel source hazards.

(3) You must:

(a) Inform employees of the fire hazards to which they are exposed; and

(b) Review with each employee those parts of the fire prevention plan necessary for self-protection upon initial assignment to a job.

[Recodified as § 296-307-35018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-35018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-360 Electrical.

[Recodified as § 296-307-360. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-360, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36005 What does this part cover?

(1) Chapter 296-306A WAC Part T covers methods to protect against electrical hazards in agricultural workplaces.

(2) Chapter 296-306A WAC Part T does not cover:

- Installations in watercraft, or automotive vehicles; or
- Electric welding. (See chapter 296-306A WAC Part V.)

(3) Unless otherwise provided in this chapter all electrical work, installation, and wire capacities must be according to the National Electrical Code, NFPA 70-1973; ANSI C1-1971, and all other applicable standards administered by the department of labor and industries.

[Recodified as § 296-307-36005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36010 What definitions apply to this part? The following definitions apply to this part:

"Acceptable" means an installation or equipment that is acceptable to the department and meets the requirements of this section. An installation or equipment is acceptable if:

(1) It is accepted, certified, listed, labeled, or otherwise determined to be safe by a nationally recognized testing laboratory; or

(2) For installations or equipment that no nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe, it is inspected or tested by another federal agency, or by state, municipal, or other local authority responsible for enforcing occupational safety provisions of the National Electrical Code, and complies with the provisions of the National Electrical Code, and complies with the provisions of the National Electrical Code as applied in this section; or

(3) For custom-made equipment or related installations that are designed, fabricated for, and intended for use by a particular customer, it is determined to be safe for its intended use by its manufacturer on the basis of test data that you keep and make available for our inspection.

"Accepted" means an installation that has been inspected and certified by a nationally recognized testing laboratory to meet specified plans or procedures of applicable codes.

"Bonding jumper" means a reliable conductor that provides the correct electrical conductivity between metal parts that are required to be electrically connected.

"Branch circuits" means the part of a wiring system extending beyond the final overcurrent device protecting the circuit. A device not approved for branch circuit protection, such as thermal cutout or motor overload protective device, is not considered as the overcurrent device protecting the circuit.

"Certified" means equipment that:

- Has been tested and found by a nationally recognized testing laboratory to meet nationally recognized standards, or to be safe for use in a specified manner; or
- Is a kind whose production is periodically inspected by a nationally recognized testing laboratory; and
- Bears a label, tag, or other record of certification.

"Exposed" means a live part that can be accidentally touched or approached nearer than a safe distance. This term applies to parts that are not suitably guarded, isolated, or insulated.

"Fixed equipment" means equipment fastened or connected by permanent wiring methods.

"Ground" means a conducting connection, whether intentional or accidental, between an electrical circuit or equipment and earth, or to some conducting body that serves in place of the earth.

"Grounded" means connected to earth or to some conducting body that serves in place of the earth.

"Isolated" means equipment that is not readily accessible except through special means of access.

"Labeled" means equipment that has an attached label, symbol, or other identifying mark of a nationally recognized testing laboratory that:

- Makes periodic inspections of the production of such equipment; and
- Whose labeling indicates compliance with nationally recognized standards or tests to determine safe use in a specified manner.

"Qualified person" means a person who is familiar with the construction and operation of the equipment and the hazards involved.

Note 1: Whether an employee is considered a "qualified person" depends on various circumstances in the workplace. It is possible and likely for an individual to be considered "qualified" with regard to certain equipment in the workplace, but "unqualified" as to other equipment.

Note 2: An employee undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered a qualified person for the performance of those duties.

"Shock hazard" exists at an accessible part in a circuit between the part and ground, or other accessible parts if the

potential is more than 42.4 volts peak and the current through a 1,500 ohm load is more than 5 milliamperes.

"Weatherproof" means constructed or protected so that exposure to the weather does not interfere with successful operation. Rainproof, raintight, or watertight equipment may be considered weatherproof where weather conditions other than wetness, such as snow, ice, dust, or temperature extremes, are not a factor.

[Recodified as § 296-307-36010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36010, filed 10/31/96, effective 12/1/96.]

WAC 296-307-362 General electrical requirements.

[Recodified as § 296-307-362. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-362, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36203 What electrical equipment must be approved? The conductors and equipment required or permitted by this section must be approved.

[Recodified as § 296-307-36203. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36203, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36206 How must electrical equipment safety be determined? (1) Electrical equipment must be free from hazards to employees. Safety of equipment must be determined using the following considerations:

(a) Suitability for installation and use according to the requirements of this part. Suitability of equipment for a specific purpose may be shown by listing or labeling for that purpose.

(b) Mechanical strength and durability, including, for parts designed to enclose and protect other equipment, the adequacy of the protection provided.

(c) Electrical insulation.

(d) Heating effects under conditions of use.

(e) Arcing effects.

(f) Classification by type, size, voltage, current capacity, specific use.

(g) Other factors that contribute to the practical safeguarding of employees using or likely to come in contact with the equipment.

(2) Listed or labeled equipment must be used or installed according to any instructions included in the listing or labeling.

[Recodified as § 296-307-36206. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36206, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36209 What requirements apply to guarding live parts? (1) Unless otherwise indicated, live parts of electric equipment operating at 50 volts or more must be guarded against accidental contact by an approved cabinet or other form of approved enclosure, or by any of the following:

(a) Location in a room, vault, or similar enclosure that is accessible only to qualified persons.

(b) Suitable permanent substantial partitions or screens arranged so that only qualified persons have access to the area within reach of the live parts. Any openings in such partitions or screens must be small enough and located so that employees are not likely to come into accidental contact with live parts or to bring conducting objects into contact with them.

(c) Location on a suitable balcony, gallery, or platform elevated and accessible only to qualified persons.

(d) Elevation of eight feet or more above the floor or other working surface.

(2) In locations where electric equipment would be exposed to physical damage, enclosures or guards must be arranged and be strong enough to prevent damage.

(3) Entrances to rooms and other guarded locations containing exposed live parts must be marked with conspicuous warning signs forbidding unqualified persons to enter.

(4) Electrical repairs must be made only by qualified persons that you authorize.

(5) Fuse handling equipment, insulated for the circuit voltage, must be used to remove or install fuses when the fuse terminals are energized.

(6) Employees must be prohibited from working closely enough to an electric power circuit to contact it unless the employee is protected against electric shock.

Note: The circuit must be protected by deenergizing the circuit and grounding it, by guarding it, by effective insulation, or other means.

(7) In work areas where the exact location of underground electric power lines is unknown, employees using jack-hammers, bars or other hand tools that may contact a line must have insulated protective gloves.

[Recodified as § 296-307-36209. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36209, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36212 What workspace must be provided? (1) When parts are exposed, the minimum clearance for the workspace must be at least six feet six inches high, or at least a radius of three feet wide.

(2) There must be enough clearance to permit at least a 90° opening of all doors or hinged panels.

[Recodified as § 296-307-36212. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36212, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36215 What general requirements apply to splices? Conductors must be spliced or joined with splicing devices suitable for the use or by brazing, welding, or soldering with a fusible metal or alloy. Soldered splices must first be spliced or joined so they are mechanically and electrically secure without solder and then soldered. (Rosin-core solder should be used instead of acid core solder when joining electrical conductors.) All splices and joints and the free ends of conductors must be covered with an insulation equivalent to that of the conductors or with an insulating device suitable for the purpose.

[Recodified as § 296-307-36215. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36215, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36218 What protection must be provided against combustible materials? Parts of electric equipment that in ordinary operation produce arcs, sparks, flames, or molten metal must be enclosed or separated and isolated from all combustible material.

[Recodified as § 296-307-36218. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36218, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36221 How must electrical equipment be marked? All electrical equipment in use must have the manufacturer's name, trademark, or other descriptive marking of the organization responsible for the product on the equipment. Other markings must be provided giving voltage, current, wattage, or other ratings as necessary. The marking must be durable enough to withstand the environment.

[Recodified as § 296-307-36221. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36221, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36224 How must disconnecting means be marked? Each disconnecting means required by this part for motors and appliances must be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident. Each service, feeder, and branch circuit, at its disconnecting means or overcurrent device, must be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident. These markings must be durable enough to withstand the environment involved.

[Recodified as § 296-307-36224. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36224, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36227 What access and working space must be provided for electrical equipment of 600 volts, nominal, or less? Sufficient access and working space must be provided and maintained about all electric equipment to permit ready and safe operation and maintenance of such equipment.

(1) Unless otherwise indicated, the dimension of the working space in the direction of access to live parts operating at 600 volts or less and likely to require examination, adjustment, servicing, or maintenance while alive must be at least that indicated in the table below. Also, workspace must be at least 30 inches wide in front of the electric equipment. Distances must be measured from the live parts if they are exposed, or from the enclosure front or opening if the live parts are enclosed. Concrete, brick, or tile walls are considered grounded. Working space is not required behind assemblies such as dead-front switchboards or motor control centers where there are no renewable or adjustable parts such as fuses or switches on the back and where all connections are accessible from other directions.

Working Clearances

Nominal voltage to ground	Minimum clear distance for condition (ft)		
	(a)	(b)	(c)
0-150	13	13	3
151-600	13	3-1/2	4

Conditions:

- (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides guarded by suitable wood or other insulating material. Insulated wire or insulated busbars operating at 300 volts or less are not considered live parts.
- (b) Exposed live parts on one side and grounded parts on the other side.
- (c) Exposed live parts on both sides of the workspace (not guarded as in (a)) with the operator between.

(2) Working space required by this part must not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, must be suitably guarded.

(3) At least one entrance of sufficient area must be provided to give access to the working space about electric equipment.

(4) Where there are live parts normally exposed on the front of switchboards or motor control centers, the working space in front of such equipment must be at least 3 feet.

(5) All working spaces around service equipment, switchboards, panelboards, and motor control centers installed indoors must be adequately lit.

(6) The minimum headroom of working spaces about service equipment, switchboards, panelboards, or motor control centers must be 6 feet 3 inches.

"Motor control center" means an assembly of one or more enclosed sections having a common power bus and principally containing motor control units.

[Recodified as § 296-307-36227. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36227, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36230 What access and working space must be provided for electrical equipment over 600 volts, nominal?

(1) Conductors and equipment used on circuits exceeding 600 volts, nominal, must meet all requirements of WAC 296-306A-36221 and the additional requirements of this section. This section does not apply to equipment on the supply side of the service conductors.

(2) Electrical installations in a vault, room, closet or area surrounded by a wall, screen, or fence, with access controlled by lock and key or other approved means, are considered accessible to qualified persons only. A wall, screen, or fence less than 8 feet high is not considered to prevent access unless it has other features that provide a degree of isolation equivalent to an 8 foot fence. The entrances to all buildings, rooms, or enclosures containing exposed live parts or exposed conductors operating at over

600 volts, nominal, must be kept locked or under the observation of a qualified person at all times.

(a) Electrical installations with exposed live parts must be accessible to qualified persons only.

(b) Electrical installations that are open to unqualified persons must be made with metal-enclosed equipment or enclosed in a vault or in an area, with access controlled by a lock. If metal-enclosed equipment is installed so that the bottom of the enclosure is less than 8 feet above the floor, the door or cover must be kept locked. Metal-enclosed switchgear, unit substations, transformers, pull boxes, connection boxes, and other similar associated equipment must be marked with appropriate caution signs. If equipment is exposed to physical damage from vehicular traffic, guards must be provided to prevent damage. Ventilating or similar openings in metal-enclosed equipment must be designed so that foreign objects inserted through these openings will be deflected from energized parts.

(3) You must provide and maintain enough space around electric equipment to permit ready and safe operation and maintenance of equipment. Where energized parts are exposed, the minimum clear workspace must be at least 6 feet 6 inches high (measured vertically from the floor or platform), or less than 3 feet wide (measured parallel to the equipment). The depth must meet the requirements of Table T. The workspace must be adequate to permit at least a 90-degree opening of doors or hinged panels.

(a) The minimum clear working space in front of electric equipment such as switchboards, control panels, switches, circuit breakers, motor controllers, relays, and similar equipment must be at least that specified in Table T unless otherwise indicated. Distances must be measured from the live parts if they are exposed, or from the enclosure front or opening if the live parts are enclosed. However, working space is not required in back of equipment such as deadfront switchboards or control assemblies where there are no renewable or adjustable parts (such as fuses or switches) on the back and where all connections are accessible from another direction. Where rear access is required to work on deenergized parts on the back of enclosed equipment, a minimum working space of 30 inches horizontally shall be provided.

Table T
Minimum Depth of Clear Working Space
in Front of Electric Equipment

Nominal voltage to ground	Conditions (ft)		
	(a)	(b)	(c)
601 to 2,500	3	4	5
2,501 to 9,000	4	5	6
9,001 to 25,000	5	6	9
25,001 to 75kV1	6	8	10
Above 75kV1	8	10	12

Note: Minimum depth of clear working space in front of electric equipment with a nominal voltage to ground above 25,000 volts may be the same as

for 25,000 volts under conditions (a), (b) and (c) for installations built prior to April 16, 1981.

Conditions:

- (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides guarded by suitable wood or other insulating materials. Insulated wire or insulated busbars operating at 300 volts or less are not considered live parts.
- (b) Exposed live parts on one side and grounded parts on the other side. Concrete, brick, or tile walls will be considered grounded surfaces.
- (c) Exposed live parts on both sides of the workspace (not guarded as in (a)) with the operator between.

(b) All working spaces around electric equipment must be adequately lit. The lighting outlets shall be arranged so that anyone changing lamps or making repairs on the lighting system will not be endangered by live parts or other equipment. The points of control must be located so that no one is likely to come in contact with any live part or moving part of the equipment while turning on the lights.

(c) Unguarded live parts above working space must be elevated to at least the height specified below:

Elevation of Unguarded Energized Parts Above Working Space

Nominal voltage between phases	Minimum elevation
601 to 7,500	8 feet 6 inches
7,501 to 35,000	9 feet
Over 35kV	9 feet + 0.37 inches per kV above 35kV

Note: Minimum elevation may be 8 feet for installations built prior to April 16, 1981, if the nominal voltage between phases is in the range of 601-6600 volts.

(4) Entrance and access to workspace must meet the following requirements:

(a) At least one entrance that is at least 24 inches wide and 6 feet 6 inches high must be provided to give access to the working space around electric equipment. On switchboard and control panels over 48 inches wide, there must be one entrance at each end of the board where practical. Where bare energized parts at any voltage or insulated energized parts above 600 volts are located adjacent to the entrance, they must be suitably guarded.

(b) Permanent ladders or stairways must be provided to give safe access to the working space around electric equipment installed on platforms, balconies, mezzanine floors, or in attic or roof rooms or spaces.

[Recodified as § 296-307-36230. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36230, filed 10/31/96, effective 12/1/96.]

WAC 296-307-364 Electrical installation and maintenance.

[Recodified as § 296-307-364. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-364, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36403 How must flexible cords and cables be installed and maintained? (1) Extension cords used with portable electric tools and appliances must be three wire and must be fitted with an approved grounding attachment plug and receptacle providing ground continuity.

Exception: This does not apply to cords used with portable tools and equipment provided by an approved system of double insulation or its equivalent.

(2) Worn or frayed electric cables are prohibited.

[Recodified as § 296-307-36403. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36403, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36406 How must attachment plugs and receptacles be installed and maintained? (1) Attachment plugs used in work areas must be constructed so that they will endure rough use and have a suitable cord grip to prevent strain on the terminal screws.

(2) Attachment plugs must be approved grounding plugs.

(3) Receptacles for attachment plugs must have approved concealed contacts with a contact for extending ground continuity. Receptacles must be designed and constructed to ensure that the plug can be pulled out without leaving any live parts exposed to accidental contact.

(4) Polarized attachment plugs, receptacles, and cord connectors must be wired to maintain continuity.

(5) Polarized attachment plugs, receptacles, and cord connectors for plugs and polarized plugs must have the terminal intended for connection to the grounded (white) conductor identified by a metal coating that is mostly white. If the terminal is not visible, its entrance hole must be marked with the word "white," or the color white.

(6) The terminal for the connection of the equipment grounding conductor must be:

- (a) A green colored, not easily removed terminal screw with hexagonal head; or
- (b) A green colored, hexagonal, not easily removed terminal nut; or
- (c) A green colored pressure wire connector.

If the terminal for the grounding conductor is not visible, the conductor entrance hole must be marked with the word "green" or the color green.

Note: Two-wire attachment plugs, unless of the polarity type, need not have their terminals marked for identification.

(7) Where different voltages, or types of current (A.C. or D.C.) are to be supplied by portable cords, receptacles must be designed so that attachment plugs used on the circuits are not interchangeable.

(8) Attachment plugs or other connectors supplying equipment at more than 300 volts must be skirted or otherwise designed so that arcs are confined.

[Recodified as § 296-307-36406. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36406, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36409 What must employees do when equipment causes electrical shock? Employees must report all shocks received from electrical equipment, no

matter how slight, immediately to you. The equipment causing the shock must be checked and any necessary corrective action taken immediately.

[Recodified as § 296-307-36409. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36409, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36412 What grounding and bonding requirements apply to equipment installation and maintenance? (1) The path to ground must have enough carrying capacity to conduct safely the currents likely to be imposed on it; and have low enough impedance to limit the potential above ground and to result in the operation of the overcurrent devices in the circuit.

(2) Driven rod electrodes must, where practical, have a resistance to ground of a maximum of 25 ohms. Where the resistance is over 25 ohms, two electrodes connected in parallel shall be used.

(3) Grounding circuits must be checked to ensure that the circuit between the ground and the grounded power conductor has a resistance that is low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

(4) Conductors used for bonding and grounding equipment must be large enough to carry the anticipated current.

[Recodified as § 296-307-36412. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36412, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36415 What requirements apply to disconnecting means? (1) Disconnecting means must be located or shielded so that employees will not be injured. Using open knife switches is prohibited.

(2) Boxes for disconnecting means must be securely and rigidly fastened to the surface upon which they are mounted, and fitted with covers.

[Recodified as § 296-307-36415. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36415, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36418 What requirements apply to identification and load rating of electrical equipment?

(1) Name plates, rating data, and marks of identification on electrical equipment and electrically operated machines must not be removed, defaced or obliterated.

(2) In existing installations, no changes in circuit protection must be made to increase the load beyond the load rating of the circuit wiring, as specified in the National Electrical Code, NFPA 70-1973; ANSI C1-1972, Article 310.

(3) Tampering with, bridging, or using oversize fuses is prohibited. If fuses blow repeatedly, employees must immediately report the trouble to you or to an authorized electrician.

(4) Attempting to start electric motors that kick out repeatedly is prohibited.

[Recodified as § 296-307-36418. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36418, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36421 How must equipment be installed in wet locations? (1) Cabinets, cutout boxes, fittings, boxes, and panelboard enclosures in damp or wet locations must be installed to prevent moisture or water from entering and accumulating within the enclosures. In wet locations the enclosures must be weatherproof.

(2) Switches, circuit breakers, and switchboards installed in wet locations must be enclosed in weatherproof enclosures.

[Recodified as § 296-307-36421. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36421, filed 10/31/96, effective 12/1/96.]

WAC 296-307-366 Wiring design and protection.

[Recodified as § 296-307-366. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-366, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36603 How must grounded and grounding conductors be used and identified? (1) A conductor used as a grounded conductor must be identified separately from all other conductors. A conductor used as an equipment grounding conductor must be identified separately from all other conductors.

(2) A grounded conductor must not be attached to any terminal or lead to reverse the designated polarity.

(3) Using a grounding terminal or grounding-type device on a receptacle, cord connector, or attachment plug for anything other than grounding is prohibited.

[Recodified as § 296-307-36603. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36603, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36606 What ampere rating must outlet devices have? Outlet devices must have an ampere rating at least equal to the load served.

[Recodified as § 296-307-36606. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36606, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36609 What requirements apply to conductors? This section applies to branch circuit, feeder, and service conductors rated 600 volts, nominal, or less and run outdoors as open conductors.

(1) Conductors supported on poles must provide a horizontal climbing space of at least the following:

(a) For power conductors below communication conductors, 30 inches.

(b) For power conductors alone or above communication conductors:

- 300 volts or less, 24 inches;
- More than 300 volts, 30 inches.

(c) For communication conductors below power conductors with power conductors of:

- 300 volts or less, 30 inches;
- More than 300 volts, 30 inches.

(2) Open conductors must provide at least the following minimum clearances:

(a) 10 feet, above finished grade, sidewalks, or from any platform or projection from which they might be reached;

(b) 12 feet, over areas subject to vehicular traffic other than truck traffic;

(c) 15 feet, over areas that are subject to truck traffic; except

(d) 18 feet, over public streets, alleys, roads, and drive-ways.

(3) Conductors must have a clearance of at least 3 feet from windows, doors, porches, fire escapes, or similar locations. Conductors run above the top level of a window are considered to be out of reach from that window and, therefore, do not have to be 3 feet away.

(4) Conductors must have a clearance of at least 8 feet from the highest point of roofs they pass over.

Exceptions:

(a) Where the voltage between conductors is 300 volts or less and the roof has a slope of at least 4 inches in 12, the clearance from the roofs must be at least 3 feet; or

(b) Where the voltage between conductors is 300 volts or less, the conductors do not pass over more than 4 feet of the overhang portion of the roof, and they are terminated at a through-the-roof raceway or approved support, the clearance from the roofs must be at least 18 inches.

(5) Lamps for outdoor lighting must be located below all live conductors, transformers, or other electric equipment, unless such equipment is controlled by a disconnecting means that can be locked in the open position or unless adequate clearances or other safeguards are provided for relamping operations.

[Recodified as § 296-307-36609. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36609, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36612 What design and protection requirements apply to service-entrances? (1) Disconnecting means for service-entrances must meet the following requirements:

(a) Means must be provided to disconnect all conductors in a building or other structure from the service-entrance conductors. The disconnecting means must plainly indicate whether it is in the open or closed position and must be installed at a readily accessible location nearest the point of entrance of the service-entrance conductors.

(b) Each service disconnecting means must disconnect all ungrounded conductors at the same time.

(2) The following additional requirements apply to services over 600 volts, nominal.

(a) Service-entrance conductors installed as open wires must be guarded to make them accessible only to qualified persons.

(b) Signs warning of high voltage must be posted where other than qualified employees might come in contact with live parts.

[Recodified as § 296-307-36612. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36612, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36615 What overcurrent protection must be provided? (1) The following requirements apply

to overcurrent protection of circuits rated 600 volts, nominal, or less.

(a) Conductors and equipment must be protected from overcurrent according to their ability to safely conduct current.

(b) Except for motor running overload protection, overcurrent devices must not interrupt the continuity of the grounded conductor unless all conductors of the circuit are opened at the same time.

(c) Except for service fuses, all cartridge fuses that are accessible to other than qualified persons and all fuses and thermal cutouts on circuits over 150 volts to ground must have disconnecting means. This disconnecting means must be installed so that the fuse or thermal cutout can be disconnected from its supply without disrupting service to equipment and circuits unrelated to those protected by the overcurrent device.

(d) Overcurrent devices must be readily accessible to each employee or authorized building management personnel. These overcurrent devices must be located where they will be protected against physical damage and away from easily ignitable material.

(e) Fuses and circuit breakers must be located or shielded so that employees will not be burned or otherwise injured by their operation.

(f) Circuit breakers must meet the following requirements:

(i) Circuit breakers must clearly indicate whether they are in the open (off) or closed (on) position.

(ii) Where circuit breaker handles on switchboards are operated vertically rather than horizontally or rotationally, the up position of the handle must be the closed (on) position.

(iii) If used as switches in 120-volt, fluorescent lighting circuits, circuit breakers must be approved for the purpose and marked "SWD."

(2) Feeders and branch circuits over 600 volts, nominal, must have short-circuit protection.

[Recodified as § 296-307-36615. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36615, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36618 What premises wiring systems must be grounded? The following systems that supply premises wiring must be grounded:

(1) All 3-wire DC systems must have their neutral conductor grounded.

(2) Two-wire DC systems operating at 50-300 volts between conductors must be grounded.

Exceptions: This requirement does not apply if:

(a) They supply only industrial equipment in limited areas and are equipped with a ground detector; or

(b) They are rectifier-derived from an AC system that meets the requirements of subsections (3), (4), and (5) of this section; or

(c) They are fire-protective signaling circuits with a maximum current of 0.030 amperes.

(3) AC circuits of less than 50 volts must be grounded if they are installed as overhead conductors outside of buildings or if they are supplied by transformers and the transformer primary supply system is ungrounded or exceeds 150 volts to ground.

(4) AC systems of 50-1000 volts must be grounded under any of the following conditions:

(a) If the system can be grounded so that the maximum voltage to ground on the ungrounded conductors is a maximum of 150 volts;

(b) If the system is nominally rated 480Y/277 volt, 3-phase, 4-wire in which the neutral is used as a circuit conductor;

(c) If the system is nominally rated 240/120 volt, 3-phase, 4-wire in which the midpoint of one phase is used as a circuit conductor; or

(d) If a service conductor is uninsulated.

(5) Exceptions: AC systems of 50-1000 volts are not required to be grounded under any of the following conditions:

(a) If the system is used exclusively to supply industrial electric furnaces for melting, refining, tempering, and the like.

(b) If the system is separately derived and is used exclusively for rectifiers supplying only adjustable speed industrial drives.

(c) If the system is separately derived and is supplied by a transformer that has a primary voltage rating less than 1000 volts, if all of the following conditions are met:

(i) The system is used exclusively for control circuits;

(ii) The conditions of maintenance and supervision ensure that only qualified persons will service the installation;

(iii) Continuity of control power is required; and

(iv) Ground detectors are installed on the control system.

[Recodified as § 296-307-36618. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36618, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36621 Must the conductor be grounded for AC premises wiring? For AC premises wiring systems the identified conductor must be grounded.

[Recodified as § 296-307-36621. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36621, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36624 What general requirements apply to grounding conductors? (1) For a grounded system, a grounding electrode conductor must be used to connect both the equipment grounding conductor and the grounded circuit conductor to the grounding electrode. Both the equipment grounding conductor and the grounding electrode conductor must be connected to the grounded circuit conductor on the supply side of the service disconnecting means, or on the supply side of the system disconnecting means or overcurrent devices if the system is separately derived.

(2) For an ungrounded service-supplied system, the equipment grounding conductor must be connected to the grounding electrode conductor at the service equipment. For an ungrounded separately derived system, the equipment grounding conductor must be connected to the grounding electrode conductor at, or ahead of, the system disconnecting means or overcurrent devices.

(3) On extensions of existing branch circuits that do not have an equipment grounding conductor, grounding-type receptacles may be grounded to a grounded cold water pipe near the equipment.

[Recodified as § 296-307-36624. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36624, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36627 Must the path to ground be continuous? The path to ground from circuits, equipment, and enclosures must be permanent and continuous.

[Recodified as § 296-307-36627. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36627, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36630 What supports, enclosures, and equipment must be grounded? (1) Metal cable trays, metal raceways, and metal enclosures for conductors must be grounded.

Exceptions:

(a) Metal enclosures such as sleeves that are used to protect cable assemblies from physical damage need not be grounded; or

(b) Metal enclosures for conductors added to existing installations of open wire, knob-and-tube wiring, and nonmetallic-sheathed cable need not be grounded if all of the following conditions are met:

(i) Runs are less than 25 feet;

(ii) Enclosures are free from probable contact with ground, grounded metal, metal laths, or other conductive materials; and

(iii) Enclosures are guarded against employee contact.

(2) Metal enclosures for service equipment must be grounded.

(3) Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers, and metal outlet or junction boxes that are part of the circuit for these appliances must be grounded.

(4) Exposed noncurrent-carrying metal parts of fixed equipment that may become energized must be grounded under any of the following conditions:

(a) If within 8 feet vertically or 5 feet horizontally of ground or grounded metal objects and subject to employee contact;

(b) If located in a wet or damp location and not isolated;

(c) If in electrical contact with metal;

(d) If in a hazardous (classified) location;

(e) If supplied by a metal-clad, metal-sheathed, or grounded metal raceway wiring method;

(f) If equipment operates with any terminal at over 150 volts to the ground; however, the following need not be grounded:

(i) Enclosures for switches or circuit breakers used for other than service equipment and accessible to qualified persons only;

(ii) Metal frames of electrically heated appliances that are permanently and effectively insulated from ground; and

(iii) The cases of distribution apparatus such as transformers and capacitors mounted on wooden poles that are over 8 feet above ground or grade level.

(5) Under any of the conditions below, exposed noncurrent-carrying metal parts of cord-connected and plug-

connected equipment that may become energized must be grounded.

(a) When equipment is in hazardous (classified) locations.

(b) When equipment is operated at over 150 volts to ground.

Exception: Guarded motors and metal frames of electrically heated appliances need not be grounded if the appliance frames are permanently and effectively insulated from ground.

(c) When equipment is one of the following:

- Refrigerators, freezers, and air conditioners;
- Clothes-washing, clothes-drying and dishwashing machines, sump pumps, and electrical aquarium equipment;
- Hand-held motor-operated tools;
- The following motor-operated appliances: Hedge clippers, lawn mowers, snow blowers, and wet scrubbers;
- Cord-connected and plug-connected appliances used in damp or wet locations or by employees standing on the ground or on metal floors or working inside of metal tanks or boilers;
- Tools likely to be used in wet and conductive locations; and
- Portable hand lamps.

Tools likely to be used in wet and conductive locations need not be grounded if supplied through an isolating transformer with an ungrounded secondary of a maximum of 50 volts. Listed or labeled portable tools and appliances protected by an approved system of double insulation, or its equivalent, need not be grounded. The equipment must be distinctively marked to indicate that the tool or appliance uses an approved system of double insulation.

(6) The metal parts of the following nonelectrical equipment must be grounded: Frames and tracks of electrically operated cranes; frames of nonelectrically driven elevator cars to which electric conductors are attached; hand operated metal shifting ropes or cables of electric elevators, and metal partitions, grill work, and other metal enclosures around equipment of over 750 volts between conductors.

[Recodified as § 296-307-36630. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36630, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36633 How must fixed equipment be grounded? (1) Noncurrent-carrying metal parts of fixed equipment, if required to be grounded by this section, must be grounded by an equipment grounding conductor that is contained within the same raceway, cable, or cord, or runs with or encloses the circuit conductors. For DC circuits only, the equipment grounding conductor may be run separately from the circuit conductors.

(2) Electric equipment is considered grounded if it is secured to, and in electrical contact with, a metal rack or structure that is provided for its support and the metal rack or structure is grounded as described above.

For installations made before May 30, 1982, electric equipment is also considered grounded if it is secured to, and in metallic contact with, the grounded structural metal frame of a building. Metal car frames supported by metal hoisting cables attached to or running over metal sheaves or

drums of grounded elevator machines are also considered grounded.

[Recodified as § 296-307-36633. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36633, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36636 How must high voltage systems be grounded? Grounded high voltage (1000 volts or more) systems and circuits must meet all requirements of WAC 296-306A-366 and the additional requirements of this section.

(1) Systems supplying portable or mobile high voltage equipment, other than substations installed on a temporary basis, must meet the following requirements:

(a) Portable and mobile high voltage equipment must be supplied from a system having its neutral grounded through an impedance. If a delta-connected high voltage system is used to supply the equipment, a system neutral must be derived.

(b) Exposed noncurrent-carrying metal parts of portable and mobile equipment must be connected by an equipment grounding conductor to the point at which the system neutral impedance is grounded.

(c) Ground-fault detection and relaying must be provided to automatically deenergize any high voltage system component that has developed a ground fault. The continuity of the equipment grounding conductor must be continuously monitored to deenergize automatically the high voltage feeder to the portable equipment on loss of continuity of the equipment grounding conductor.

(d) The grounding electrode to which the portable or mobile equipment system neutral impedance is connected must be isolated from and separated in the ground by at least 20 feet from any other system or equipment grounding electrode. There must be no direct connection between the grounding electrodes, such as buried pipe, fence, etc.

(2) All noncurrent-carrying metal parts of portable equipment and fixed equipment including their associated fences, housings, enclosures, and supporting structures shall be grounded. However, equipment that is guarded by location and isolated from ground need not be grounded. Additionally, pole-mounted distribution apparatus over 8 feet above ground or grade level need not be grounded.

[Recodified as § 296-307-36636. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36636, filed 10/31/96, effective 12/1/96.]

WAC 296-307-368 Wiring methods, components, and equipment for general use.

[Recodified as § 296-307-368. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-368, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36803 Does this section apply to factory-assembled equipment? WAC 296-306A-368 does not apply to conductors that are an integral part of factory-assembled equipment.

[Recodified as § 296-307-36803. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-307-36803, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36806 What wiring methods must be used for temporary wiring? Temporary electrical power and lighting wiring methods may be of a class less than would be required for a permanent installation. All requirements for permanent wiring apply to temporary wiring installations, except as indicated in this section.

(1) Temporary electrical power and lighting installations 600 volts, nominal, or less must only be used:

(a) During and for remodeling, maintenance, repair, or demolition of buildings, structures, or equipment, and similar activities;

(b) For experimental or development work; and

(c) For a maximum of 90 days for Christmas lighting and similar purposes.

(2) Temporary wiring over 600 volts, nominal, must only be used during periods of tests, experiments, or emergencies.

(3) General requirements for temporary wiring.

(a) Working spaces, walkways, and similar locations must be kept clear of power cords.

(b) All temporary wiring must be grounded. (See NFPA 70 Art. 250.)

(c) All wiring equipment must be maintained as vapor-tight, dust-tight, or fiber-tight as their approval requires. There must be no loose or missing screws, gaskets, threaded connections, or other conditions that impair the required tightness.

(d) Take precautions to make necessary open wiring accessible only to authorized personnel.

(e) Feeders must originate in an approved distribution center. The conductors must be run as multiconductor cord or cable assemblies, or, where not subject to physical damage, they may be run as open conductors on insulators not more than 10 feet apart.

(f) Branch circuits must originate in an approved power outlet or panelboard. Conductors must be multiconductor cord or cable assemblies or open conductors. If run as open conductors they must be fastened at ceiling height every 10 feet. A branch-circuit conductor must not be laid on the floor. Each branch circuit that supplies receptacles or fixed equipment must have a separate equipment grounding conductor if run as open conductors.

(g) Receptacles must be of the grounding type. Unless installed in a complete metallic raceway, each branch circuit must have a separate equipment grounding conductor and all receptacles must be electrically connected to the grounding conductor.

(h) A bare conductor or an earth return must not be used to wire any temporary circuit.

(i) Suitable disconnecting switches or plug connectors must be installed to permit the disconnection of all ungrounded conductors of each temporary circuit.

(j) Lamps for general illumination must be protected from accidental contact or breakage. Lamps must be elevated at least 7 feet from normal working surface or by a suitable fixture or lampholder with a guard.

(k) Flexible cords and cables must be protected from accidental damage. Sharp corners and projections must be avoided. Where passing through doorways or other pinch points, flexible cords and cables must be protected to avoid damage.

(4) General requirements for temporary lighting.

(a) Temporary lights must have guards to prevent accidental contact with the bulb.

Note: Guards are not required when the entire bulb is below the rim and completely surrounded and protected by the reflector.

(b) Temporary lights must have heavy duty electric cords with connections and insulation maintained in safe condition.

(c) Temporary lights must not be suspended by their electric cords unless cords and lights are designed for suspension.

(d) Brass shell, paper-lined lamp holders are prohibited.

(e) Portable extension lamps used where flammable vapors or gases, combustible dusts, or easily ignitable fibers or flyings are present, must be specifically approved as complete assemblies for the type of hazard.

[Recodified as § 296-307-36806. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-307-36806, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36809 When may cable trays be used? (1) Only the following may be installed in cable tray systems:

(a) Mineral-insulated metal-sheathed cable (Type MI);

(b) Armored cable (Type AC);

(c) Metal-clad cable (Type MC);

(d) Power-limited tray cable (Type PLTC);

(e) Nonmetallic-sheathed cable (Type NM or NMC);

(f) Shielded nonmetallic-sheathed cable (Type SNM);

(g) Multiconductor service-entrance cable (Type SE or USE);

(h) Multiconductor underground feeder and branch-circuit cable (Type UF);

(i) Power and control tray cable (Type TC);

(j) Other factory-assembled, multiconductor control, signal, or power cables that are specifically approved for installation in cable trays; or

(k) Any approved conduit or raceway with its contained conductors.

(2) In industrial establishments only, where conditions of maintenance and supervision ensure that only qualified persons will service the installed cable tray system, the following cables may also be installed in ladder, ventilated trough, or 4 inch ventilated channel-type cable trays:

Single conductor cables that are 250 MCM or larger and are Types RHH, RHW, MV, USE, or THW, and other 250 MCM or larger single conductor cables if specifically approved for installation in cable trays. Where exposed to direct rays of the sun, cables must be sunlight-resistant.

(3) Cable trays in hazardous (classified) locations must contain only the cable types permitted in such locations.

Exception: Cable tray systems must not be used in hoistways or where subjected to severe physical damage.

[Recodified as § 296-307-36809. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36809, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36812 What requirements apply to open wiring on insulators? (1) Open wiring on insulators is only permitted on systems of 600 volts, nominal, or less for industrial or agricultural establishments and for services.

(2) Conductors must be rigidly supported on noncombustible, nonabsorbent insulating materials and must not contact any other objects.

(3) In dry locations with no exposure to severe physical damage, conductors may be separately enclosed in flexible nonmetallic tubing. The tubing must be in continuous lengths a maximum of 15 feet and secured to the surface by straps at maximum intervals of 4 feet 6 inches.

(4) Open conductors must be separated from contact with walls, floors, and wood cross members, or partitions through which they pass by tubes or bushings of noncombustible, nonabsorbent insulating material. If the bushing is shorter than the hole, a waterproof sleeve of nonconductive material must be inserted in the hole and an insulating bushing slipped into the sleeve at each end to keep the conductors completely out of contact with the sleeve. Each conductor must be carried through a separate tube or sleeve.

(5) Conductors within 7 feet of the floor are considered exposed to physical damage. Where open conductors cross ceiling joints and wall studs and are exposed to physical damage, they must be protected.

[Recodified as § 296-307-36812. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36812, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36815 What wiring requirements apply to cabinets, boxes, and fittings? (1) Conductors entering boxes, cabinets, or fittings must be protected from abrasion, and openings through which conductors enter must be closed. Unused openings in cabinets, boxes, and fittings must also be closed.

(2) All pull boxes, junction boxes, and fittings must have covers approved for the purpose. All metal covers must be grounded. In completed installations each outlet box must have a cover, faceplate, or fixture canopy. A cover of an outlet box with holes through which a flexible cord pendant passes must have bushings designed for the purpose or have a smooth, well-rounded surface for the cord to run on.

(3) All pull and junction boxes for systems over 600 volts, nominal, must meet the following requirements:

(a) Boxes must provide a complete enclosure for the contained conductors or cables.

(b) Boxes must be closed by suitable covers securely fastened in place. Underground box covers that weigh over 100 pounds meet this requirement. Covers for boxes must be permanently marked "HIGH VOLTAGE." The marking must be on the outside of the box cover and must be readily visible and legible.

[Recodified as § 296-307-36815. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36815, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36818 What requirements apply to switches? (1) Single-throw knife switches must be connected so that the blades are dead when the switch is in the open position. Single-throw knife switches must be placed so that gravity will not tend to close them. Single-throw knife switches approved for use in the inverted position must have a locking device that keeps the blades open when set. Double-throw knife switches may be mounted so that the throw will be either vertical or horizontal. However, if the throw is vertical a locking device must be provided to ensure that the blades remain open when so set.

(2) Flush snap switches that are mounted in ungrounded metal boxes and located within reach of conducting floors or other conducting surfaces must have faceplates of nonconducting, noncombustible material.

[Recodified as § 296-307-36818. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36818, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36821 Where must switchboards and panelboards be located? Switchboards that have any exposed live parts must be located in permanently dry locations and accessible only to qualified persons. Panelboards must be mounted in cabinets, cutout boxes, or enclosures approved for the purpose and must be dead front. However, panelboards other than the dead front externally operable type are permitted where accessible only to qualified persons. Exposed blades of knife switches must be dead when open.

[Recodified as § 296-307-36821. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36821, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36824 When must conductors be insulated? All conductors used for general wiring must be insulated unless otherwise permitted in this section. The conductor insulation must be approved for the voltage, operating temperature, and location of use. Insulated conductors must be distinguishable by appropriate color or other means as grounded conductors, ungrounded conductors, or equipment grounding conductors.

[Recodified as § 296-307-36824. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36824, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36827 When may flexible cords and cables be used? (1) Flexible cords and cables must be approved and suitable for conditions of use and location. Flexible cords and cables must be used only for:

- (a) Pendants;
- (b) Wiring of fixtures;
- (c) Connection of portable lamps or appliances;
- (d) Elevator cables;
- (e) Wiring of cranes and hoists;
- (f) Connection of stationary equipment to facilitate frequent interchange;
- (g) Prevention of the transmission of noise or vibration;
- (h) Appliances where the fastening means and mechanical connections are designed to permit removal for maintenance and repair; or

(i) Data processing cables approved as a part of the data processing system.

(2) If used as permitted above, the flexible cord must have an attachment plug and shall be energized from an approved receptacle outlet.

(3) Unless permitted in subsection (1) of this section, flexible cords and cables must not be used:

- (a) As a substitute for the fixed wiring of a structure;
- (b) Where run through holes in walls, ceilings, or floors;
- (c) Where run through doorways, windows, or similar openings;
- (d) Where attached to building surfaces; or
- (e) Where concealed behind building walls, ceilings, or floors.

(4) Flexible cords used in show windows and showcases must be Type S, SO, SJ, SJO, ST, STO, SJT, SJTO, or AFS except for the wiring of chain-supported lighting fixtures and supply cords for portable lamps and other merchandise being displayed or exhibited.

[Recodified as § 296-307-36827. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36827, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36830 How must flexible cords and cables be identified, spliced, and terminated? (1) A conductor of a flexible cord or cable that is used as a grounded conductor or an equipment grounding conductor must be distinguishable from other conductors. Types SJ, SJO, SJT, SJTO, S, SO, ST, and STO must be durably marked on the surface with the type designation, size, and number of conductors.

(2) Flexible cords must be used only in continuous lengths without splice or tap. Vulcanized splices or equivalent means such as systems using shrinkable materials may be used to repair flexible cords. Hard service flexible cords No. 12 or larger may be repaired by splice if the splice retains the insulation, outer sheath properties, and usage characteristics of the cord being spliced.

(3) Flexible cords must be connected to devices and fittings so that strain relief is provided to prevent pull from being directly transmitted to joints or terminal screws.

[Recodified as § 296-307-36830. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36830, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36833 What requirements apply to multiconductor portable cable? Multiconductor portable cable for use in supplying power to portable or mobile equipment at over 600 volts, nominal, must consist of No. 8 or larger conductors employing flexible stranding. Cables operated at over 2,000 volts must be shielded to confine the voltage stresses to the insulation. Grounding conductors must be provided. Connectors for these cables must be locking with provisions to prevent their opening or closing while energized. Strain relief must be provided at connections and terminations. Portable cables must not be operated with splices unless the splices are permanent molded, vulcanized, or other approved type. Termination enclosures must be suitably marked with a high voltage hazard warning, and terminations must be accessible only to authorized and qualified personnel.

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[Recodified as § 296-307-36833. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36833, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36836 When may fixture wires be used? (1) A fixture wire must be approved for the voltage, temperature, and location of use. A fixture wire used as a grounded conductor must be identified.

(2) Fixture wires may be used:

(a) For installation in lighting fixtures and in similar equipment where enclosed or protected and not subject to bending or twisting in use; or

(b) For connecting lighting fixtures to the branch-circuit conductors supplying the fixtures.

(3) Fixture wires must not be used as branch-circuit conductors except as permitted for Class 1 power limited circuits.

[Recodified as § 296-307-36836. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36836, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36839 What requirements apply to wiring for lighting fixtures, lampholders, lamps, and receptacles? (1) Fixtures, lampholders, lamps, rosettes, and receptacles must have no live parts normally exposed to employee contact. However, rosettes and cleat-type lampholders and receptacles located at least 8 feet above the floor may have exposed parts.

(2) Handlamps of the portable type supplied through flexible cords must have a handle of molded composition or other material approved for the purpose, and a substantial guard must be attached to the lampholder or the handle.

(3) Lampholders of the screw-shell type must be installed for use as lampholders only. Lampholders installed in wet or damp locations must be weatherproof.

(4) Fixtures installed in wet or damp locations must be approved for the purpose and must be constructed or installed so that water cannot enter or accumulate in wireways, lampholders, or other electrical parts.

[Recodified as § 296-307-36839. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36839, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36842 What requirements apply to wiring for receptacles, cord connectors, and attachment plugs (caps)? (1) Receptacles, cord connectors, and attachment plugs must be constructed so that no receptacle or cord connector will accept an attachment plug with a different voltage or current rating than that for which the device is intended. However, a 20-ampere T-slot receptacle or cord connector may accept a 15-ampere attachment plug of the same voltage rating.

(2) A receptacle installed in a wet or damp location must be suitable for the location.

[Recodified as § 296-307-36842. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36842, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36845 What requirements apply to wiring for appliances? (1) Appliances, other than those in which the current-carrying parts at high temperatures are

necessarily exposed, must have no live parts normally exposed to employee contact.

(2) Each appliance must have a disconnecting means.

(3) Each appliance must be marked with its rating in volts and amperes or volts and watts.

[Recodified as § 296-307-36845. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36845, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36848 What requirements apply to wiring for motors, motor circuits, and controllers? (1) If specified that one piece of equipment must be "in sight from" another piece of equipment, one shall be visible and not more than 50 feet from the other.

(2) Disconnecting means must meet the following requirements:

(a) A disconnecting means must be located in sight from the controller location. However, a single disconnecting means may be located adjacent to a group of coordinated controllers mounted adjacent to each other or a multimotor continuous process machine. The controller disconnecting means for motor branch circuits over 600 volts, nominal, may be out of sight of the controller, if the controller is marked with a warning label giving the location and identification of the disconnecting means which is to be locked in the open position.

(b) The disconnecting means must disconnect the motor and the controller from all ungrounded supply conductors and must be designed so that no pole can be operated independently.

(c) If a motor and the driven machinery are not in sight from the controller location, the installation must meet one of the following conditions:

(i) The controller disconnecting means must be able to be locked in the open position.

(ii) A manually operable switch that will disconnect the motor from its source of supply must be placed in sight from the motor location.

(d) The disconnecting means must plainly indicate whether it is in the open (off) or closed (on) position.

(e) The disconnecting means must be readily accessible. If more than one disconnect is provided for the same equipment, only one need be readily accessible.

(f) An individual disconnecting means must be provided for each motor, but a single disconnecting means may be used for a group of motors under any of the following conditions:

(i) If a number of motors drive special parts of a single machine or piece of apparatus, such as a metal or wood-working machine, crane, or hoist; or

(ii) If a group of motors is under the protection of one set of branch-circuit protective devices; or

(iii) If a group of motors is in a single room in sight from the location of the disconnecting means.

(3) Motors, motor-control apparatus, and motor branch-circuit conductors must be protected against overheating from motor overloads or failure to start, and against short-circuits or ground faults. Overload protection is not required if it will stop a motor where a shutdown is likely to introduce additional or increased hazards, as in the case of fire

pumps, or where continued operation of a motor is necessary for a safe shutdown of equipment or process and motor overload sensing devices are connected to a supervised alarm.

(4) Live parts of all voltages must be protected according to the following:

(a) Stationary motors with commutators, collectors, and brush rigging located inside of motor end brackets and not conductively connected to supply circuits operating at more than 150 volts to ground may have those parts unguarded. Exposed live parts of motors and controllers operating at 50 volts or more between terminals must be guarded against accidental contact by any of the following:

(i) By installation in a room or enclosure that is accessible only to qualified persons;

(ii) By installation on a suitable balcony, gallery, or platform, elevated and arranged to exclude unqualified persons; or

(iii) By elevation 8 feet or more above the floor.

(b) Where live parts of motors or controllers operating at over 150 volts to ground are guarded against accidental contact only by location, and where adjustment or other attendance may be necessary during the operation of the apparatus, suitable insulating mats or platforms must be provided so that the attendant cannot readily touch live parts unless standing on the mats or platforms.

[Recodified as § 296-307-36848. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36848, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36851 What requirements apply to wiring for transformers? (1) This section applies to the installation of all transformers.

Exceptions:

(a) Current transformers;

(b) Dry-type transformers installed as a component part of other apparatus;

(c) Transformers that are an integral part of a high frequency or electrostatic-coating apparatus;

(d) Transformers used with Class 2 and Class 3 circuits, sign and outline lighting, electric discharge lighting, and power-limited fire-protective signaling circuits; and

(e) Liquid-filled or dry-type transformers used for research, development, or testing, where effective safeguard arrangements are provided.

(2) The operating voltage of exposed live parts of transformer installations must be indicated by warning signs or visible markings on the equipment or structure.

(3) Dry-type, high fire point liquid-insulated, and askarel-insulated transformers installed indoors and rated over 35kV must be in a vault.

(4) If they present a fire hazard to employees, oil-insulated transformers installed indoors must be in a vault.

(5) Combustible material, combustible buildings and parts of buildings, fire escapes, and door and window openings must be safeguarded from fires that may originate in oil-insulated transformers attached or adjacent to a building or combustible material.

(6) Transformer vaults must be constructed to contain fire and combustible liquids within the vault and to prevent unauthorized access. Locks and latches must be arranged so that a vault door can be readily opened from the inside.

(7) Any pipe or duct system foreign to the vault installation must not enter or pass through a transformer vault.

(8) Materials must not be stored in transformer vaults.

[Recodified as § 296-307-36851. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36851, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36854 What requirements apply to wiring for capacitors? (1) All capacitors, except surge capacitors or capacitors included as a component part of other apparatus, must have an automatic means of draining the stored charge after the capacitor is disconnected from its source of supply.

(2) Capacitors rated over 600 volts, nominal, must meet the following additional requirements:

(a) Isolating or disconnecting switches (with no interrupting rating) must be interlocked with the load interrupting device or must have prominently displayed caution signs to prevent switching load current.

(b) For series capacitors, the proper switching must be ensured by any of the following:

(i) Mechanically sequenced isolating and bypass switches;

(ii) Interlocks; or

(iii) Switching procedure prominently displayed at the switching location.

[Recodified as § 296-307-36854. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36854, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36857 How must storage batteries be ventilated? You must ensure that there is sufficient diffusion and ventilation of gases from storage batteries to prevent the accumulation of explosive mixtures.

[Recodified as § 296-307-36857. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36857, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36860 What other miscellaneous requirements apply to wiring methods? (1) Metal raceways, cable armor, and other metal enclosures for conductors must be metallically joined into a continuous electric conductor and must be connected to all boxes, fittings, and cabinets to provide effective electrical continuity.

(2) All wiring systems are prohibited from being installed in ducts used to transport dust, loose stock or flammable vapors. All wiring system are prohibited from being installed in any duct used for vapor removal or for ventilation of commercial-type cooking equipment, or in any shaft containing only such ducts.

[Recodified as § 296-307-36860. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-36860, filed 10/31/96, effective 12/1/96.]

WAC 296-307-370 Special purpose equipment and installations.

[Recodified as § 296-307-370. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-370, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37003 What requirements apply to cranes, hoists, and runways? The installation of electric equipment and wiring used with cranes, monorail hoists, hoists, and all runways must meet the following requirements:

(1) Disconnecting means must meet the following requirements:

(a) A readily accessible disconnecting means is provided between the runway contact conductors and the power supply.

(b) Another disconnecting means, capable of being locked in the open position, is provided in the leads from the runway contact conductors or other power supply on any crane or monorail hoist.

(i) If this additional disconnection means is not readily accessible from the crane or monorail hoist operating station, means is provided at the operating station, to open the power circuit to all motors of the crane or monorail hoist.

(ii) The additional disconnect may be omitted if a monorail hoist or hand-propelled crane bridge installation meets all of the following:

(A) The unit is floor controlled;

(B) The unit is within view of the power supply disconnecting means; and

(C) No fixed work platform has been provided for servicing the unit.

(2) A limit switch or other device shall be provided to prevent the load block from passing the safe upper limit of travel of any hoisting mechanism.

(3) The dimension of the working space in the direction of access to live parts that may require examination, adjustment, servicing, or maintenance while alive must be a minimum of 2 feet 6 inches. Where controls are enclosed in cabinets, the door must either open at least 90 degrees or be removable.

[Recodified as § 296-307-37003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37006 What requirements apply to elevators, dumbwaiters, escalators, and moving walks?

(1) Elevators, dumbwaiters, escalators, and moving walks must have a single means for disconnecting all ungrounded main power supply conductors for each unit.

(2) If interconnections between control panels are necessary for operation of the system on a multicar installation that remains energized from a source other than the disconnecting means, a warning sign must be mounted on or adjacent to the disconnecting means. The sign must be clearly legible and shall read "Warning—Parts of the control panel are not deenergized by this switch."

(3) If control panels are not located in the same space as the drive machine, they must be located in cabinets with doors or panels capable of being locked closed.

[Recodified as § 296-307-37006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37009 What requirements apply to the disconnecting means for electric welders? (1) A disconnecting means must be provided in the supply circuit for each motor-generator arc welder, and for each AC transformer and DC rectifier arc welder that is not equipped with a disconnect mounted as an integral part of the welder.

(2) A switch or circuit breaker must be provided by which each resistance welder and its control equipment can be isolated from the supply circuit. The ampere rating of this disconnecting means must not be less than the supply conductor ampacity.

[Recodified as § 296-307-37009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37012 What requirements apply to electrically driven or controlled irrigation machines? (1) If an electrically driven or controlled irrigation machine has a stationary point, a driven ground rod must be connected to the machine at the stationary point for lightning protection.

(2) The main disconnecting means for a center pivot irrigation machine must be located at the point of connection of electrical power to the machine and must be readily accessible and capable of being locked in the open position. A disconnecting means must be provided for each motor and controller.

[Recodified as § 296-307-37012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-372 Hazardous (classified) locations.

[Recodified as § 296-307-372. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-372, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37203 What does this section cover? WAC 296-306A-372 covers the requirements for electric equipment and wiring in locations that are classified based on the properties of the flammable vapors, liquids or gases, or combustible dusts or fibers that may be present and the likelihood that a flammable combustible concentration or quantity is present. Each room, section, or area must be considered individually to determine its classification.

All requirements in this part apply to hazardous locations, unless otherwise indicated.

[Recodified as § 296-307-37203. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37203, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37206 What classifications apply to this section? These hazardous locations are classified as follows:

(1) "Class I locations" are those in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures. They include the following:

(a) Class I, Division 1 locations are those where:

(i) Hazardous concentrations of flammable gases or vapors may exist under normal operating conditions; or

(ii) Hazardous concentrations of such gases or vapors may exist frequently because of repair or maintenance operations or because of leakage; or

(iii) Breakdown or faulty operation of equipment or processes might release hazardous concentrations of flammable gases or vapors, and might also cause simultaneous failure of electric equipment.

This classification usually includes locations where:

- Volatile flammable liquids or liquefied flammable gases are transferred from one container to another;

- Interiors of spray booths and areas in the vicinity of spraying and painting operations where volatile flammable solvents are used;

- Locations containing open tanks or vats of volatile flammable liquids;

- Drying rooms or compartments for the evaporation of flammable solvents;

- Locations containing fat and oil extraction equipment using volatile flammable solvents;

- Gas generator rooms and other portions of gas manufacturing plants where flammable gas may escape;

- Inadequately ventilated pump rooms for flammable gas or for volatile flammable liquids;

- The interiors of refrigerators and freezers in which volatile flammable materials are stored in open, lightly stoppered, or easily ruptured containers; and

- All other locations where ignitable concentrations of flammable vapors or gases are likely to occur in the course of normal operations.

(b) Class I, Division 2 locations are those where:

(i) Volatile flammable liquids or flammable gases are handled, processed, or used, but in which the hazardous liquids, vapors, or gases are normally confined within closed containers or systems from which they can escape only in an accidental rupture or breakdown of containers or systems, or in case of abnormal operation of equipment; or

(ii) Hazardous concentrations of gases or vapors are normally prevented by positive mechanical ventilation, and which might become hazardous through failure or abnormal operation of the ventilating equipment; or

(iii) They are adjacent to a Class I, Division 1 location, and to which hazardous concentrations of gases or vapors might occasionally be communicated unless prevented by adequate positive-pressure ventilation from a source of clean air, and effective safeguards against ventilation failure are provided.

This classification usually includes locations where:

- Volatile flammable liquids or flammable gases or vapors are used, but which would become hazardous only in case of an accident or unusual operating condition. The quantity of flammable material that might escape in case of accident, the adequacy of ventilating equipment, the total area involved, and the record of the industry or business with respect to explosions or fires are all factors to consider in determining the classification.

- Piping without valves, checks, meters, and similar devices would not ordinarily introduce a hazardous condition even though used for flammable liquids or gases. Locations used for the storage of flammable liquids or a liquefied or

compressed gases in sealed containers are not normally considered hazardous unless also subject to other hazardous conditions.

- Electrical conduits and their enclosures separated from process fluids by a single seal or barrier are Division 2 locations if the outside of the conduit and enclosures is a nonhazardous location.

(2) "Class II locations" are those that are hazardous because of the presence of combustible dust. They include the following:

(a) Class II, Division 1 locations are those where:

(i) Combustible dust is or may be suspended in the air under normal operating conditions, in quantities sufficient to produce explosives or ignitable mixtures; or

(ii) Mechanical failure or abnormal operation of machinery or equipment might produce explosive or ignitable, and might also provide a source of ignition through simultaneous failure of electric equipment, operation of protection devices, or from other causes; or

(iii) Combustible dusts of an electrically conductive nature may be present.

This classification may include areas of grain handling and processing plants, starch plants, sugar-pulverizing plants, malting plants, hay-grinding plants, coal pulverizing plants, areas where metal dusts and powders are produced or processed, and other similar locations that contain dust producing machinery and equipment (except where the equipment is dust-tight or vented to the outside). These areas would have combustible dust in the air, under normal operating conditions, in quantities sufficient to produce explosive or ignitable mixtures.

Combustible dusts that are electrically nonconductive include dusts produced in the handling and processing of grain and grain products, pulverized sugar and cocoa, dried egg and milk powders, pulverized spices, starch and pastes, potato and wood flour, oil meal from beans and seed, dried hay, and other organic materials that may produce combustible dusts when processed or handled. Dusts containing magnesium or aluminum are particularly hazardous and the use of extreme caution is necessary to avoid ignition and explosion.

(b) Class II, Division 2 location are those where:

(i) Combustible dust is not normally suspended in the air in quantities sufficient to produce explosive or ignitable mixtures; and dust accumulations are normally insufficient to interfere with the normal operation of electrical equipment or other apparatus; or

(ii) Dust may be in suspension in the air as a result of infrequent malfunctioning of handling or processing equipment, and resulting dust accumulations may be ignitable by abnormal operation or failure of electrical equipment or other apparatus.

This classification includes locations where dangerous concentrations of suspended dust would not be likely but where dust accumulations might form on or in the vicinity of electric equipment. These areas may contain equipment from which appreciable quantities of dust would escape under abnormal operating conditions or be adjacent to a Class II Division 1 location into which an explosive or ignitable concentration of dust may be suspended under abnormal operating conditions.

(3) "Class III locations" are those that are hazardous because of the presence of easily ignitable fibers or flyings but in which such fibers or flyings are not likely to be suspended in the air in quantities sufficient to produce ignitable mixtures. They include the following:

(a) Class III, Division 1 locations are those where easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used.

Such locations usually include combustible fiber manufacturing and processing plants; cotton gins and cottonseed mills; flax-processing plants; and industries involving similar hazardous processes or conditions.

Easily ignitable fibers and flyings include rayon, cotton (including cotton linters and cotton waste), sisal or henequen, istle, jute, hemp, tow, cocoa fiber, oakum, baled waste kapok, Spanish moss, excelsior, and other materials of similar nature.

(b) Class III, Division 2 locations are those where easily ignitable fibers are stored or handled, except in process of manufacture.

[Recodified as § 296-307-37206. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37206, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37209 What equipment, wiring methods, and installations may be used in hazardous locations? Equipment, wiring methods, and installations of equipment in hazardous locations must be intrinsically safe, or approved for the hazardous location, or safe for the hazardous location. Requirements for each of these options are as follows:

(1) Equipment and associated wiring approved as intrinsically safe are permitted in any hazardous location for which it is approved.

(2) Requirements to be approved for the hazardous location:

(a) Equipment must be approved for the class of location and for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present.

(b) Equipment must be marked to show the class, group, and operating temperature or temperature range, based on operation in a 40 degrees C ambient, for which it is approved. The temperature marking must be a maximum of the ignition temperature of the specific gas or vapor to be encountered. The following provisions apply to specific equipment:

(i) Nonheat-producing equipment, such as junction boxes, conduit, and fittings, and heat-producing equipment with a maximum temperature of 100 degrees C (212 degrees F) need not have a marked operating temperature or temperature range.

(ii) Fixed lighting fixtures marked for use in Class I, Division 2 locations only, need not be marked to indicate the group.

(iii) Fixed general-purpose equipment in Class I locations (other than lighting fixtures) that is acceptable for use in Class I, Division 2 locations need not be marked with the class, group, division, or operating temperature.

(iv) Fixed dust-tight equipment (other than lighting fixtures) that is acceptable for use in Class II, Division 2 and

Class III locations need not be marked with the class, group, division, or operating temperature.

(3) Equipment that is safe for the location shall be of a type and design that provides protection from the hazards arising from combustible and flammable vapors, liquids, gases, dusts, or fibers.

Note: Equipment that meets the requirements of The National Electrical Code, NFPA 70, shall be considered in compliance with the requirements of WAC 296-306A-372.

[Recodified as § 296-307-37209. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37209, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37212 How must conduit be installed in hazardous locations? All conduits must be threaded and wrench-tight. Where it is impractical to make a threaded joint tight, a bonding jumper must be used.

[Recodified as § 296-307-37212. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37212, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37215 Which equipment may be used in Division 1 and 2 locations? Equipment that has been approved for a Division 1 location may be installed in a Division 2 location of the same class and group. General-purpose equipment or equipment in general-purpose enclosures may be installed in Division 2 locations if the equipment does not constitute a source of ignition under normal operating conditions.

[Recodified as § 296-307-37215. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37215, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37218 What requirements apply to motors and generators used in hazardous locations? In Class I, Division 1 locations, motors, generators and other rotating electric machinery must be:

(1) Approved for Class I, Division 1 locations (explosion-proof); or

(2) Of the totally enclosed type supplied with positive-pressure ventilation from a source of clean air with discharge to a safe area, arranged to prevent energizing of the machine until ventilation has been established and the enclosure has been purged with at least 10 volumes of air, and also arranged to automatically deenergize the equipment when the air supply fails; or

(3) Of the totally enclosed inert-gas-filled type supplied with a suitable reliable source of inert gas for pressuring the enclosure, with devices provided to ensure a positive pressure in the enclosure and arranged to automatically deenergize the equipment when the gas supply fails; or

(4) Of a type designed to be submerged in a liquid that is flammable only when vaporized and mixed with air, or in a gas or vapor at a pressure greater than atmospheric and which is flammable only when mixed with air; and the machine is arranged to prevent energizing it until it has been purged with the liquid or gas to exclude air, and also arranged to automatically deenergize the equipment when the supply of liquid, or gas or vapor fails or the pressure is reduced to atmospheric.

Totally enclosed type (2) and (3) motors must have no external surface with a Celsius operating temperature greater than 80% of the ignition temperature of the gas or vapor involved, as determined by ASTM test procedure (Designation: D-2155-69). Appropriate devices must be provided to detect an increase in temperature of the motor beyond design limits and automatically deenergize the equipment or provide an adequate alarm. Auxiliary equipment must be approved for the location in which it is installed.

[Recodified as § 296-307-37218. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37218, filed 10/31/96, effective 12/1/96.]

WAC 296-307-374 Special systems.

[Recodified as § 296-307-374. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-374, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37403 What requirements apply to systems over 600 volts, nominal? (1) Wiring methods for fixed installations over 600 volts, nominal, must meet the following requirements:

(a) Above-ground conductors must be installed in rigid metal conduit, in intermediate metal conduit, in cable trays, in cablebus, in other suitable raceways, or as open runs of metal-clad cable suitable for the use and purpose. Open runs of nonmetallic-sheathed cable or of bare conductors or busbars must be installed in locations accessible only to qualified persons. Metallic shielding components, such as tapes, wires, or braids for conductors, must be grounded. Open runs of insulated wires and cables with a bare lead sheath or a braided outer covering must be supported to prevent physical damage to the braid or sheath.

(b) Conductors emerging from the ground must be enclosed in approved raceways.

(2) Interrupting and isolating devices must meet the following requirements:

(a) Circuit breaker installations located indoors must consist of metal-enclosed units or fire-resistant cell-mounted units. Circuit breakers must be open mounted only in locations that are accessible only to qualified persons. A means of indicating the open and closed position of circuit breakers must be provided.

(b) Fused cutouts installed in buildings or transformer vaults must be approved for the purpose. They must be readily accessible for fuse replacement.

(c) A means must be provided to completely isolate equipment for inspection and repairs. Isolating means that are not designed to interrupt the load current of the circuit must be either interlocked with an approved circuit interrupter or provided with a sign warning against opening them under load.

(3) Mobile and portable equipment must meet the following requirements:

(a) A metallic enclosure must be provided on the mobile machine for enclosing the terminals of the power cable. The enclosure must include provisions for a solid connection for the ground wire terminal to effectively ground the machine frame. The method of cable termination used must prevent

any strain or pull on the cable from stressing the electrical connections. The enclosure must be lockable so only authorized qualified persons may open it and must be marked with a sign warning of the presence of energized parts.

(b) All energized switching and control parts must be enclosed in grounded metal cabinets or enclosures. Circuit breakers and protective equipment must have the operating means projecting through the metal cabinet or enclosure so these units can be reset without opening locked doors. Enclosures and metal cabinets must be locked so that only authorized qualified persons have access and must be marked with a sign warning of the presence of energized parts. Collector ring assemblies on revolving machines (shovels, draglines, etc.) must be guarded.

(4) Tunnel installations of high-voltage power distribution and utilization equipment that is portable or mobile, such as substations, trailers, cars, mobile shovels, draglines, hoists, drills, dredges, compressors, pumps, conveyors, and underground excavators must meet the following requirements:

(a) Conductors in tunnels must be installed in one or more of the following:

- (i) Metal conduit or other metal raceway;
- (ii) Type MC cable; or
- (iii) Other approved multiconductor cable.

Conductors must also be located or guarded to protect them from physical damage. Multiconductor portable cable may supply mobile equipment. An equipment grounding conductor must be run with circuit conductors inside the metal raceway or inside the multiconductor cable jacket. The equipment grounding conductor may be insulated or bare.

(b) Bare terminals of transformers, switches, motor controllers, and other equipment must be enclosed to prevent accidental contact with energized parts. Enclosures used in tunnels must be drip-proof, weatherproof, or submersible as required by environmental conditions.

(c) A disconnecting means that simultaneously opens all ungrounded conductors must be installed at each transformer or motor location.

(d) All nonenergized metal parts of electric equipment and metal raceways and cable sheaths must be effectively grounded and bonded to all metal pipes and rails at the portal and at maximum intervals of 1000 feet throughout the tunnel.

[Recodified as § 296-307-37403. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37403, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37406 What requirements apply to emergency power systems? This section applies to circuits, systems, and equipment intended to supply power for illumination and special loads, in the event of failure of the normal supply.

(1) Emergency circuit wiring must be kept entirely independent of all other wiring and equipment and must not enter the same raceway, cable, box, or cabinet as other wiring.

Exception: This does not apply where common circuit elements suitable for the purpose are required, or for transferring power from the normal to the emergency source.

(2) Where emergency lighting is necessary, the system must be arranged so that the failure of any individual lighting element, such as a burned out light bulb, cannot leave any space in total darkness.

[Recodified as § 296-307-37406. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37406, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37409 How are Class 1, Class 2, and Class 3 remote control, signaling, and power-limited circuits classified? (1) Class 1, Class 2, or Class 3 remote control, signaling, or power-limited circuits are characterized by their usage and electrical power limitation which differentiates them from light and power circuits. These circuits are classified according to their voltage and power limitations as follows.

(a) Class 1 circuits.

(i) A Class 1 power-limited circuit is supplied from a source with a maximum rated output of 30 volts and 1000 volt-amperes.

(ii) A Class 1 remote control circuit or a Class 1 signaling circuit has a maximum voltage of 600 volts; however, the power output of the source need not be limited.

(b) Class 2 and Class 3 circuits.

(i) Power for Class 2 and Class 3 circuits is limited either inherently (in which no overcurrent protection is required) or by a combination of a power source and overcurrent protection.

(ii) The maximum circuit voltage is 150 volts AC or DC for a Class 2 inherently limited power source, and 100 volts AC or DC for a Class 3 inherently limited power source.

(iii) The maximum circuit voltage is 30 volts AC and 60 volts DC for a Class 2 power source limited by overcurrent protection, and 150 volts AC or DC for a Class 3 power source limited by overcurrent protection.

(c) The maximum circuit voltages in (a) and (b) of this subsection apply to sinusoidal AC or continuous DC power sources, and where wet contact is unlikely.

(2) A Class 2 or Class 3 power supply unit must be durably and visibly marked to indicate the class of supply and its electrical rating.

[Recodified as § 296-307-37409. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37409, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37412 What requirements apply to fire protective signaling systems? (1) Fire protective signaling circuits must be classified either as nonpower limited or power limited.

(2) The power sources for use with fire protective signaling circuits must be either power limited or nonlimited as follows:

(a) The power supply of nonpower-limited fire protective signaling circuits must have a maximum output voltage of 600 volts.

(b) The power for power-limited fire protective signaling circuits must be either inherently limited, in which no

overcurrent protection is required, or limited by a combination of power source and overcurrent protection.

(3) Nonpower-limited fire protective signaling circuits and Class 1 circuits may occupy the same enclosure, cable, or raceway if all conductors are insulated for maximum voltage of any conductor within the enclosure, cable or raceway. Power supply and fire protective signaling circuit conductors are permitted in the same enclosure, cable, or raceway only if connected to the same equipment.

(4) Where open conductors are installed, power-limited fire protective signaling circuits must be separated at least 2 inches from conductors of any light, power, Class 1, and nonpower-limited fire protective signaling circuits unless using a special and equally protective method of conductor separation. Cables and conductors of two or more power-limited fire protective signaling circuits or Class 3 circuits are permitted in the same cable, enclosure, or raceway. Conductors of one or more Class 2 circuits are permitted within the same cable, enclosure, or raceway with conductors of power-limited fire protective signaling circuits if the insulation of Class 2 circuit conductors in the cable, enclosure, or raceway is at least that needed for the power-limited fire protective signaling circuits.

(5) Fire protective signaling circuits must be identified at terminal and junction locations in a manner that will prevent unintentional interference with the signaling circuit during testing and servicing. Power-limited fire protective signaling circuits must be visibly and durably marked at terminations.

[Recodified as § 296-307-37412. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37412, filed 10/31/96, effective 12/1/96.]

WAC 296-307-376 Working on or near exposed energized parts.

[Recodified as § 296-307-376. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-376, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37603 What does this section cover? WAC 296-306A-376 applies to work performed on exposed live parts (involving either direct contact or contact by means of tools or materials) or near enough to them for employees to be exposed to any hazard they present.

[Recodified as § 296-307-37603. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37603, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37606 Who may work on energized parts? Only qualified persons may work on electric circuit parts of equipment that have not been deenergized under the procedures of WAC 296-306A-37807. Qualified persons must be capable of working safely on energized circuits and must be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

[Recodified as § 296-307-37606. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37606, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37609 What requirements apply to working near low voltage lines? When employees are working near energized electrical service conductors operating at 750 volts or less, employees must work in a manner to prevent contact with the energized conductors.

[Recodified as § 296-307-37609. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37609, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37612 What requirements apply to qualified persons working near overhead lines? When a qualified person is working near overhead lines, whether in an elevated position or on the ground, the person must not approach, or take any conductive object without an approved insulating handle, closer to exposed energized parts than shown in WAC 296-306A-150 unless:

(1) The person is insulated from the energized part (gloves, with sleeves if necessary, rated for the voltage involved are considered to be insulation of the person from the energized part on which work is performed); or

(2) The energized part is insulated both from all other conductive objects at a different potential and from the person; or

(3) The person is insulated from all conductive objects at a potential different from that of the energized part.

[Recodified as § 296-307-37612. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37612, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37615 What requirements apply to vehicles and mechanical equipment near overhead lines?

(1) Any vehicle or mechanical equipment that may have parts of its structure elevated near energized overhead lines must be operated so that a clearance of 10 ft. is maintained. If the voltage is higher than 50kV, the clearance must be increased 0.4 inch for every 1kV over the voltage. The clearance may be reduced only if:

(a) The vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. If the voltage is higher than 50kV, the clearance must be increased 0.4 inch for every 1kV over that voltage.

(b) Insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.

(2) If the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person, the clearance (between the uninsulated portion of the aerial lift and the power line) may be reduced to the distance given in WAC 296-306A-150.

(3) Employees standing on the ground must not contact the vehicle or mechanical equipment or any of its attachments, unless:

(a) The employee is using protective equipment rated for the voltage; or

(b) The equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a

conductive path to employees on the ground) can come closer to the line than permitted in this section.

(4) If any vehicle or mechanical equipment that may have parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding must not stand at the grounding location whenever there is a possibility of overhead line contact. Additional precautions, such as the use of barricades or insulation, must be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point.

[Recodified as § 296-307-37615. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37615, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37618 What lighting must be provided for employees working near exposed energized parts?

(1) Employees must not enter spaces containing exposed energized parts, unless lighting is provided that enables the employees to perform the work safely.

(2) Where lack of lighting or an obstruction prevents an employee from seeing the work to be performed, employees must not perform tasks near exposed energized parts. Employees shall not reach blindly into areas that may contain energized parts.

[Recodified as § 296-307-37618. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37618, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37621 What requirements apply to working near exposed energized parts in confined spaces?

(1) For working in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, the employer shall provide, and the employee must use, protective shields, protective barriers, or insulating materials that are necessary to avoid contact with these parts. Doors, hinged panels, and the like must be secured to prevent swinging into an employee and causing the employee to contact exposed energized parts.

(2) Conductive materials and equipment that are in contact with any part of an employee's body shall be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts. If an employee handles long conductive objects (such as ducts and pipes) in areas with exposed live parts, you must institute work practices (such as the use of insulation, guarding, and material handling techniques) that will minimize the hazard.

(3) Portable ladders must have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts.

(4) Conductive articles of jewelry and clothing shall not be worn if they might contact exposed energized parts.

[Recodified as § 296-307-37621. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37621, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37624 What housekeeping requirements apply to working near exposed energized parts?

(1) Where live parts present an electrical contact hazard,

employees must not perform housekeeping duties near enough to the parts that there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided.

(2) Electrically conductive cleaning materials (including conductive solids such as steel wool, metalized cloth, and silicon carbide, as well as conductive liquid solutions) must not be used in proximity to energized parts unless procedures are followed that will prevent electrical contact.

[Recodified as § 296-307-37624. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37624, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37627 Who may defeat an electrical safety interlock? Only a qualified person following the requirements of this section may defeat an electrical safety interlock, and then only temporarily while he or she is working on the equipment. The interlock system must be returned to its operable condition when this work is completed.

[Recodified as § 296-307-37627. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37627, filed 10/31/96, effective 12/1/96.]

WAC 296-307-378 Safety-related work practices.

[Recodified as § 296-307-378. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-378, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37801 What does this section cover?

(1) WAC 296-306A-376 and 296-306A-378 cover electrical safety-related work practices for both qualified persons (those who have training in avoiding the electrical hazards of working on or near exposed energized parts) and unqualified persons (those with little or no such training) working on, near, or with the following installations:

(a) Installations of electric conductors and equipment within or on buildings or other structures, and on other premises such as yards, parking, and other lots, and industrial substations;

(b) Installations of conductors that connect to the supply of electricity;

(c) Installations of other outside conductors on the premises; and

(d) Installations of optical fiber cable where such installations are made along with electric conductors.

(2) Chapter 306-376 WAC and WAC 296-306A-378 cover work performed by unqualified persons on, near, or with the installations listed in subsection (3) of this section.

(3) WAC 296-306A-376 and 296-306A-378 do not apply to work performed by qualified persons on or directly associated with the following installations:

(a) Installations for the generation, control, transformation, transmission, and distribution of electric energy (including communication and metering) located in buildings used for such purposes or located outdoors.

Work on or directly associated with generation, transmission, or distribution installations includes:

(i) Work performed directly on installations, such as repairing distribution lines or repairing a feed-water pump for the boiler in a generating plant.

(ii) Work directly associated with installations, such as line-clearance tree trimming and replacing utility poles.

(iii) Work on electric utilization circuits in a generating plant where:

- The circuits are combined with installations of power generation equipment or circuits; and
- The generation equipment or circuits present greater electrical hazards than those posed by the utilization equipment or circuits (such as exposure to higher voltages or lack of overcurrent protection).

(b) Installations in watercraft, railway rolling stock, aircraft, or automotive vehicles other than mobile homes and recreational vehicles.

(c) Installations of railways for generation, transformation, transmission, or distribution of power used exclusively for operation of rolling stock or installations of railways used exclusively for signaling and communication purposes.

[Recodified as § 296-307-37801. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37801, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37803 How must employees be trained on safety practices? (1) The training requirements in this section apply to employees who face a risk of electrical shock that is not reduced to a safe level by the electrical installation requirements of WAC 296-306A-362 through 296-306A-374.

(2) Training contents must include the following:

(a) Employees must be trained in and familiar with the safety-related work practices required by WAC 296-306A-376 through 296-306A-378 that apply to their job assignments.

(b) Employees who are covered by this section but who are not qualified persons must also be trained in and familiar with any electrically related safety practices that are not covered by this standard, but that are necessary for their safety.

(c) Qualified persons must, at a minimum, be trained in and familiar with the following:

(i) The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment;

(ii) The skills and techniques necessary to determine the nominal voltage of exposed live parts; and

(iii) The clearance distance specified in WAC 296-306A-376 and the corresponding voltages to which the qualified person will be exposed.

Note 1: For the purposes of WAC 296-306A-376 and 296-306A-378, an employee must have the training required for a qualified person in order to be considered a qualified person.

Note 2: Qualified persons whose work on energized equipment involves either direct contact or contact by means of tools or materials must also have the training needed to meet WAC 296-306A-376.

(3) You must provide either classroom or on-the-job training. The degree of training provided must be determined by the risk to the employee.

[Recodified as § 296-307-37803. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37803, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37805 How must safety-related work practices be chosen and used? Safety-related work practices must be used to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment or circuits that are or may be energized. The specific safety-related work practices must be consistent with the nature and extent of the associated electrical hazards.

(1) When an employee may be exposed to live parts, they must be deenergized before the employee works on or near them, unless deenergizing introduces other hazards or is infeasible due to equipment design or operational limitations. Live parts that operate at less than 50 volts to ground need not be deenergized if there will be no increased exposure to electrical burns or to explosion due to electric arcs.

Note 1: Examples of other hazards include deactivation of emergency alarm systems, shutdown of hazardous location ventilation equipment, or removal of illumination for an area.

Note 2: An example of work that may be performed on or near energized circuit parts because of unfeasibility due to equipment design or operational limitations is testing of electric circuits that can only be performed with the circuit energized.

(2) If the exposed live parts are not deenergized (for reasons of increased or additional hazards or unfeasibility), other safety-related work practices must be used to protect employees who may be exposed to the electrical hazards involved. Such work practices must protect employees against contact with energized circuit parts directly with any part of their body or indirectly through some other conductive object. The work practices must be suitable for the voltage level of the exposed electric conductors or circuit parts.

[Recodified as § 296-307-37805. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37805, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37807 What work practices must be followed for work on exposed deenergized parts? (1) This section applies to work on exposed deenergized parts or near enough to them to expose the employee to any electrical hazard they present. Conductors and parts of electric equipment that have been deenergized but have not been locked out or tagged must be treated as energized parts, and WAC 296-306A-376 applies to work on or near them.

(2) While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts must be locked out or tagged or both according to the requirements of this section. The requirements must be followed in the order in which they are presented.

"Fixed equipment" means equipment that is fastened or connected by permanent wiring methods.

Note: Lockout and tagging procedures that comply with WAC 296-306A-320 will also be deemed to comply with WAC 296-306A-37807 through 296-306A-37817 if:

- The procedures address the electrical safety hazards covered by this part; and

- The procedures include the requirements of WAC 296-306A-37813(4) and 296-306A-37815(2).

[Recodified as § 296-307-37807. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37807, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37809 Must an employer have a written copy of lockout-tagout procedures? The employer must maintain a written copy of the procedures outlined in WAC 296-306A-37807 through 296-306A-37817 and must make it available for inspection by us or by employees. The written procedures may be in the form of a copy of WAC 296-306A-37807 through 296-306A-37817.

[Recodified as § 296-307-37809. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37809, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37811 What work practices must be followed for deenergizing equipment? (1) Safe procedures for deenergizing circuits and equipment must be determined before circuits or equipment are deenergized.

(2) The circuits and equipment to be worked on must be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, must not be used as the sole means for deenergizing circuits or equipment. Interlocks for electric equipment must not be used as a substitute for lockout and tagging procedures.

(3) Stored electric energy which might endanger employees must be released. Capacitors must be discharged and high capacitance elements must be short-circuited and grounded, if the stored electric energy might endanger employees.

Note: Capacitors or associated equipment handled in meeting this requirement must be treated as energized.

(4) Stored nonelectrical energy in devices that could reenergize electric circuit parts must be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.

[Recodified as § 296-307-37811. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37811, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37813 How must locks and tags be applied? (1) A lock and a tag must be placed on each disconnecting means used to deenergize circuits and equipment on which work is to be performed, except as provided in subsections (3) and (5) of this section. The lock must be attached to prevent anyone from operating the disconnecting means unless they resort to undue force or the use of tools.

(2) Each tag must have a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag.

(3) If a lock cannot be applied, or if tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock, a tag may be used without a lock.

(4) A tag used without a lock must be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include the removal

of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device.

(5) A lock may be placed without a tag only under the following conditions:

(a) Only one circuit or piece of equipment is deenergized; and

(b) The lockout period does not extend beyond the work shifts; and

(c) Employees exposed to the hazards associated with reenergizing the circuit or equipment are familiar with this procedure.

[Recodified as § 296-307-37813. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37813, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37815 What work practices must be followed to verify deenergization? The requirements of this section must be met before any circuits or equipment can be considered and worked as deenergized.

(1) A qualified person must operate the equipment operating controls or otherwise verify that the equipment cannot be restarted.

(2) A qualified person must use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and shall verify that the circuit elements and equipment parts are deenergized. The test must also determine if any energized conditions exist as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment must be checked for proper operation immediately before and immediately after this test.

[Recodified as § 296-307-37815. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37815, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37817 What work practices must be followed when reenergizing equipment? These requirements must be met, in the order given, before circuits or equipment are reenergized, even temporarily.

(1) A qualified person must conduct tests and visual inspections as necessary to verify that all tools, electrical jumpers, shorts, grounds, and other devices have been removed, so that the circuits and equipment can be safely energized.

(2) Employees exposed to the hazards associated with reenergizing the circuit or equipment must be warned to stay clear of circuits and equipment.

(3) Each lock and tag must be removed by the employee who applied it or under his or her direct supervision. However, if this employee is absent from the workplace, then the lock or tag must be removed by a qualified person designated to perform this task if:

(a) The employer ensures that the employee who applied the lock or tag is not available at the workplace; and

(b) The employer ensures that the employee is aware that the lock or tag has been removed before resuming work at that workplace.

(4) There shall be a visual determination that all employees are clear of the circuits and equipment.

[Recodified as § 296-307-37817. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37817, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37819 What safety-related work practices relate to portable electric equipment? This section applies to using cord-connected and plug-connected equipment, including flexible cord sets (extension cords).

(1) Portable equipment must be handled in a manner that will not cause damage. Flexible electric cords connected to equipment must not be used for raising or lowering the equipment. Flexible cords must not be fastened with staples or otherwise hung in a way that could damage the outer jacket or insulation.

(2) Visual inspection requirements:

(a) Portable cord-connected and plug-connected equipment and flexible cord sets must be visually inspected before use on any shift for external defects (such as loose parts, deformed and missing pins, or damage to outer jackets or insulation) and for evidence of possible internal damage (such as pinched or crushed outer jacket). Cord-connected and plug-connected equipment and flexible cord sets that remain connected once they are in place and are not exposed to damage need not be visually inspected until they are relocated.

(b) If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged items must be removed from service, and no employee shall use it until repairs and tests necessary to render the equipment safe have been made.

(c) When an attachment plug is to be connected to a receptacle (including any on a cord set), the relationship of the plug and receptacle contacts must first be checked to ensure they are of proper mating configurations.

(3) Requirements for grounding-type equipment:

(a) A flexible cord used with grounding-type equipment must contain an equipment grounding conductor.

(b) Attachment plugs and receptacles must not be connected or altered in a manner that would prevent proper continuity of the equipment grounding conductor at the point where plugs are attached to receptacles. These devices must not be altered to allow the grounding pole of a plug to be inserted into slots intended for connection to the current-carrying conductors.

(c) Adapters that interrupt the continuity of the equipment grounding connection are prohibited.

(4) Portable electric equipment and flexible cords used in highly conductive work locations, or in locations where employees are likely to contact water or conductive liquids, must be approved for those locations.

(5) Connecting attachment plugs.

(a) Employees' hands must not be wet when plugging and unplugging flexible cords and cord-connected and plug-connected equipment, if energized equipment is involved.

(b) Energized plug and receptacle connections must be handled only with insulating protective equipment if the condition of the connection could provide a conducting path to the employee's hand. For example: If a cord connector is wet from being immersed in water.

(c) Locking-type connectors must be properly secured after connection.

[Recodified as § 296-307-37819. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37819, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37821 What safety-related work practices relate to electric power and lighting circuits?

(1) Load rated switches, circuit breakers, or other devices specifically designed as disconnecting means must be used for the opening, reversing, or closing of circuits under load conditions. Any cable connectors other than the load-break type, fuses, terminal lugs, and cable splice connections are prohibited for such purposes, except in an emergency.

(2) After a circuit is deenergized by a circuit protective device, the circuit must not be manually reenergized until it has been determined that the equipment and circuit can be safely energized. This repetitive manual reclosing of circuit breakers or reenergizing circuits through replaced fuses is prohibited.

Note: When it can be determined from the design of the circuit and the overcurrent devices involved that the automatic operation of a device was caused by an overload rather than a fault connection, no examination of the circuit or connected equipment is needed before the circuit is reenergized.

(3) Overcurrent protection of circuits and conductors must not be modified, even on a temporary basis, beyond that allowed by this part for the installation safety requirements for overcurrent protection.

[Recodified as § 296-307-37821. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37821, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37823 What safety-related work practices relate to test instruments and equipment? (1) Only qualified persons may perform testing work on electric circuits or equipment.

(2) Test instruments and equipment and all associated test leads, cables, power cords, probes, and connectors must be visually inspected for external defects and damage before the equipment is used. If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item must be removed from service, and no employee may use it until necessary repairs and tests to render the equipment safe have been made.

(3) Test instruments and equipment and their accessories must be rated for the circuits and equipment to which they will be connected and must be designed for the environment in which they will be used.

[Recodified as § 296-307-37823. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37823, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37825 What safety-related work practices relate to flammable materials? Where flammable materials are present only occasionally, electric equipment capable of igniting them must not be used, unless measures are taken to prevent hazardous conditions from developing.

Such materials include, but are not limited to: flammable gases, vapors, or liquids; combustible dust; and ignitable fibers or flyings.

Note: Electrical installation requirements for locations where flammable materials are present on a regular basis are contained in WAC 296-306A-372.

[Recodified as § 296-307-37825. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-37825, filed 10/31/96, effective 12/1/96.]

WAC 296-307-380 Electrical protective equipment.

[Recodified as § 296-307-380. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-380, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38003 How must protective equipment be used? (1) Employees working in the areas where there are potential electrical hazards must have and use electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed.

(2) If the insulating capability of protective equipment may be subject to damage during use, the insulating material must be protected.

For example: An outer covering of leather is sometimes used to protect rubber insulating material.

(3) Employees must wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with exposed energized parts.

(4) Employees must wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electrical arcs or flashes or from flying objects resulting from electrical explosion.

[Recodified as § 296-307-38003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38006 What requirements apply to general protective equipment and tools? (1) When working near exposed energized conductors or circuit parts, each employee must use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts. If the insulating capability of insulated tools or handling equipment is subject to damage, the insulating material must be protected.

(2) Ropes and handlines used near exposed energized parts must be nonconductive.

(3) Protective shields, protective barriers, or insulating materials must be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts that might be accidentally contacted or where dangerous electric heating or arcing might occur. When normally enclosed live parts are exposed for maintenance or repair, they must be guarded to protect unqualified persons from contact with the live parts.

(4) Altering techniques must be used to warn and protect employees from hazards that could cause injury due to electric shock, burns, or failure of electric equipment parts.

(5) Safety signs, safety symbols, or accident prevention tags must be used where necessary to warn employees about

electrical hazards that may endanger them, as required by WAC 296-306A-330.

[Recodified as § 296-307-38006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38009 What manufacturing and marking requirements apply to electrical protective devices? Insulating blankets, matting, covers, line hose, gloves, and sleeves made of rubber must meet the following manufacture and marking requirements:

(1) Blankets, gloves, and sleeves must be produced by a seamless process.

(2) Each item must be clearly marked as follows:

(a) All classified equipment must be marked with its class number.

(b) Nonozone-resistant equipment other than matting must be marked Type I.

(c) Ozone-resistant equipment other than matting must be marked Type II.

(d) Other relevant markings, such as the manufacturer's identification and the size of the equipment, may also be provided.

(3) Markings must be nonconducting and shall be applied so they do not impair the insulating qualities of the equipment.

(4) Markings on gloves must be on the cuff.

[Recodified as § 296-307-38009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38012 What electrical requirements apply to electrical protective devices? Insulating blankets, matting, covers, line hose, gloves, and sleeves made of rubber must meet the following electrical requirements:

(1) Equipment must be capable of withstanding the a-c proof-test voltage specified in Table 1 or the d-c proof-test voltage specified in Table 2.

(a) The proof-test must reliably indicate that the equipment can withstand the voltage involved.

(b) The test voltage must be applied continuously for three minutes for equipment other than matting and must be applied continuously for one minute for matting.

(c) Gloves must also be capable of withstanding the a-c proof-test voltage specified in Table 1 after a sixteen-hour water soak.

(2) When the a-c proof-test is used on gloves, the 60 hertz proof-test current must not exceed the values specified in Table 1 at any time during the test period.

(a) If the a-c proof-test is made at a frequency other than 60 hertz, the permissible proof-test current must be computed from the direct ratio of the frequencies.

(b) For the test, gloves (right side out) must be filled with tap water and immersed in water to a depth that is in accordance with Table 3. Water must be added to or removed from the glove, as necessary, so that the water level is the same inside and outside the glove.

(c) After the sixteen-hour water soak, the 60 hertz proof-test current may exceed the values given in Table 1 by not more than 2 milliamperes.

(3) Equipment that has been subjected to a minimum breakdown voltage test must not be used for electrical protection.

(4) Material used for Type II insulating equipment must be capable of withstanding an ozone test, with no visible effects. The ozone test must reliably indicate that the material will resist ozone exposure in actual use. Any visible signs of ozone deterioration of the material, such as checking, cracking, breaks, or pitting, is evidence of failure to meet the requirements for ozone-resistant material.

Note: Rubber insulating equipment meeting the following national consensus standards is considered to be in compliance with WAC 296-306A-38009, 296-306A-38012, and 296-306A-38015:

- American Society for Testing and Materials (ASTM) D 120-87, Specification for Rubber Insulating Gloves.
- ASTM D 178-93, Specification for Rubber Insulating Matting.
- ASTM D 1048-93, Specification for Rubber Insulating Blankets.
- ASTM D 1049-93, Specification for Rubber Insulating Covers.
- ASTM D 1050-90, Specification for Rubber Insulating Line Hose.
- ASTM D 1051-87, Specification for Rubber Insulating Sleeves.

These standards contain specifications for conducting the tests required in this section.

[Recodified as § 296-307-38012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38015 What workmanship and finish requirements apply to electrical protective devices? Insulating blankets, matting, covers, line hose, gloves, and sleeves made of rubber must meet the following workmanship and finish requirements:

(1) Equipment must be free of harmful physical irregularities that can be detected by the tests or inspections required in WAC 296-306A-38012.

(2) Surface irregularities that may be present on all rubber goods because of imperfections on forms or molds or because of inherent difficulties in the manufacturing process and that may appear as indentations, protuberances, or imbedded foreign material are acceptable if:

(a) The indentation or protuberance blends into a smooth slope when the material is stretched.

(b) Foreign material remains in place when the insulating material is folded and stretches with the insulating material surrounding it.

[Recodified as § 296-307-38015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38018 How must electrical protective devices be maintained and used? (1) Electrical protective equipment must be maintained in a safe, reliable condition.

(2) The following specific requirements apply to insulating blankets, covers, line hose, gloves, and sleeves made of rubber:

(a) Maximum use voltages must meet the requirements in Table 4.

(b) Insulating equipment must be inspected for damage before each day's use and immediately following any incident that can reasonably be suspected of having caused

damage. Insulating gloves must be given an air test, along with the inspection.

(c) Insulating equipment with any of the following defects must not be used:

(i) A hole, tear, puncture, or cut;

(ii) Ozone cutting or ozone checking (the cutting action produced by ozone on rubber under mechanical stress into a series of interlacing cracks);

(iii) An embedded foreign object;

(iv) Any of the following texture changes: Swelling, softening, hardening, or becoming sticky or inelastic;

(v) Any other defect that damages the insulating properties.

(d) Insulating equipment found to have other defects that might affect its insulating properties must be removed from service and returned for testing under (h) of this subsection.

(e) Insulating equipment must be cleaned as needed to remove foreign substances.

(f) Insulating equipment must be stored in such a location and in such a manner as to protect it from light, temperature extremes, excessive humidity, ozone, and other injurious substances and conditions.

(g) Protector gloves must be worn over insulating gloves.

(h) Electrical protective equipment must be subjected to periodic electrical tests. Test voltages and the maximum intervals between tests must be according to Table 4 and Table 5.

(i) The test method used must reliably indicate whether the insulating equipment can withstand the voltages involved.

Note: Standard electrical test methods considered as meeting this requirement are given in the following national consensus standards:

- American Society for Testing and Materials (ASTM) D 120-87, Specification for Rubber Insulating Gloves.
- ASTM D 1048-93, Specification for Rubber Insulating Blankets.
- ASTM D 1049-93, Specification for Rubber Insulating Covers.
- ASTM D 1050-90, Specification for Rubber Insulating Line Hose.
- ASTM D 1051-87, Specification for Rubber Insulating Sleeves.
- ASTM F 478-92, Specification for In-Service Care of Insulating Line Hose and Covers.
- ASTM F 479-88a, Specification for In-Service Care of Insulating Blankets.
- ASTM F 496-93b, Specification for In-Service Care of Insulating Gloves and Sleeves.

(j) Insulating equipment that fails inspections or electrical tests must not be used by employees, except as follows:

(i) Rubber insulating line hose could be used in shorter lengths with the defective portion cut off.

(ii) Rubber insulating blankets could be repaired using a compatible patch that results in physical and electrical properties equal to those of the blanket.

(iii) Rubber insulating blankets could be salvaged by severing the defective area from the undamaged portion of the blanket. The resulting undamaged area must not be smaller than twenty-two inches by twenty-two inches (560 mm by 560 mm) for Class 1, 2, 3, and 4 blankets.

(k) Repaired insulating equipment must be retested before it may be used by employees.

(l) You must certify that equipment has been tested in accordance with the requirements of (h), (i), and (k) of this subsection. The certification must identify the equipment that passed the test and the date it was tested.

Note: This requirement may be met by marking the equipment and entering the results of the tests and the dates of testing onto logs.

Table 1 A-C Proof-Test Requirements Maximum proof-test current, mA (gloves only)					
Class of equipment	Proof-test voltage rms V	267 mm (10.5 in.) glove	356 mm (14 in.) glove	406 mm (16 in.) glove	457 mm (18 in.) glove
0	5,000	8	12	14	16
1	10,000		14	16	18
2	20,000		16	18	20
3	30,000		18	20	22
4	40,000			22	24

Table 2 D-C Proof-Test Requirements	
Class of equipment	Proof-test voltage
0	20,000
1	40,000
2	50,000
3	60,000
4	70,000

Note: The d-c voltages listed in this table are not appropriate for proof testing rubber insulating line hose or covers. For this equipment, d-c proof-tests shall use a voltage high enough to indicate that the equipment can be safely used at the voltages listed in Table 3. See ASTM D 1050-90 and ASTM D 1049-88 for further information on proof tests for rubber insulating line hose and covers.

Table 3 Glove Tests-Water Level ^{1, 2}				
Class of glove	A-C proof-test		D-C proof-test	
	mm.	in.	mm.	in.
0	38	1.5	38	1.5
1	38	1.5	51	2.0
2	64	2.5	76	3.0
3	89	3.5	102	4.0
4	127	5.0	153	6.0

¹The water level is given as the clearance from the cuff of the glove to the water line, with a tolerance of 13 mm. (0.5 in.).
²If atmospheric conditions make the specified clearances impractical, the clearances may be increased by a maximum of 25 mm. (1 in.)

Table 4 Rubber Insulating Equipment Voltage Requirements			
Class of equipment	Maximum use voltage ¹ a-c-rms	Retest voltage ² a-c-rms	Retest voltage ² d-c-rms
0	1,000	5,000	20,000
1	7,500	10,000	40,000
2	17,000	20,000	50,000
3	26,500	30,000	60,000
4	36,000	40,000	70,000

Note: Rubber gloves shall only be used on voltages of 5000 volts phase to phase or less.

¹The maximum use voltage is the a-c voltage (rms) classification of the protective equipment that designates the maximum nominal design/voltage of the energized system that may be safely worked. The nominal design voltage is equal to the phase-to-phase voltage on multiphase circuits. However, the phase-to-ground potential is considered to be the nominal design/voltage:

(a) If there is no multiphase exposure in a system area and if the voltage exposure is limited to the phase-to-ground potential, or

(b) If the electrical equipment and devices are insulated or isolated or both so that the multiphase exposure on a grounded wye circuit is removed.

²The proof-test voltage shall be applied continuously for at least one minute, but no more than three minutes.

Table 5 Rubber Insulating Equipment Test Intervals	
Type of equipment	When to test
Rubber insulating line hose	Upon indication that insulating value is suspect
Rubber insulating covers	Upon indication that insulating value is suspect
Rubber insulating blankets	Before first issue and every 12 months thereafter
Rubber insulating gloves	Before first issue and every 6 months thereafter
Rubber insulating sleeves	Before first issue and every 12 months thereafter

(3) Where switches or fuses of more than 150 volts to ground are not guarded during ordinary operations, suitable insulating floors, mats or platforms must be provided on which the operator must stand while handling the switches.

[Recodified as § 296-307-38018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-38018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-400 Anhydrous ammonia.

[Recodified as § 296-307-400. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-400, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40001 What does this section cover?
WAC 296-306A-400 covers the transportation and application of anhydrous ammonia.

[Recodified as § 296-307-40001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40003 What definitions apply to this section? "Certified" means the equipment has been tested by a nationally recognized testing laboratory and meets nationally recognized standards or is safe for a specific use; or is a kind whose production is periodically inspected by a nationally recognized testing laboratory, and bears identification of certification.

"DOT" means the Federal Department of Transportation.

"DOT container" means a container constructed according to the requirements of 49 CFR chapter 1.

"DOT cylinder" means a cylinder that meets the requirements of 49 CFR chapter I.

"Labeled" means the equipment has an attached label, symbol, or other identifying mark of a nationally recognized testing laboratory that makes periodic inspections of the production of such equipment, and the label indicates compliance with nationally recognized standards or tests.

[Recodified as § 296-307-40003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40005 What general requirements apply to the storage and handling of anhydrous ammonia? (1) All employees must use gloves and goggles and/or a face shield while working on or with charged anhydrous ammonia equipment.

(2) You must ensure that equipment is inspected before each day's work. Conditions that would contribute to leaks shall be corrected.

(3) Hose end-valves must be closed when not in use to prevent accidental discharge in case the main valve is opened.

(4) Relief and vapor valves must discharge away from the operator's working position.

[Recodified as § 296-307-40005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40007 What requirements apply to systems mounted on farm wagons (implements of husbandry) for the transportation of ammonia? All anhydrous ammonia containers with a capacity of 3,000 gallons or less and equipment mounted on farm wagons (implements of husbandry) that is used to transport ammonia must meet the requirements of this section.

WAC 296-306A-40011 through 296-306A-40037 also apply unless otherwise noted.

(1) Containers must meet the following mounting requirements:

(a) The farm wagon or container has a stop so the container does not dislodge from its mounting when a farm wagon stops suddenly.

(b) The container is anchored to the farm wagon at one or more places on each side of the container.

(c) The weight of containers mounted on four-wheel farm wagons, is distributed evenly over both axles.

(d) When the cradle and the container are not welded together, material between them eliminates metal-to-metal friction.

(2) Container accessories must meet the following requirements:

(a) Each container has a fixed maximum liquid-level gauge.

(b) All containers with more than 250-gallon capacity have a pressure gauge with a dial graduated from 0-400 psi.

(c) The filling connection is fitted with one of the following:

(i) A combination back-pressure check valve and excess-flow valve; or

(ii) One double or two single back-pressure check valves; or

(iii) A positive shut-off valve that has either an internal back-pressure check valve or an internal excess flow valve.

(d) All containers with more than 250-gallon capacity are equipped for spray loading or with an approved vapor return valve.

(e) All vapor and liquid connections have approved excess flow valves or quick-closing internal valves that are only open for operating.

Exception: Safety-relief valves and connections that are specifically exempted by WAC 296-306A-40019(5) are exempt from this requirement.

(f) Fittings are protected from physical damage by a rigid guard. The guard is designed to withstand force from any direction, equal to twice the weight of the container and lading, at a safety factor of four. If the guard is fully enclosed, the safety-relief valves are properly vented through the guard.

(g) If a liquid withdrawal line is installed in the bottom of a container, the connections and hose are at least as high as the lowest horizontal edge of the farm wagon axle.

(h) Both ends of the hose are secure while in transit.

(3) Each side and the rear end of the container must be marked in letters at least four inches high, with the words "ANHYDROUS AMMONIA" or, "CAUTION—AMMONIA," or marked according to DOT regulations.

(4) Farm wagons (implements of husbandry) must meet all state regulations and the following requirements:

(a) All farm wagons must be securely attached to the vehicle drawing them by drawbars with safety chains.

(b) A farm wagon must be constructed so that it will follow the path of the towing vehicle and will prevent the towed wagon from whipping or swerving dangerously from side to side.

(c) All farm wagons must have five gallons or more of readily available clean water.

[Recodified as § 296-307-40007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40009 What requirements apply to systems mounted on farm wagons (implements of husbandry) for the application of ammonia? This section applies to systems mounted on farm equipment that are used for the field application of ammonia.

WAC 296-306A-40011 through 296-306A-40037 also apply unless otherwise noted.

(1) All containers must be securely mounted.

(2) Container valves and accessories must meet the following requirements:

(a) Each container has a fixed maximum liquid-level gauge.

(b) The filling connection is fitted with one of the following:

(i) A combination back-pressure check valve and excess-flow valve; or

(ii) One double or two single back-pressure check valves; or

(iii) A positive shut-off valve that has either an internal back-pressure check valve or an internal excess flow valve.

(c) An excess-flow valve is not required in the vapor connection if the controlling orifice is a maximum of 7/16 inch in diameter and the valve is a hand-operated shut-off valve. To assist in filling applicator tanks, you may bleed vapors to the open air, if this requirement is met.

(d) Metering devices may be connected directly to the tank withdrawal valve. You may use a union type connection between the tank valve and metering device. You may use remote mounting of metering devices if the hose meets the requirements of Appendix B. When the applicator tank is trailed and the metering device is remotely mounted, such as on the tractor tool bar, you must use an automatic break-away type, self-closing coupling.

(e) No excess-flow valve is required in the liquid withdrawal line if the controlling orifice between the contents of the container and the outlet of the shut-off valve is a maximum of 7/16 inch in diameter.

[Recodified as § 296-307-40009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40011 What requirements must approved anhydrous ammonia equipment meet? All equipment must be approved by one of the following methods:

(1) The equipment was installed before February 8, 1973, and was approved and tested, and installed according to either the requirements of the American National Standard for the Storage and Handling of Anhydrous Ammonia, K61.1, or the Fertilizer Institute Standards for the Storage and Handling of Agricultural Anhydrous Ammonia, M-1, in effect at the time of installation; or

(2) The equipment is accepted, or certified, or listed, or labeled, or otherwise determined to be safe by a nationally recognized testing laboratory; or

(3)(a) The equipment is a type that no nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe; and

(b) The equipment is inspected or tested by an authority responsible for enforcing occupational safety provisions of a law, code, or regulation pertaining to the storage, handling, transport, and use of anhydrous ammonia; and

(c) The equipment is found in compliance with either the requirements of the American National Standard for the Storage and Handling of Anhydrous Ammonia, K61.1, or the Fertilizer Institute Standards for the Storage and Handling of Agricultural Anhydrous Ammonia, M-1, in effect at the time of installation; or

(4) For a custom-designed and custom-built unit:

(a) You cannot find a nationally recognized testing laboratory or authority responsible for the enforcement of a law, code or regulation pertaining to the storage, transportation and use of anhydrous ammonia that is willing to accept, certify, list, label or determine to be safe your custom equipment; and

(b) You have on file a document attesting to its safe condition following appropriate tests. The document must be signed by a registered professional engineer or qualified person. The document must describe the test bases, test data and results, and also the qualifications of the certifying person.

[Recodified as § 296-307-40011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40013 What requirements apply to the construction, original test, and requalification of nonrefrigerated containers? The code is the Unfired Pressure Vessel Code of the American Society of Mechanical Engineers (Section VIII of the ASME Boiler Construction Code), 1952, 1956, 1959, 1962, 1965, 1968 and 1971 editions, the joint code of the American Petroleum Institute and the American Society of Mechanical Engineers (API-

ASME Code) 1951 edition, and amendments or later editions, as adopted.

(1) Containers used with systems covered in WAC 296-306A-40005 and 296-306A-40007 must be constructed and tested according to the code.

Exception: Construction under Table UW-12 at a basic joint efficiency of under 80% is prohibited. Containers built according to code are exempt from paragraphs UG-125 to UG-128, inclusive, and paragraphs UG-132 and UG-133 of the code.

Note: This subsection allows the continued use or reinstallation of containers constructed and maintained according to the 1949, 1950, 1952, 1956, 1959, 1962, 1965 and 1968 editions of the Unfired Pressure Vessel Code of the ASME or any revisions thereof in effect at the time of fabrication.

(2) Containers more than 36 inches in diameter or 250 gallons water capacity must be constructed to meet one or more of the following requirements:

(a) Containers must be stress relieved after fabrication according to the code; or

(b) Cold-formed heads, when used, must be stress relieved; or

(c) Hot-formed heads must be used.

(3) Welding to the shell, head, or any other part of the container subject to internal pressure must be according to the code. Other welding is permitted only on saddle plates, lugs, or brackets attached to the container by the container manufacturer.

[Recodified as § 296-307-40013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40015 How must nonrefrigerated containers and systems (other than DOT containers) be marked? (1) System nameplates, when required, must be permanently attached to the system so they are readily accessible for inspection.

(2) Each container or system covered in WAC 296-306A-40005 and 296-306A-40007 must be marked as follows:

(a) With indication that the container or system meets the requirements of the code under which the container is constructed.

(b) With indication on the container and system nameplate when the system is designed for underground installation.

(c) With the name and address of the supplier of the container or the trade name of the container and with the date of fabrication.

(d) With the water capacity of the container in pounds at 60°F or gallons, United States standard.

(e) With the design pressure in pounds per square inch gauge.

(f) With the wall thickness of the shell and heads.

(g) With indication of the maximum fill level for liquid anhydrous ammonia between 20°F and 100°F. Markings must be in increments of not more than 20°F.

Exception: Containers with fixed maximum level indicators, such as fixed length dip tubes, or containers that are filled by weight are exempt from this requirement.

(h) With the outside surface area in square feet.

(i) With minimum temperature in Fahrenheit for which the container is designed.

(j) The marking must be on the container itself or on a permanently attached nameplate.

(3) All main operating valves on permanently installed containers with a capacity of over 3,000 water gallons must be identified to show whether the valve is in liquid or vapor service. The valve must be identified as follows:

(a) The word LIQUID (or LIQUID VALVE), VAPOR (or VAPOR VALVE), as appropriate, must be placed on or within twelve inches of the valve by means of a stencil tag or decal.

(b) Liquid valves must be painted orange and vapor valves must be painted yellow. The legend ORANGE-LIQUID, YELLOW-VAPOR must be displayed in one or more conspicuous places at each permanent storage location. The legend must have letters at least two inches high and must be placed against a contrasting background.

[Recodified as § 296-307-40015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40017 Where may anhydrous ammonia containers be located?

(1) When selecting the location for a storage container, you must take into account the physiological effects of ammonia and adjacent fire hazards. Containers located indoors must be in areas especially approved for container storage.

(2) Containers must be located at least fifty feet from a dug well or other sources of potable water supply, unless the container is a part of a water treatment installation.

(3) Permanent storage containers must be located outside densely populated areas.

(4) Containers must be located according to the following:

Minimum distances (feet) from container to:

Nominal capacity of container	Line of adjoining property that may be built upon, highways & main line of railroad	Place of public assembly	Institution occupancy
Over 500 to 2,000	25	150	250
Over 2,000 to 30,000	50	300	500
Over 30,000 to 100,000	50	450	750
Over 100,000	50	600	1,000

(5) Storage areas must be kept free of readily ignitable materials such as waste, weeds and long dry grass.

[Recodified as § 296-307-40017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40019 What requirements apply to container accessories?

(1) All accessories must be designed

for at least the maximum working pressure of the part of the system on which they are installed. All accessories must be fabricated from materials suitable for anhydrous ammonia service.

(2) All connections to containers must have shut-off valves located as close to the container as practical.

Exception: Safety-relief devices, gauging devices, or those fitted with a No. 54 drill size orifice are exempt from this requirement.

(3) All required excess flow valves must close automatically at the rated flows of vapor or liquid specified by the manufacturer. The connections, lines, valves, and fittings must have a greater capacity than the rated flow of the excess flow valve.

(4) Liquid-level gauging devices that require bleeding to the atmosphere and that are constructed so that outward flow is a maximum of that passed by a No. 54 drill size opening may be installed without excess flow valves.

(5) Openings from the container or through fittings attached directly on container to which pressure gauge connections are made may be installed without excess flow valves if the openings are a maximum of No. 54 drill size.

(6) Required excess flow and back pressure check valves must be located inside the container or outside as close as practical to where the line enters the container. When located outside, the installation must be made to prevent any stress beyond the excess flow or back pressure check valve from causing a break between the container and the valve.

(7) Excess flow valves must be designed with a bypass that is a maximum of No. 60 drill size opening to allow equalization of pressures.

(8) Shut-off valves provided with an excess flow valve must be designed for proper installation in a container connection so that the excess flow valve will close if the shut-off valve breaks.

(9) All excess flow valves must be plainly and permanently marked with the name or trademark of the manufacturer, the catalog number, and the rated capacity.

[Recodified as § 296-307-40019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40021 What requirements apply to piping, tubing, and fittings?

(1) All piping, tubing and fittings must be made of material suitable for anhydrous ammonia service.

(2) All piping, tubing and fittings must be designed for a pressure of at least the maximum pressure to which they may be subjected in service.

(3) All piping must be well supported and allow for expansion and contraction. All refrigeration system piping must conform to the Refrigeration Piping Code (ANSI B31.5 1966 addenda B31.1a-1968), a section of the American Standard Code for Pressure Piping, as it applies to ammonia.

(4) Piping used on nonrefrigerated systems must meet the requirements of ASTM A-53-1969 Grade B Electric Resistance Welded and Electric Flash Welded Pipe. Pipe must be at least Schedule 40 when joints are welded, or welded and flanged. Pipe must be at least Schedule 80

when joints are threaded. Brass, copper, or galvanized steel pipe or tubing is prohibited.

(5) All metal flexible connections for permanent installations must have a minimum working pressure of 250 psig (safety factor of 4). For temporary installations, you may use hose that meets the requirements of WAC 296-306A-40023.

(6) Cast iron fittings are prohibited. You must use fittings made especially for ammonia service of malleable or nodular iron that meet the requirements of Specification ASTM A47 or ASTM A395.

(7) All piping, tubing, and fittings must allow for expansion, contraction, jarring, vibration, and settling.

(8) You must make adequate provision to protect all exposed piping from physical damage from moving machinery, the presence of automobiles or trucks, or other strain on the piping.

(9) Joint compounds must be resistant to ammonia.

(10) After assembly, all piping and tubing must be tested and proved to be free from leaks at pressure that is at least equal to the normal operating pressure of the system.

[Recodified as § 296-307-40021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40023 What specifications must hoses meet? (1) Hose used in ammonia service and subject to container pressure must meet the requirements of the joint Rubber Manufacturers Association and the Fertilizer Institute "Hose Specifications for Anhydrous Ammonia."

(2) Hose subject to container pressure must be designed for a minimum working pressure of 350 psig and a minimum burst pressure of 1750 psig. Hose assemblies must be able to withstand a test pressure of 500 psig.

(3) Hose and hose connections on the low pressure side of flow control or pressure reducing valves on devices discharging to atmospheric pressure must be designed for the maximum low side working pressure. All connections must be designed, constructed, and installed to prevent leaks when connected.

(4) Where liquid transfer hose is not drained after transfer operations, the hose must have an approved shut-off valve at the discharge end. You must provide a method to prevent excessive hydrostatic pressure in the hose. (See WAC 296-306A-40025.)

(5) On all hose 1/2-inch outside diameter and larger, used for the transfer of anhydrous ammonia liquid or vapor, you must ensure that the following information is etched, cast, or impressed at five-foot intervals:

- Anhydrous Ammonia
- xxx psig (Maximum working pressure)
- Manufacturer's Name or Trademark
- Year of Manufacture

[Recodified as § 296-307-40023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40025 What requirements apply to safety-relief devices? (1) Every container used in systems

covered by WAC 296-306A-400 must have one or more spring-loaded safety-relief valves or the equivalent.

(2) The discharge from safety-relief valves must be vented away from the container, upward, and unobstructed to the atmosphere. All safety-relief valve discharge openings must have suitable raincaps that allow free discharge of the vapor and prevent water from entering. You must provide a method to drain condensate. The rate of discharge must be as follows:

Surface Area sq. ft.	Flow Rate CFM Air	Surface Area sq. ft.	Flow Rate CFM Air	Surface Area sq. ft.	Flow Rate CFM Air
20	258	185	1,600	900	5,850
25	310	190	1,640	950	6,120
30	360	195	1,670	1,000	6,380
35	408	200	1,710	1,050	6,640
40	455	210	1,780	1,100	6,900
45	501	220	1,850	1,150	7,160
50	547	230	1,920	1,200	7,410
55	591	240	1,980	1,250	7,660
60	635	250	2,050	1,300	7,910
65	678	260	2,120	1,350	8,160
70	720	270	2,180	1,400	8,410
75	762	280	2,250	1,450	8,650
80	804	290	2,320	1,500	8,900
85	845	300	2,380	1,550	9,140
90	885	310	2,450	1,600	9,380
95	925	320	2,510	1,650	9,620
100	965	330	2,570	1,700	9,860
105	1,010	340	2,640	1,750	10,090
110	1,050	350	2,700	1,800	10,330
115	1,090	360	2,760	1,850	10,560
120	1,120	370	2,830	1,900	10,800
125	1,160	380	2,890	1,950	11,030
130	1,200	390	2,950	2,000	11,260
135	1,240	400	3,010	2,050	11,490
140	1,280	450	3,320	2,100	11,720
145	1,310	500	3,620	2,150	11,950
150	1,350	550	3,910	2,200	12,180
155	1,390	600	4,200	2,250	12,400
160	1,420	650	4,480	2,300	12,630
165	1,460	700	4,760	2,350	12,850
170	1,500	750	5,040	2,400	13,080
175	1,530	800	5,300	2,450	13,300
180	1,570	850	5,590	2,500	13,520

Surface area = total outside surface area of container in square feet. When the surface area is not stamped on the name plate or when the marking is not legible, calculate the area with one of the following formulas:

- Hemispherical heads: Area = (Length in feet) X (outside diameter in feet) X 3.1416.
- Other than hemispherical heads: Area = (Length in feet) + (0.3 outside diameter in feet) X (outside diameter in feet) X 3.1416.
- Spherical container: Area = (outside diameter in feet)² X 3.1416.
- Flow rate: CFM air = cubic feet per minute of air required at standard conditions, 60F and atmospheric pressure (14.7 psia).

For containers with total outside surface area greater than 2,500 sq. ft., the formula is: Flow rate CFM air = 22.11 A^{0.82} where A = outside surface area of the container in square feet.

(3) Container safety-relief valves must be set for start to discharge as follows, according to the design pressure of the container.

Containers	Minimum	Maximum*
ASME U-68, U-69	110%	125%
ASME U-200, U-201	95%	100%
ASME 1952, 1956, 1959, 1962, 1965, 1968 or 1971	95%	100%
API-ASME	95%	100%
U.S. Coast Guard	As required by USCG regulations	
DOT	As required by DOT regulations	

*Note: Plus a relief valve manufacturer's tolerance of ten percent.

(4) Safety-relief devices used in systems covered by WAC 296-306A-400 must be constructed to discharge at a rate equal to or greater than the rates required in subsection (2) of this section before the pressure exceeds 120% (not including the tolerance referred to in subsection (3) of this section) of the maximum permitted start-to-discharge pressure setting of the device.

(5) Safety-relief valves must be arranged to minimize tampering. If the pressure setting adjustment is external, the relief valves must have a sealable adjustment.

(6) Shut-off valves installed between the safety-relief valves and the containers or systems described in WAC 296-306A-400 are prohibited.

Exception: A shut-off valve may be used where the arrangement of the valve allows the required capacity flow through the relief valves.

Exception example 1: A three-way valve installed under two safety-relief valves, each of which has the required rate of discharge and is installed to allow either of the safety-relief valves to be closed off, but does not allow both safety valves to be closed off at the same time.

Exception example 2: Two separate relief valves are installed with individual shut-off valves. The two shut-off valve stems must be mechanically interconnected to allow the full required flow of one safety-relief valve at all times.

Exception example 3: A safety-relief valve manifold that allows one valve of two, three, four or more to be closed off and the remaining valve or valves will provide not less than the rate of discharge shown on the manifold nameplate.

(7) Safety-relief valves must have direct communication with the vapor space of the container.

(8) Each safety-relief valve used with systems described in WAC 296-306A-400 must be plainly and permanently marked as follows:

- With the letters "AA" or the symbol NH3.
- The pressure in pounds per square inch gauge (psig) at which the valve is set to start to discharge.
- The rate of discharge of the valve in cubic feet per minute of air at 60°F and atmospheric pressure (14.7 psia).
- The manufacturer's name and catalog number.

For example: A safety-relief valve marked AA-250-4200 (air) mean the valve is suitable for use on an anhydrous ammonia container; that it is set to start to discharge at 250 psig; and that its rate of discharge is 4,200 cubic feet per minute of air.

(9) No connection to the safety-relief valve may restrict the flow capacity on either the upstream or downstream side.

(10) The manufacturer or supplier of a safety-relief valve manifold must publish complete data showing the flow rating through the combined assembly of the manifold with safety-relief valves installed. The manifold flow rating must be determined by testing the manifold with all but one valve discharging. The flow rate must be determined by the restricted opening or openings or those having the lowest flow. The valve must be marked as required in subsection (7) of this section.

(11) A hydrostatic relief valve must be installed between each pair of valves in the liquid ammonia piping or hose where liquid may be trapped to release into the atmosphere at a safe location.

(12) Discharge from safety-relief devices must not terminate in or beneath any building.

[Recodified as § 296-307-40025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40027 What emergency precautions are required when handling anhydrous ammonia? (1) You must train employees required to handle ammonia in the safe operating practices and the proper action to take in an emergency. Employees must be instructed to use the equipment listed in subsection (3) of this section in an emergency.

(2) If ammonia system leaks, the employees trained for and designated to act in emergencies must:

- See that anyone not required to deal with an emergency is evacuated from the contaminated area.
- Put on a suitable gas mask.
- Wear gauntlet type plastic or rubber gloves and wear plastic or rubber suits in heavily contaminated atmospheres.
- Shut off the appropriate valves.
- All storage systems must have on hand at least the following equipment for emergency and rescue purposes:
 - *One full face gas mask with anhydrous ammonia refill canisters.
 - **One pair of protective gloves.
 - **One pair of protective boots.
 - **One protective slicker and/or protective pants and jacket.

(e) Easily accessible shower and/or at least 50 gallons of clean water in an open top container.

(f) Tight-fitting vented goggles or one full face shield.

*An ammonia canister is effective for short periods of time in light concentrations of ammonia vapor, generally fifteen minutes in concentrations of 3% and will not protect breathing in heavier concentrations. If ammonia vapors are detected when mask is applied, the concentration is too high for safety. The life of a canister in service is controlled by the percentage of vapors to which it is exposed. Canisters must not be opened until ready for use and should be discarded after use. Unopened canisters may be guaranteed

for as long as three years and all should be dated when received. In addition, an independently supplied air mask of the type used by fire departments may be used for severe emergencies.

**Gloves, boots, slickers, jackets, and pants must be made of rubber or other material impervious to ammonia.

(4) Where several persons are usually present, additional safety equipment may be necessary.

(5) Each tank motor vehicle transporting anhydrous ammonia, except farm applicator vehicles, must carry a container of at least five gallons of water and must have a full face gas mask, a pair of tight-fitting goggles or one full face shield. The driver must be instructed in their use and the proper action to take to provide for the driver's safety.

(6) If a leak occurs in transportation equipment and it is impractical to stop the leak, the driver should move the vehicle to an isolated location.

(7) If liquid ammonia contacts the skin or eyes, the affected area should be promptly and thoroughly flushed with water. Do not use neutralizing solutions or ointments on affected areas. A physician must treat all cases of eye exposure to liquid ammonia.

[Recodified as § 296-307-40027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40029 What requirements apply to filling densities? Filling density means the percent ratio of the weight of the gas in a container to the weight of water at 60°F that the container will hold. One pound of water equals 27.737 cubic inches at 60°F. To determine the weight capacity of the tank in pounds, the weight of a gallon (231 cubic inches) of water at 60°F in air must be 8.32828 pounds.

(1) The filling densities for nonrefrigerated containers must not exceed the following:

	Aboveground	Underground
(i) Uninsulated	56%	58%
(ii) Insulated	57%	
(iii) DOT containers shall be filled according to DOT regulations.		

This corresponds to 82% by volume at -28°F, 85% by volume at 5°F, 87.5% by volume at 30°F, and 90.6% by volume at 60°F.

(2) When containers are filled according to liquid level by any gauging method other than a fixed length dip tube gauge, each container should have a thermometer well so that the internal liquid temperature can be easily determined and the amount of liquid and vapor in the container corrected to a 60°F basis.

[Recodified as § 296-307-40029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40031 What requirements apply to the transfer of liquids? (1) Anhydrous ammonia must always be at a temperature suitable for the material of construction and design of the receiving containers. Ordinary steels are not suitable for refrigerated ammonia. See

Appendix R of API Standard 620 "Recommended Rules for Design and Construction of Large Welded Low-Pressure Storage Tanks" for materials for low temperature service.

(2) At least one attendant must supervise the transfer of liquids from the time the connections are first made until they are finally disconnected.

(3) Flammable gases or gases that will react with ammonia (such as air) must not be used to unload tank cars or transport trucks.

(4) Containers must be charged or used only on authorization of the owner.

(5) Containers must be gauged and charged only in the open atmosphere or in buildings approved for that purpose.

(6) Pumps used for transferring ammonia must be recommended and labeled for ammonia service by the manufacturer.

(a) Pumps must be designed for at least 250 psig working pressure.

(b) Positive displacement pumps must have installed, off the discharge port, a constant differential relief valve discharging into the suction port of the pump through a line large enough to carry the full capacity of the pump at relief valve setting. The setting and installation must be according to the pump manufacturer's recommendations.

(c) On the discharge side of the pump, before the relief valve line, there must be a pressure gauge graduated from 0 to 400 psig installed.

(d) Plant piping must contain shut-off valves located as close as practical to pump connections.

(7) Compressors used for transferring or refrigerating ammonia must be recommended and labeled for ammonia service by the manufacturer.

(a) Compressors, except those used for refrigeration, must be designed for at least 250 psig working pressure. Crank cases of compressors not designed to withstand system pressure must be protected with a suitable safety-relief valve.

(b) Plant piping must have shut-off valves located as close as practical to compressor connections.

(c) A safety-relief valve large enough to discharge the full capacity of the compressor must be connected to the discharge before any shut-off valve.

(d) Compressors must have pressure gauges at suction and discharge graduated to at least one and one-half times the maximum pressure that can develop.

(e) Adequate means, such as drainable liquid trap, must be provided on the compressor suction to minimize the entry of liquid into the compressor.

(f) Where necessary to prevent contamination, an oil separator must be provided on the discharge side of the compressor.

(8) Loading and unloading systems must be protected by suitable devices to prevent emptying of the storage container or the container being loaded or unloaded if the hose is cut. Backflow check valves or properly sized excess flow valves must be installed where necessary to provide this protection. In the event that valves are not practical, remotely operated shut-off valves may be installed.

(9) Meters used to measure liquid anhydrous ammonia must be recommended and labeled for ammonia service by the manufacturer.

(a) Liquid meters must be designed for a minimum working pressure of 250 psig.

(b) The metering system must incorporate devices that will prevent the inadvertent measurement of vapor.

[Recodified as § 296-307-40031. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40031, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40033 What requirements apply to tank car unloading points and operations? (1) Provisions for unloading tank cars must meet DOT requirements.

(2) Unloading operations must be performed by reliable employees who are properly instructed and responsible for careful compliance with all procedures.

(3) Caution signs must be placed on the track or car to give necessary warning to anyone approaching car from the open end of the siding. The signs must be left up until after car is unloaded and disconnected from discharge connections. Signs must be of metal or other suitable material, at least 12 by 15 inches, and bear the words "STOP—Tank car connected" or "STOP—Men at work." The word "STOP" must be in letters at least four inches high and the other words in letters at least two inches high. The letters must be white on a blue background.

(4) The track of a tank car siding must be substantially level.

(5) Brakes must be set and wheels blocked on all cars being unloaded.

(6) Tank cars of anhydrous ammonia must be unloaded only at approved locations meeting the requirements of WAC 296-306A-40025(4) and 296-306A-40031(8).

[Recodified as § 296-307-40033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40035 What requirements apply to the liquid-level gauging device? (1) Each container except those filled by weight must have an approved liquid-level gauging device.

(2) All gauging devices must be arranged so that the maximum liquid level to which the container is filled is easily determined.

(3) Gauging devices that require bleeding of the product to the atmosphere such as the rotary tube, fixed tube, and slip tube devices, must be designed so that the maximum opening of the bleed valve is a maximum of No. 54 drill size unless provided with an excess flow valve.

(4) Gauging devices must have a design pressure equal to or greater than the design pressure of the container on which they are installed.

(5) Fixed liquid-level gauges must be designed so that the maximum volume of the container filled by liquid is a maximum of 85% of its water capacity. The coupling into which the fixed liquid-level gauge is threaded must be placed at the 85% level of the container. If located elsewhere, the dip tube of this gauge must be installed so that it cannot be readily removed.

Note: This does not apply to refrigerated storage.

(6) Columnar gauge glasses must be restricted to stationary storage installation. They must have shut-off

valves having metallic hand wheels, excess flow valves, and extra heavy glass adequately protected by a metal housing applied by the gauge manufacturer. They must be shielded against the direct rays of the sun.

[Recodified as § 296-307-40035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40035, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40037 How should aboveground uninsulated containers be maintained? Aboveground uninsulated containers should have a reflective surface maintained in good condition. We recommend white for painted surfaces, but other light reflecting colors are acceptable.

[Recodified as § 296-307-40037. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40037, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40039 What requirements apply to electrical equipment and wiring? (1) Electrical equipment and wiring for use in ammonia installations must be general purpose or weather resistant as appropriate.

(2) Where concentrations of ammonia in the air in excess of 16% by volume are likely to be encountered, electrical equipment and wiring must be specified by and installed according to chapter 296-306A WAC Part T, for Class I, Group D locations.

[Recodified as § 296-307-40039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-410 Storage and handling of liquefied petroleum gases.

[Recodified as § 296-307-410. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-410, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41001 What does this part cover? Chapter 296-306A WAC Part U2 covers the storage and handling of liquefied petroleum gases.

The requirements of WAC 296-306A-410 apply to all LP-gas installations covered by this part.

For additional requirements related to: See WAC:

Cylinder systems	296-306A-415
Systems using non-DOT containers	296-306A-420
LP-gas as a motor fuel	296-306A-425
Storage of containers awaiting use or resale	296-306A-430
LP-gas installations on commercial vehicles	296-306A-435
LP-gas service stations	296-306A-440

[Recodified as § 296-307-41001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41003 Which LP-gas installations are not covered by this part? (1) This part does not apply to:

(a) LP-gas refrigerated storage systems;

(b) LP-gas used with oxygen;

(c) LP-gas used in utility gas plants (covered by the National Fire Protection Association Standard for the Storage

and Handling of Liquefied Petroleum Gases at Utility Gas Plants, NFPA No. 59-1968);

(d) Low-pressure (less than 1/2 pound per square inch or 14 inches water column) LP-gas piping systems, and the installation and operation of residential and commercial appliances supplied through such systems. The National Fire Protection Association Standard for the Installation of Gas Appliances and Gas Piping, NFPA 54-1969 apply to these systems.

(2) LP-gas installations, equipment, and appliances that met the requirements of the National Fire Protection Association Standard for the Storage and Handling of Liquefied Petroleum Gases NFPA No. 58-1972, 1973 at the time of manufacture or installation may be used if they do not create a hazard to employees.

[Recodified as § 296-307-41003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41005 What definitions apply to this part? "Adequate ventilation," for fire prevention during normal operation, means the concentration of the gas in a gas-air mixture does not exceed 25% of the lower flammable limit.

"Containers" means all vessels, such as tanks, cylinders, or drums, used to transport or store LP-gases.

"DOT" means the federal Department of Transportation.

"DOT container" means a container that meets DOT regulations.

"DOT cylinder" means a cylinder that meets DOT regulations.

"DOT regulations/requirements/specifications" means the DOT regulations of 49 CFR part 178.

"Liquefied petroleum gases" and "LP-gas" means any material that is composed mostly of any of the following: Hydrocarbons, or mixtures of them; propane; propylene; butanes (normal butane or iso-butane); and butylenes.

"PSIA" pounds per square inch absolute.

"PSIG" means pounds per square inch gauge.

"Systems" means an assembly of the container or containers, major devices such as vaporizers, safety-relief valves, excess flow valves, regulators, and piping connecting such parts.

"Vaporizer-burner" means an integral vaporizer-burner unit, dependent upon the heat generated by the burner to vaporize the liquid used for dehydrators or dryers.

[Recodified as § 296-307-41005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41007 When must LP-gas be odorized? You must ensure that all LP-gas is odorized by an approved agent to indicate by distinct odor, the presence of gas down to concentration in air of a maximum of 1/5 the lower limit of flammability.

Exception: Odorization is not required if it will create a hazard in further processing, or if it serves no useful purpose as a warning agent.

Note: The odorization requirement may be met by using 1.0 pounds of ethyl mercaptan, 1.0 pounds of thiophene, or 1.4 pounds of amyl mercaptan per ten thousand gallons of LP-gas. You may

use any odorant and quantity that meets the requirements of this section.

[Recodified as § 296-307-41007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41009 Must LP-gas containers and equipment be approved? (1) Each system of DOT containers must have approved container valves, connectors, manifold valve assemblies, and regulators.

(2) Each non-DOT system using containers of 2,000 gallons or less water capacity, must have a container assembly, one or more regulators, and other necessary parts. The entire system, or the container assembly with the regulators, must be individually listed by a nationally recognized testing laboratory.

"Container assembly" means the container and fittings for all openings, including shut-off valves, excess flow valves, liquid-level gauging devices, safety-relief devices, and protective housing.

(3) In systems using containers of over 2,000 gallons water capacity, each regulator, container, valve, excess flow valve, gauging device, and relief valve, must be listed by a nationally recognized testing laboratory.

(4) All DOT containers must be constructed, tested, and stamped according to the DOT specifications effective at the date of their manufacture.

[Recodified as § 296-307-41009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41011 What construction and test requirements must containers meet? (1) Containers must be designed, constructed, and tested according to the *Rules for Construction of Unfired Pressure Vessels, section VIII, Division I, American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code*, 1968 edition, unless otherwise specified.

(2) Containers constructed according to the 1949 and earlier editions of the ASME Code are exempt from U-2 through U-10 and U-19 of the code. Containers constructed according to U-70 in the 1949 and earlier editions do not meet the requirements of this section.

(3) Containers designed, constructed, and tested prior to July 1, 1961, according to the *Code for Unfired Pressure Vessels for Petroleum Liquids and Gases*, 1951 edition with 1954 Addenda, of the American Petroleum Institute and the American Society of Mechanical Engineers are considered in compliance. Containers constructed according to API-ASME Code do not have to comply with section I or with the appendix to section I. W-601 through W-606 in the 1943 and earlier editions do not apply.

[Recodified as § 296-307-41011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41013 How must containers be welded? (1) You must ensure that all welding to the shell, head, or any other part of the container subject to internal pressure, meets the requirements of the code under which the tank was fabricated. You may weld on saddle plates, lugs,

or brackets attached to the container by the tank manufacturer.

(2) When you must repair or modify DOT containers by welding, you must return the container to a qualified manufacturer, making containers of the same type, to make the repair or modification according to DOT regulations.

[Recodified as § 296-307-41013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41015 How must containers be marked? (1) You must ensure that containers are marked according to DOT regulations or with the following:

(a) Indication that the container meets the requirements of the code under which it is constructed, and all marks required by that code.

(b) Indication whether the container is designed for underground or aboveground installation or both. If intended for both and different style hoods are provided, the marking must indicate the proper hood for each type of installation.

(c) The name and address of the supplier of the container, or with the trade name of the container.

(d) The water capacity of the container in pounds or gallons, United States standard.

(e) The pressure in psig, for which the container is designed.

(f) The wording "This container must not contain a product with a vapor pressure greater than __ psig at 100°F."

(g) The tare weight, for containers with a water capacity of three hundred pounds or less.

(h) Indication of the maximum fill level for liquid at temperatures between 20°F and 130°F. Markings must be in maximum increments of 20°F. This marking may be located on the liquid level gauging device.

Exception: Containers provided with fixed maximum level indicators or that are filled by weighing are exempt from this requirement.

(i) The outside surface area in square feet.

(2) The markings must be on a metal nameplate attached to the container so that it is visible after the container is installed.

(3) When LP-gas and one or more other gases are stored or used in the same area, the containers must be marked to identify their content. Marking must be according to American National Standard Z48.1-1954, "Method of Marking Portable Compressed Gas Containers to Identify the Material Contained."

[Recodified as § 296-307-41015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41017 Where must containers be located? You must ensure that containers are located according to the following:

(1) Containers and first stage regulating equipment are located outdoors.

Containers may be located indoors under any of the following conditions:

(a) In buildings used exclusively for container charging, vaporization pressure reduction, gas mixing, gas manufacturing, or distribution;

(b) When portable use is necessary and meets the requirements of WAC 296-306A-41509;

(c) LP-gas fueled stationary or portable engines that meet the requirements of WAC 296-306A-42521 or 296-306A-42523;

(d) LP-gas fueled industrial trucks that meet the requirements of WAC 296-306A-42525;

(e) LP-gas fueled vehicles garaged according to WAC 296-306A-42527; or

(f) Containers awaiting use or resale when stored according to WAC 296-306A-430.

(2) Each individual container is located away from the nearest important building, group of buildings, or line of adjoining property that may be built on, according to Table U-1.

TABLE U-1
Minimum distances

Water capacity per container	Containers		Between above-ground containers
	Under-ground	Above-ground	
Less than 125 gals ^a	10 feet	None	None
125-250 gals	10 feet	10 feet	None
251-500 gals	10 feet	10 feet	3 feet
501-2,000 gals	25 feet ^b	25 feet ^b	3 feet
2,001-30,000 gals	50 feet	50 feet	5 feet
30,001-70,000 gals	50 feet	75 feet	1/4 of sum of diameters of adjacent containers
70,001-90,000 gals	50 feet	100 feet	1/4 of sum of diameters of adjacent containers

(a) If the total water capacity of a multicontainer installation at a consumer site is 501 gallons or more, the minimum distance must comply with this table, applying the aggregate capacity instead of the capacity per container. For multiple installations, installations must be at least twenty-five feet apart. Do not apply the MINIMUM DISTANCES BETWEEN ABOVEGROUND CONTAINERS to such installations.

(b) Distance requirements may be reduced to 10 feet for a single container of 1200 gallons water capacity or less, if the container is at least 25 feet from any other LP-gas container of more than 125 gallons water capacity.

(c) In buildings devoted exclusively to gas manufacturing and distributing operations, the distances may be reduced if no containers of more than 500 gallons water capacity are located closer than ten feet to gas manufacturing and distributing buildings.

(3) Containers installed for use must not be stacked one above the other.

(4) In industrial installations involving containers of 180,000 gallons total water capacity or more, where serious exposures from the container to adjacent properties are common, firewalls or other means of protection designed and constructed according to good engineering practices are required.

(5) Readily ignitable material such as weeds and long dry grass is removed within ten feet of any container.

(6) The minimum separation between LP-gas containers and flammable liquid tanks is twenty feet; the minimum separation between a container and the centerline of the dike is ten feet.

Exception: This does not apply when LP-gas containers of 125 gallons or less capacity are installed adjacent to Class III flammable liquid tanks of 275 gallons or less capacity.

(7) The accumulation of flammable liquids under adjacent LP-gas containers is prevented by a means such as diking, diversion curbs, or grading.

(8) When dikes are used with flammable liquid tanks, no LP-gas containers are located within the diked area.

[Recodified as § 296-307-41017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41019 What requirements apply to valves and accessories? (1) Valves, fittings, and accessories connected directly to the container including primary shut-off valves, must have a rated working pressure of at least 250 psig and must be of material and design suitable for LP-gas service. The use of cast iron for container valves, fittings, and accessories is prohibited. Container valves may be made of malleable or nodular iron.

(2) Connections to containers must have shut-off valves located as close to the container as practical.

Exception: This does not apply to safety-relief connections, liquid level gauging devices, and plugged openings.

(3) All required excess flow valves must close automatically at the rated flows of vapor or liquid specified by the manufacturer. The connections, lines, valves, and fittings must have a greater capacity than the rated flow of the excess flow valve.

(4) Liquid level gauging devices that are constructed so that outward flow is a maximum of that passed by a No. 54 drill size opening may be installed without excess flow valves.

(5) Openings from container or through fittings attached directly on container to which pressure gauge connection is made, need not have shut-off or excess flow valves if such openings are restricted to not larger than No. 54 drill size opening.

(6) Required excess flow and back pressure check valves must be located inside the container or outside where the line enters the container. When located outside, the installation must be made to prevent any stress beyond the excess flow or back pressure check valve from causing a break between the container and the valve.

Exception: This does not apply to systems using containers with a water capacity greater than 2-1/2 pounds (nominal one pound LP-gas capacity).

(7) Excess flow valves must be designed with a bypass that is a maximum of No. 60 drill size opening to allow equalization of pressures.

(8) Containers of more than 30 gallons water capacity and less than 2,000 gallons water capacity, filled on a volumetric basis, and manufactured after December 1, 1963, must be equipped for filling into the vapor space.

[Recodified as § 296-307-41019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41021 What requirements apply to piping, tubing, and fittings? (1) Pipe must be wrought iron or steel (black or galvanized), brass, copper, or aluminum alloy. Aluminum alloy pipe must be at least Schedule 40 according to the specifications for Aluminum Alloy Pipe, ANSI H38.7-1969 (ASTM, B241-1969), and must be suitably marked at each end of each length indicating compliance with ANSI specifications. Alloy 5456 is prohibited.

Exception: This does not apply to piping for LP-gas used as a motor fuel or to piping on commercial vehicles.

(2) Aluminum alloy pipe must be protected against external corrosion whenever:

(a) It is in contact with dissimilar metals other than galvanized steel; or

(b) Its location is subject to repeated wetting by such liquids as water (except rain water), detergents, sewage, or leaking from other piping; or

(c) It passes through flooring, plaster, masonry, or insulation.

Galvanized sheet steel or pipe, galvanized inside and out, are considered suitable protection.

(3) Aluminum pipe must be three-fourths inch nominal and shall not be used for pressures exceeding 20 psig. Aluminum alloy pipe must not be installed within six inches of the ground.

(a) Vapor piping with operating pressures not exceeding 125 psig must be suitable for a working pressure of at least 125 psig. Pipe must be at least Schedule 40 ASTM A-53-69, Grade B Electric Resistance Welded and Electric Flash Welded Pipe or equal.

(b) Vapor piping with operating pressures over 125 psig and all liquid piping must be suitable for a working pressure of at least 250 psig. Pipe must be at least Schedule 80 if joints are threaded or threaded and back welded. At least Schedule 40 (ASTM A-53-1969 Grade B Electric Resistance Welded and Electric Flash Welded Pipe or equal) must be used if joints are welded, or welded and flanged.

(4) Tubing must be seamless copper, brass, steel, or aluminum alloy. Copper tubing must be of Type K or L or equivalent as covered in the Specification for Seamless Copper Water Tube, ANSI H23.1-1970 (ASTM B88-1969). Aluminum alloy tubing must be of Type A or B or equivalent as covered in Specification ASTM B210-1968 and must be suitably marked every 18 inches indicating compliance with ASTM specifications. The minimum nominal wall thickness of copper tubing and aluminum alloy tubing must be as specified in Table U-2 and Table U-3.

**TABLE U-2
WALL THICKNESS OF COPPER TUBING¹**

Note: The standard tube size is one-eighth-inch smaller than its nominal outside diameter.

Standard size (inches)	Nominal O.D. (inches)	Nominal wall thickness (inches)	
		Type K	Type L
1/4	0.375	0.035	0.030
3/8	0.500	0.049	0.035
1/2	0.625	0.049	0.040
5/8	0.750	0.049	0.042
3/4	0.875	0.065	0.045
1	1.125	0.065	0.050
1 1/4	1.375	0.065	0.055
1 1/2	1.625	0.072	0.060
2	2.125	0.083	0.070

¹Based on data in Specification for Seamless Copper Water Tubing, ANSI H23.1-1970 (ASTM B-88-69).

**TABLE U-3
WALL THICKNESS OF ALUMINUM ALLOY TUBING¹**

Outside diameter (inches)	Nominal wall thickness (inches)	
	Type A	Type B
3/8	0.035	0.049
1/2	0.035	0.049
5/8	0.042	0.049
3/4	0.049	0.058

¹Based on data in Standard Specification for Aluminum-Alloy Drawn Seamless Coiled Tubes for Special Purpose Applications, ASTM B210-68.

(5) Aluminum alloy tubing must be protected against external corrosion whenever:

- (a) It is in contact with dissimilar metals other than galvanized steel; or
- (b) Its location is subject to repeated wetting by liquids such as water (except rainwater), detergents, sewage, or leakage from other piping; or
- (c) It passes through flooring, plaster, masonry, or insulation.

Galvanized sheet steel or pipe, galvanized inside and out, are considered suitable protection.

(6) The maximum outside diameter for aluminum alloy tubing must be three-fourths inch and must not be used for pressures exceeding 20 psig. Aluminum alloy tubing installed within six inches of the ground is prohibited.

(7) In systems where the gas in liquid form enters the building without pressure reduction, only heavy walled seamless brass or copper tubing with an internal diameter a maximum of 3/32 inch, and a wall thickness of at least 3/64 inch shall be used.

Exception: This requirement does not apply to research and experimental laboratories, buildings or separate fire divisions of buildings used exclusively for housing internal combustion engines, and to commercial gas plants or bulk stations where containers are charged, nor to industrial vaporizer buildings, nor to buildings, structures, or equipment under construction or undergoing major renovation.

(8) Pipe joints must be screwed, flanged, welded, soldered, or brazed with a material having a melting point

over 1,000°F. Joints on seamless copper, brass, steel, or aluminum alloy gas tubing shall be made by approved gas tubing fittings, or soldered or brazed with a material having a melting point over 1,000°F.

(9) For operating pressures of 125 psig or less, fittings must be designed for a pressure of at least 125 psig. For operating pressures above 125 psig, fittings must be designed for a minimum of 250 psig.

(10) Threaded cast iron pipe fittings are prohibited. Aluminum alloy fittings must be used with aluminum alloy pipe and tubing. Insulated fittings must be used where aluminum alloy pipe or tubing connects with a dissimilar metal. You may use malleable, nodular, or higher strength gray iron for fittings.

Note: Strainers, regulators, meters, compressors, pumps, etc., are not to be considered as pipe fittings.

(11) All materials such as valve seats, packing, gaskets, diaphragms, etc., must be resistant to the action of LP-gas under the service conditions to which they are subjected.

(12) All piping, tubing, or hose must be tested after assembly and proved free from leaks at least normal operating pressures. After installation, piping and tubing of all domestic and commercial systems must be tested and proved free of leaks using a manometer or equivalent device that will indicate a drop in pressure. Test made by flame is prohibited.

(13) You must ensure that piping allows for expansion, contraction, jarring, and vibration, and settling. You may use flexible connections.

(14) Piping outside buildings may be buried, above-ground, or both, but must be well supported and protected against physical damage. Where soil conditions warrant, all piping must be protected against corrosion. Where condensation may occur, the piping must be pitched back to the container, or you must provide a means for revaporization of the condensate.

[Recodified as § 296-307-41021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41023 What specifications must hoses meet?

(1) Hose shall be fabricated of materials that are resistant to the action of LP-gas in the liquid and vapor phases. If wire braid is used for reinforcing the hose, it must be of corrosion-resistant material such as stainless steel.

(2) Hose subject to container pressure must be marked "LP-gas" or "LPG" at not greater than ten-foot intervals.

(3) Hose subject to container pressure must be designed for a bursting pressure of not less than 1,250 psig.

(4) Hose subject to container pressure must be listed by a nationally recognized testing laboratory.

(5) Hose connections subject to container pressure must be able to withstand, without leaking, a test pressure of not less than 500 psig.

(6) Hose and hose connections on the low-pressure side of the regulator or reducing valve must be designed for a bursting pressure of not less than 125 psig or five times the set pressure of the relief devices protecting that portion of the system, whichever is higher.

(7) Hose may be used on the low-pressure side of regulators to connect to other than domestic and commercial gas appliances under the following conditions:

(a) The appliances connected with hose are portable and need a flexible connection.

(b) For use inside buildings, the hose is of minimum practical length, but is a maximum of six feet. Hose must not extend from one room to another, nor pass through any walls, partitions, ceilings, or floors. Such hose must not be concealed from view or used in a concealed location.

Exception: For use outside of buildings, the hose may exceed this length but must be kept as short as practical.

(c) The hose must be approved and must not be used where it may be exposed to temperatures above 125°F. The hose must be securely connected to the appliance. Rubber slip ends are prohibited.

(d) The shut-off valve for an appliance connected by hose must be in the metal pipe or tubing and not at the appliance end of the hose. When shut-off valves are installed close to each other, precautions must be taken to prevent operation of the wrong valve.

(e) Hose used for connecting to wall outlets must be protected from physical damage.

[Recodified as § 296-307-41023, 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060, 96-22-048, § 296-306A-41023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41025 What requirements apply to safety devices? (1) Every container except those constructed according to DOT specifications and every vaporizer (except motor fuel vaporizers and vaporizers described in WAC 296-306A-41029(3) and 296-306A-42007 (6)(a) whether heated by artificial means or not, must have one or more safety-relief valves of spring-loaded or equivalent type. These valves must be arranged to afford free vent to the outer air with discharge not less than five feet horizontally away from any opening into the building that is below such discharge. The rate of discharge must be according to the requirements of subsection (2) or (4) of this section.

(2) Minimum required rate of discharge in cubic feet per minute of air at one hundred twenty percent of the maximum permitted start to discharge pressure for safety-relief valves to be used on containers other than those constructed according to DOT specification must be as follows:

Surface area sq. ft.	Flow rate CFM air	Surface area sq. ft.	Flow rate CFM air	Surface area sq. ft.	Flow rate CFM air
20 or less	626	170	3,620	550	9,470
25	751	175	3,700	600	10,170
30	872	180	3,790	650	10,860
35	990	185	3,880	700	11,550
40	1,100	190	3,960	750	12,220
45	1,220	195	4,050	800	13,540
50	1,330	200	4,130	850	14,190
55	1,430	210	4,300	900	14,830
60	1,540	220	4,470	1,000	15,470
65	1,640	230	4,630	1,050	16,100
70	1,750	240	4,800	1,100	16,720

75	1,850	250	4,960	1,150	17,350
80	1,950	260	5,130	1,200	17,960
85	2,050	270	5,290	1,250	18,570
90	2,150	280	5,450	1,300	19,180
95	2,240	290	5,610	1,350	19,780
100	2,340	300	5,760	1,400	20,380
105	2,440	310	5,920	1,450	20,980
110	2,530	320	6,080	1,500	21,570
115	2,630	330	6,230	1,550	22,160
120	2,720	340	6,390	1,600	22,740
125	2,810	350	6,540	1,650	23,320
130	2,900	360	6,690	1,700	23,900
135	2,990	370	6,840	1,750	24,470
140	3,080	380	7,000	1,800	25,050
145	3,170	390	7,150	1,850	25,620
150	3,260	400	7,300	1,900	26,180
155	3,350	450	8,040	1,950	26,750
160	3,440	500	8,760	2,000	27,310
165	3,530				

Surface area = total outside surface area of container in square feet.

(3) When the surface area is not stamped on the name plate or when the marking is not legible, calculate the area with one of the following formulas:

- Hemispherical heads: Area = (overall length) X (outside diameter) X 3.1416.

- Other than hemispherical heads: Area = (overall length) + 0.3 (outside diameter) X (outside diameter) X 3.1416.

Note: This formula is not exact, but will give results within the limits of practical accuracy for the sole purpose of sizing relief valves.

- Spherical container: Area = (outside diameter)² X 3.1416.

- Flow rate: CFM air = required flow capacity in cubic feet per minute of air at standard conditions, 60°F and atmospheric pressure (14.7 psia).

For containers with total outside surface area greater than 2,000 sq. ft., the formula is: Flow rate CFM air = 53.632 A^{0.82} where A = outside surface area of the container in square feet.

Valves not marked "air" have flow rate marking in cubic feet per minute of LP-gas. These can be converted to ratings in cubic feet per minute of air by multiplying the LP-gas ratings by factors listed below. Air flow ratings can be converted to ratings in cubic feet per minute of LP-gas by dividing the air ratings by the factors listed below.

AIR CONVERSION FACTORS

Container type	100	125	150	175	200
Air conversion factor	1.162	1.142	1.113	1.078	1.010

(4) The minimum required rate of discharge for safety-relief valves for LP-gas vaporizers (steam heated, water heated, and direct fired) must be determined as follows:

(a) Obtain the total surface area by adding the surface area of vaporizer shell in square feet directly in contact with LP-gas and the heat exchanged surface area in square feet directly in contact with LP-gas.

(b) Obtain the minimum required rate of discharge in cubic feet of air per minute, at 60°F and 14.7 psia from subsection (2) of this section, for this total surface area.

(5) Container and vaporizer safety-relief valves must be set to start to discharge, with relation to the design pressure of the container, according to the following:

Containers	Minimum (percent)	Maximum (percent)
ASME Code; Par. U-68, U-69—1949 and earlier editions	110	*125
ASME Code; Par. U-200, U-201—1949 edition		88*100
ASME Code—1950, 1952, 1956, 1959, 1962, 1965 and 1968 (Division I) editions		88*100
API—ASME Code—all editions	88	*100
DOT	As prescribed in 49 CFR Chapter I	

* Manufacturers of safety-relief valves are allowed a plus tolerance not exceeding 10% of the set pressure marked on the valve.

(6) Safety-relief devices used with systems employing non-DOT containers must be constructed to discharge at not less than the rates shown in subsection (2) of this section, before the pressure is in excess of 120% of the maximum (not including the 10% referred to in subsection (5) of this section) permitted start-to-discharge pressure setting of the device.

(7) In high temperature areas, you must use a lower vapor pressure product or a higher designed pressure vessel to prevent the safety valves from opening. The tanks may be protected by cooling devices such as spraying, shading, or other means.

(8) Safety-relief valves must be arranged to minimize tampering. For external pressure setting or adjustment, the relief valves must have an approved sealable adjustment.

(9) Shut-off valves are prohibited between safety-relief devices and the container, equipment, or piping.

Exception: A shut-off valve may be used where the arrangement of the valve allows the required capacity flow through the safety-relief device.

(10) Safety-relief valves must have direct communication with the vapor space of the container.

(11) Each safety-relief valve must be plainly and permanently marked with the following:

(a) Container type of the pressure vessel on which the valve is designed to be installed;

(b) The pressure in psig at which the valve is set to discharge;

(c) The actual rate of discharge of the valve in cubic feet per minute of air at 60°F and 14.7 psia; and

(d) The manufacturer's name and catalog number.

For example: T200-250-4050 AIR: Indicates that the valve is suitable for use on a Type 200 container, that it is set to start to discharge at 250 psig; and that its rate of discharge is 4,050 cubic feet per minute of air.

(12) Safety-relief valve assemblies and their connections must be large enough to provide the required rate of flow for the container on which they are installed.

(13) A hydrostatic relief valve must be installed between each pair of shut-off valves on LP-gas liquid piping. The start-to-discharge pressure setting of such relief valves must be a maximum of 500 psig. The minimum setting on relief valves installed in piping connected to non-DOT containers shall be 140% of the container relief valve setting. For piping connected to DOT containers, the minimum must be 400 psig. The relief valve should not be installed in the pump discharge piping if the same protection can be provided by installing the relief valve in the suction piping. The start-to-discharge pressure setting of such a relief valve, if installed on the discharge side of a pump, must exceed the maximum pressure permitted by the recirculation device in the system.

(14) The discharge from any safety-relief device must not terminate in or beneath any building.

Exception: This requirement does not apply to relief devices covered by WAC 296-306A-41017(1), 296-306A-41507(1) or 296-306A-41509.

(15) Container safety-relief devices and regulator relief vents must be located at least five feet in any direction from air openings into sealed combustion system appliances or mechanical ventilation air intakes.

[Recodified as § 296-307-41025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.050 and [49.17.060. 96-22-048, § 296-306A-41025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41027 How must indirect fired vaporizers be constructed and installed? Indirect fired vaporizers utilizing steam, water, or other heating medium must be constructed and installed according to the following:

(1) Vaporizers must be constructed according to the requirements of WAC 296-306A-41011 and must be permanently marked as follows:

(a) With the code marking signifying the specifications to which the vaporizer is constructed;

(b) With the allowable working pressure and temperature for which the vaporizer is designed;

(c) With the sum of the outside surface area and the inside heat exchange surface area expressed in square feet; and

(d) With the name or symbol of the manufacturer.

(2) Vaporizers with an inside diameter of six inches or less exempted by the ASME Unfired Pressure Vessel Code, Section VIII of the ASME Boiler and Pressure Vessel Code, 1968, must have a design pressure of at least 250 psig and need not be permanently marked.

(3) Heating or cooling coils installed inside a storage container are prohibited.

(4) Vaporizers may be installed in buildings, rooms, sheds, or lean-tos used exclusively for gas manufacturing or distribution, or in other light, noncombustible structures that are well ventilated near the floor line and roof.

Exception: When vaporizing and/or mixing equipment is in a structure not used exclusively for gas manufacturing or distribution, the structure or room must be separated from the remainder of the building. The separation must be a wall designed to withstand a static pressure of at least 100

pounds per square foot. This wall must have no openings or pipe or conduit passing through it. Such structure or room must have adequate ventilation and must have a roof or at least one exterior wall of lightweight construction.

(5) All DOT vaporizers must have, at or near the discharge, a safety-relief valve providing an effective rate of discharge according to WAC 296-306A-41025.

(6) The heating medium lines into and out of the vaporizer must have a mechanism to prevent the flow of gas into the heat systems in the event of tube rupture in the vaporizer. Vaporizers must have an automatic means to prevent liquid from passing through the vaporizers to the gas discharge piping.

(7) The device that supplies heat to produce steam, hot water, or other heat may be installed in a building, compartment, room, or lean-to ventilated near the floorline and roof to the outside. The device must be separated from all compartments or rooms containing LP-gas vaporizers, pumps, and central gas mixing devices by a wall designed to withstand a static pressure of at least 100 pounds per square foot. This wall must have no openings or pipes or conduit passing through it.

Exception: This requirement does not apply to the domestic water heaters that may supply heat for a vaporizer in a domestic system.

(8) Gas-fired heating systems supplying heat exclusively for vaporization must have automatic safety devices to shut off the flow of gas to main burners, if the pilot light should fail.

(9) Vaporizers may be an integral part of a fuel storage container directly connected to the liquid section or gas section or both.

(10) Fusible plugs are prohibited on vaporizers.

(11) Vaporizer houses must not have unprotected drains to sewers or sump pits.

[Recodified as § 296-307-41027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41029 How must atmospheric vaporizers be constructed and installed? Atmospheric vaporizers using heat from the ground or surrounding air must be installed as follows:

(1) Buried underground; or

(2) Located inside the building near where the pipe enters the building, if the capacity of the unit does not exceed one quart;

(3) Vaporizers of less than one quart capacity heated by the ground or surrounding air, may be installed without safety-relief valves if tests show that the assembly is safe.

[Recodified as § 296-307-41029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41031 How must direct gas-fired vaporizers be constructed and installed? Direct gas-fired vaporizers must be constructed, marked, and installed as follows:

(1) According to the requirements of the *American Society of Mechanical Engineers Boiler and Pressure Vessel*

Code, 1968, that apply to the maximum working conditions for which the vaporizer is designed.

(2) With the name of the manufacturer; rated Btu input to the burner; the area of the heat exchange surface in square feet; the outside surface of the vaporizer in square feet; and the maximum vaporizing capacity in gallons per hour.

(3) Vaporizers may be connected to the liquid section or the gas section of the storage container, or both. The container must have a manually operated valve in each connection that completely shuts off when desired, all flow of gas or liquid from container to vaporizer.

(4) Vaporizers with a maximum capacity of 35 gallons per hour must be located at least 5 feet from container shut-off valves. Vaporizers more than 35 gallon capacity but a maximum of 100 gallons per hour must be located at least 10 feet from the container shut-off valves. Vaporizers having a capacity greater than 100 gallons per hour must be located at least 15 feet from container shut-off valves.

(5) Vaporizers may be installed in buildings, rooms, housings, sheds, or lean-tos used exclusively for vaporizing or mixing of LP-gas. Vaporizing housing structures must be noncombustible, and well ventilated near the floorline and the highest point of the roof. When vaporizer and/or mixing equipment is located in a structure or room attached to or within a building, such structure or room must be separated from the remainder of the building by a wall designed to withstand a static pressure of at least 100 pounds per square foot. This wall must have no openings or pipes or conduit passing through it. The structure or room must have adequate ventilation, and a roof or at least one exterior wall of lightweight construction.

(6) Vaporizers must have at or near the discharge, a safety-relief valve providing an effective rate of discharge according to WAC 296-306A-41025. The relief valve must be located where it is not subjected to temperatures over 140°F.

(7) Vaporizers must have suitable automatic means to prevent liquid passing from the vaporizer to the gas discharge piping of the vaporizer.

(8) Vaporizers must have means for manually turning off the gas to the main burner and pilot.

(9) Vaporizers must have automatic safety devices to shut off the flow of gas to main burners if the pilot light should fail. When the flow through the pilot exceeds 2,000 Btu per hour, the pilot also must have an automatic safety device to shut off the flow of gas to the pilot should the pilot flame be extinguished.

(10) Pressure regulating and pressure reducing equipment located within 10 feet of a direct fired vaporizer must be separated from the open flame by an airtight noncombustible partition.

(11) Except as provided in subsection (5) of this section, the following minimum distances must be maintained between direct fired vaporizers and the nearest important building, group of buildings, or line of adjoining property that may be built on:

(a) Ten feet for vaporizers with a vaporizing capacity of 15 gallons per hour or less;

(b) Twenty-five feet for vaporizers with a vaporizing capacity of 16-100 gallons per hour;

- (c) Fifty feet for vaporizers with a vaporizing capacity over 100 gallons per hour.
- (12) Direct fired vaporizers must not raise the product pressure above the design pressure of the vaporizer equipment or above the pressure shown in the second column of Table U-8.
- (13) Fusible plugs are prohibited on vaporizers.
- (14) Vaporizers must not have unprotected drains to sewers or sump pits.

[Recodified as § 296-307-41031. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41031, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41033 How must direct gas-fired tank heaters be constructed and installed? Direct gas-fired tank heaters must be constructed and installed as follows:

- (1) Direct gas-fired tank heaters, and tanks to which they are applied, must only be installed aboveground.
- (2) Tank heaters must be permanently marked with the name of the manufacturer, the rated Btu input to the burner, and the maximum vaporizing capacity in gallons per hour.

Note: Tank heaters may be an integral part of a fuel storage container directly connected to the container liquid section, or vapor section, or both.

- (3) Tank heaters must have a means for manually turning off the gas to the main burner and pilot.
- (4) Tank heaters must have an automatic safety device to shut off the flow of gas to main burners, if the pilot light should fail. When flow through pilot exceeds 2,000 Btu per hour, the pilot also must have an automatic safety device to shut off the flow of gas to the pilot should the pilot flame be extinguished.
- (5) Pressure regulating and pressure reducing equipment if located within ten feet of a direct fired tank heater must be separated from the open flame by a substantially airtight noncombustible partition.
- (6) The following minimum distances must be maintained between a storage tank heated by a direct fired tank heater and the nearest important building, group of buildings, or line of adjoining property that may be built on:
 - (a) Ten feet for storage containers of less than 500 gallons water capacity;
 - (b) Twenty-five feet for storage containers of 500-1,200 gallons water capacity;
 - (c) Fifty feet for storage containers of over 1,200 gallons water capacity.
- (7) No direct fired tank heater may raise the product pressure within the storage container over 75% of the pressure in the second column of Table U-8.

[Recodified as § 296-307-41033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41035 How must dehydrators be constructed and installed? The vaporizer section of vaporizer-burners used for dehydrators or dryers must be located outdoors; they must be constructed and installed as follows:

- (1) Vaporizer-burners must have a minimum design pressure of 250 psig with a factor safety of five.
- (2) Manually operated positive shut-off valves must be located at the containers to shut off all flow to the vaporizer-burners.
- (3) Minimum distances between storage containers and vaporizer-burners must be as follows:

Water capacity per container (gallons)	Minimum distances (feet)
Less than 501	10
501 to 2,000	25
Over 2,000	50

- (4) The vaporizer section of vaporizer-burners must be protected by a hydrostatic relief valve. The relief valve must be located where it is not subjected to temperatures over 140°F. The start-to-discharge pressure setting must protect the components involved, and be at least 250 psig. The discharge must be directed upward and away from component parts of the equipment and away from operating personnel.
- (5) Vaporizer-burners must have means for manually turning off the gas to the main burner and pilot.
- (6) Vaporizer-burners must have automatic safety devices to shut off the flow of gas to the main burner and pilot in the event the pilot is extinguished.
- (7) Pressure regulating and control equipment must be located or protected so that the temperatures surrounding this equipment shall not exceed 140°F.

Exception: Equipment components may be used at higher temperatures if designed to withstand such temperatures.

- (8) Pressure regulating and control equipment when located downstream of the vaporizer must be designed to withstand the maximum discharge temperature of the vapor.
- (9) Fusible plugs are prohibited on the vaporizer section of vaporizer-burners.
- (10) Vaporizer coils or jackets must be made of ferrous metal or high temperature alloys.
- (11) Equipment utilizing vaporizer-burners must have automatic shut-off devices upstream and downstream of the vaporizer section connected so as to operate in the event of excessive temperature, flame failure, and, if applicable, insufficient airflow.

[Recodified as § 296-307-41035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41035, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41037 What are the maximum filling densities? (1) "Filling density" means the percent ratio of the weight of the gas in a container to the weight of water the container will hold at 60°F. All containers shall be filled according to the filling densities shown in Table U-4.

TABLE U-4
MAXIMUM PERMITTED FILLING DENSITY

Specific Gravity at 60°F (15.6°C)	Aboveground containers		Underground containers, all capacities
	0 to 1,200 U.S. gals. (1,000 imp. gal. 4,500 liters) total water cap	0 to 1,200 U.S. gals. (1,000 imp. gal. 4,500 liters) total water cap	
	Percent	Percent	Percent
.496-.503	41	44	45
.504-.510	42	45	46
.511-.519	43	46	47
.520-.527	44	47	48
.528-.536	45	48	49
.537-.544	46	49	50
.545-.552	47	50	51
.553-.560	48	51	52
.561-.568	49	52	53
.569-.576	50	53	54
.577-.584	51	54	55
.585-.592	52	55	56
.593-.600	53	56	57

(2) Any container including mobile cargo tanks and portable tank containers regardless of size or construction, shipped under DOT jurisdiction or constructed according to DOT specifications must be charged according to DOT requirements.

(3) Exception: Portable containers not subject to DOT jurisdiction must be filled either by weight, or by volume using a fixed length dip tube gauging device.

[Recodified as § 296-307-41037. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41037, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41039 What requirements apply to LP-gas in buildings? (1) Vapor may be piped into buildings at pressures over 20 psig only if the buildings or separate areas thereof:

- (a) Are constructed according to this section;
- (b) Are used exclusively to house equipment for vaporization, pressure reduction, gas mixing, gas manufacturing, or distribution, or to house internal combustion engines, industrial processes, research and experimental laboratories, or equipment and processes using such gas and having similar hazard;

(c) Are buildings, structures, or equipment under construction or undergoing major renovation.

(2) Liquid may be permitted in buildings as follows:

- (a) In buildings, or separate areas of buildings, used exclusively to house equipment for vaporization, pressure reduction, gas mixing, gas manufacturing, or distribution, or to house internal combustion engines, industrial processes, research and experimental laboratories, or equipment and processes using such gas and having similar hazard; and when such buildings, or separate areas are constructed according to this section.

(b) In buildings, structures, or equipment under construction or undergoing major renovation if the temporary piping meets the following conditions:

(i) Liquid piping inside the building meets the requirements of WAC 296-306A-41021 and is a maximum of three-fourths iron pipe size. Copper tubing with an outside diameter of 3/4 inch or less may be used if it meets the requirements of Type K of Specifications for Seamless Water Tube, ANSI H23.1-1970 (ASTM B88-1969). (See Table U-2.) All such piping must be protected against construction hazards. Liquid piping inside buildings must be kept to a minimum. Such piping must be securely fastened to walls or other surfaces to provide adequate protection from breakage and located to subject the liquid line to the lowest ambient temperatures.

(ii) A shut-off valve must be installed in each intermediate branch line where it takes off the main line and must be readily accessible. A shut-off valve must also be placed at the appliance end of the intermediate branch line. Such shut-off valve must be upstream of any flexible connector used with the appliance.

(iii) Suitable excess flow valves must be installed in the container outlet line supplying liquid LP-gas to the building. A suitable excess flow valve must be installed immediately downstream of each shut-off valve. Excess flow valves must be installed where piping size is reduced and must be sized appropriately.

(iv) Hydrostatic relief valves must be installed according to WAC 296-306A-41025(13).

(v) Using hose to carry liquid between the container and the building or at any point in the liquid line, except at the appliance connector, is prohibited.

(vi) Where flexible connectors are necessary for appliance installation, such connectors must be as short as practical and must meet the requirements of WAC 296-306A-41021(4) or 296-306A-41023.

(vii) Release of fuel when any section of piping or appliances is disconnected must be minimized by either of the following methods:

- (A) Using an approved automatic quick-closing coupling (closing in both directions when coupled in the fuel line); or
- (B) Closing the valve nearest to the appliance and allowing the appliance to operate until the fuel in the line is consumed.

(viii) See WAC 296-306A-41509 for the conditions under which portable containers may be brought indoors.

[Recodified as § 296-307-41039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41041 What requirements apply to transfer of liquids? When transferring liquids, you must ensure that:

(1) At least one attendant remains close to the transfer connection from the time the connections are first made until they are finally disconnected, during the transfer of the product.

(2) Containers must be filled or used only upon authorization of the owner.

(3) Containers manufactured according to DOT specifications authorized by DOT as a "single trip" or "nonrefillable container" must not be refilled or reused in LP-gas service.

(4) Gas or liquid must not be vented to the atmosphere to assist in transferring contents of one container to another, except as provided in WAC 296-306A-42509(4). A listed pump may use LP-gas in the vapor phase as a source of energy. The gas may be vented to the atmosphere at a rate not to exceed that from a No. 31 drill size opening, if venting and liquid transfer are located at least 50 feet from the nearest important building.

(5) Filling fuel containers for industrial trucks or motor vehicles from industrial bulk storage containers must be performed at least ten feet from the nearest important masonry-walled building or at least twenty-five feet from the nearest important building or other construction and always at least 25 feet from any building opening.

(6) Filling portable containers, containers mounted on skids, fuel containers on farm tractors, or similar applications, from storage containers used in domestic or commercial service, must be performed at least 50 feet from the nearest important building.

(7) The filling connection and the vent from the liquid level gauges in containers, filled at point of installation, must be at least ten feet in any direction from air openings into sealed combustion system appliances or mechanical ventilation air intakes.

(8) Fuel supply containers must be gauged and charged only in the open air or in buildings especially provided for that purpose.

(9) Marketers and users must exercise precaution to ensure that only those gases for which the system is designed, examined, and listed, are employed in its operation, particularly with regard to pressures.

(10) Pumps or compressors must be designed for use with LP-gas. When compressors are used they must normally take suction from the vapor space of the container being filled and discharge to the vapor space of the container being emptied.

(11) Pumping systems, when equipped with a positive displacement pump, must include a recirculating device that limits the differential pressure on the pump under normal operating conditions to the maximum differential pressure rating of the pump. The discharge of the pumping system must be protected so that pressure is a maximum of 350 psig. If a recirculation system discharges into the supply tank and contains a manual shut-off valve, an adequate secondary safety recirculation system must be incorporated that has no means of rendering it inoperative. Manual shut-off valves in recirculation systems must be kept open except during an emergency or when repairs are being made to the system.

(12) When necessary, unloading piping or hoses must have suitable bleeder valves for relieving pressure before disconnection.

(13) Agricultural air moving equipment, including crop dryers, shall be shut down when supply containers are filling unless the air intakes and sources of ignition on the equipment are located 50 feet or more from the container.

(14) Agricultural equipment employing open flames or equipment with integral containers, such as flame cultivators, weed burners, and tractors, must be shut down during refueling.

[Recodified as § 296-307-41041. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41041, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41043 Must workers be trained?

Workers performing installation, removal, operation, and maintenance work must be properly trained in that function.

[Recodified as § 296-307-41043. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41043, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41045 What fire protection must be provided for LP-gas installations?

(1) Open flames or other sources of ignition are prohibited in vaporizer rooms (except those housing direct-fired vaporizers), pumphouses, container charging rooms or other similar locations. Direct-fired vaporizers are prohibited in pumphouses or container charging rooms.

Note: LP-gas storage containers do not require lightning protection. Since LP-gas is contained in a closed system of piping and equipment, the system need not be electrically conductive or electrically bonded for protection against static electricity. (See NFPA No. 77-1972-1973, Recommended Practice for Static Electricity.)

(2) Open flames (except as provided in subsection (1) of this section), cutting or welding, portable electric tools, and extension lights capable of igniting LP-gas, are prohibited within classified areas specified in Table U-5 unless the LP-gas facilities have been freed of all liquid and vapor, or special precautions observed under carefully controlled conditions.

[Recodified as § 296-307-41045. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41045, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41047 What electrical requirements apply to LP-gas installations?

(1) Electrical equipment and wiring must be specified by and installed according to chapter 296-306A WAC Part T, for ordinary locations.

(2) Fixed electrical equipment and wiring installed within classified areas must comply with Table U-5 and must be installed according to chapter 296-306A WAC Part T.

Exception: This provision does not apply to fixed electrical equipment at residential or commercial installations of LP-gas systems, LP-gas used as a motor fuel, or to LP-gas system installations on commercial vehicles.

TABLE U-5

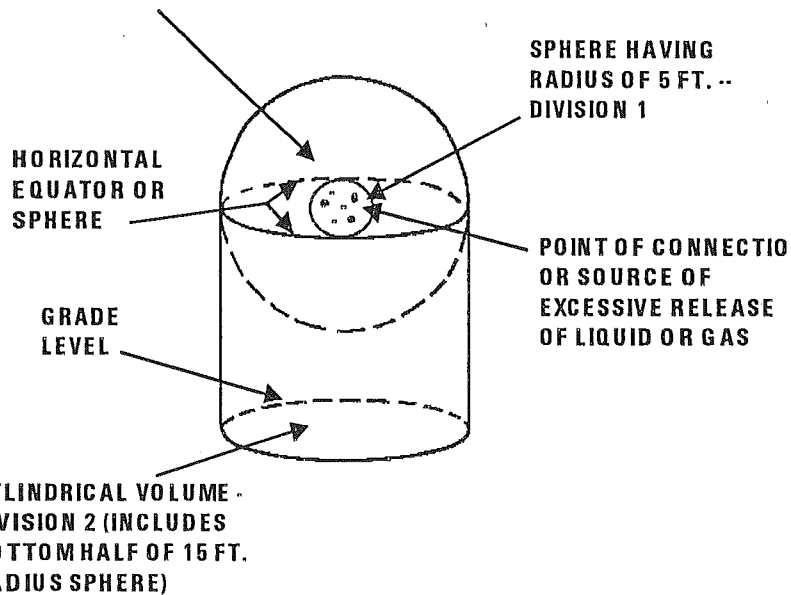
Part	Location	Extent of classified area ¹	Equipment shall be suitable for Class I, Group D ²	Indoors without ventilation	Entire room and any adjacent room not separated by a gastight partition	Division 1	
A	Storage containers other than DOT cylinders	Within 15 feet in all directions from connections, except connections otherwise covered in this table	Division 2		Within 15 feet of the exterior side of any exterior wall or roof that is not vaportight or within 15 feet of any exterior opening	Division 2	
B	Tank vehicle and tank car loading and unloading ³	Within 5 feet in all directions from connections regularly made or disconnected for product transfer	Division 1	Indoors with adequate ventilation ⁴	Entire room and any adjacent room not separated by a gastight partition	Division 2	
		Beyond 5 feet but within 15 feet in all directions from a point where connections are regularly made or disconnected and within the cylindrical volume between the horizontal equator of the sphere and grade (See Figure H-1)	Division 2	Outdoors in open air at or above grade	Within 15 feet in all directions from this equipment and within the cylindrical volume between the horizontal equator of the sphere and grade (See Figure H-1)	Division 2	
C	Gauge vent openings other than those on DOT cylinders	Within 5 feet in all directions from point of discharge	Division 1	F	Service station dispensing units	Entire space within dispenser enclosure, and 18 inches horizontally from enclosure exterior up to an elevation 4 ft. above dispenser base. Entire pit or open space beneath dispenser	Division 1
		Beyond 5 feet but within 15 feet in all directions from point of discharge	Division 2		Up to 18 inches above grade within 20 ft. horizontally from any edge of enclosure	Division 2	
D	Relief valve discharge other than those on DOT cylinders	Within direct path of discharge	Division 1 <i>Note: Fixed electrical equipment should not be installed</i>		<i>Note: For pits within this area, see Part F of this table</i>		
		Within 5 feet in all directions from point of discharge	Division 1	G	Pits or trenches containing or located beneath LP-gas valves, pumps, compressors, regulators, and similar equipment		
		Beyond 5 feet but within 15 feet in all directions from point of discharge except within the direct path of discharge	Division 2		Without mechanical ventilation	Entire pit or trench	Division 1
E	Pumps, compressors, gas-air mixers and vaporizers other than direct fired				Entire room and any adjacent room not separated by a gastight partition	Division 2	

		Within 15 feet in all directions from pit or trench when located outdoors	Division 2			Indoors without ventilation	Entire room	Division 1
	With adequate mechanical ventilation	Entire pit or trench	Division 2			Indoors with adequate ventilation ⁴	Within 5 feet in all directions from connections regularly made or disconnected for product transfer	Division 1
		Entire room and any adjacent room not separated by a gastight partition	Division 2				Beyond 5 feet and entire room	Division 2
		Within 15 feet in all directions from pit or trench when located outdoors	Division 2			Outdoors in open air	Within 5 feet in all directions from connections regularly made or disconnected for product transfer	Division 1
H	Special buildings or rooms for storage of portable containers	Entire room	Division 2				Beyond 5 feet but within 15 feet in all directions from a point where connections are regularly made or disconnected and within the cylindrical volume between the horizontal equator of the sphere and grade (See Fig. H-1.)	Division 2
I	Pipelines and connections containing operational bleeds, drips, vents or drains	Within 5 ft. in all directions from point of discharge	Division 1					
		Beyond 5 ft. from point of discharge, same as Part E of this table						

J Container filling

¹The classified area must not extend beyond an unpierced wall, roof, or solid vaportight partition.
²See chapter 296-46 WAC, and chapter 296-306A WAC Part T.
³When classifying the extent of a hazardous area, consider the possible variations in the spotting of tank cars and tank vehicles at the unloading points and the effect these variations of actual spotting point may have on the point of connection.
⁴Ventilation, either natural or mechanical, is considered adequate when the concentration of the gas in a gas-air mixture does not exceed twenty-five percent of the lower flammable limit under normal operating conditions.

SPHERE HAVING RADIUS OF 15 FT. -- DIVISION 2



[Recodified as § 296-307-41047. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41047, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41049 What requirements apply to liquid-level gauging devices? (1) Each container manufactured after December 31, 1965, and filled on a volumetric basis must have a fixed liquid-level gauge to indicate the maximum permitted filling level according to subsection (5) of this section. Each container manufactured after December 31, 1969, must have permanently attached to the container adjacent to the fixed level gauge a marking showing the percentage full that will be shown by that gauge. When used with a variable liquid-level gauge, the fixed liquid-level gauge will act as a check on the variable gauge. Gauges must be used in charging containers as required in WAC 296-306A-41034.

(2) All variable gauging devices must be arranged so that the maximum liquid level for butane, for a 50/50 mixture of butane and propane, and for propane, to which the container may be charged, is easily determined. Liquid levels from empty to full must be marked on the system nameplate or gauging device. Dials of magnetic or rotary gauges must show whether they are for cylindrical or spherical containers and whether for aboveground or underground service. The dials of gauges for aboveground containers of over 1,200 gallons water capacity must be so marked.

(3) Gauging devices that require bleeding of the product to the atmosphere, such as the rotary tube, fixed tube, and slip tube, shall be designed so that the bleed valve maximum opening is not larger than a No. 54 drill size, unless provided with excess flow valve.

(4) Gauging devices must have a design working pressure of at least 250 psig.

(5) Length of tube or position of fixed liquid-level gauge must be designed to indicate the maximum level to which the container may be filled for the product contained. This level shall be based on the volume of the product at 40°F at its maximum permitted filling density for aboveground containers and at 50°F for underground containers. You must calculate the filling point for which the fixed liquid level gauge must be designed according to this section.

Note: It is impossible to set out in a table the length of a fixed dip tube for various tank capacities because of the various tank diameters and lengths, and because the tank may be installed either vertically or horizontally. If you know the maximum permitted filling volume in gallons, however, you can determine the length of the fixed tube by using a strapping table from the container manufacturer.

The fixed tube should be long enough so that when its lower end touches the surface of the liquid in the container, the contents of the container will be the maximum permitted volume as determined by the following formula:

$$\frac{\text{Water capacity of container}^1 \text{ (gals.)} \times \text{filling density}^2}{\text{Specific gravity of LP-gas}^1 \times \text{volume correction factor}^3 \times 100} = \text{Maximum volume of LP-gas}$$

¹Measure at 60°F.
²From WAC 296-306A-41037(1).

³For aboveground containers the liquid temperature is assumed to be 40°F and for underground containers the liquid temperature is assumed to be 50°F. To correct the liquid volumes at these temperatures to 60°F, use the following factors:

(a) To determine maximum volume of LP-gas for which a fixed length of dip tube must be set:

TABLE U-6
VOLUME CORRECTION FACTORS

Specific gravity	Aboveground	Underground
0.500	1.033	1.017
.510	1.031	1.016
.520	1.029	1.015
.530	1.028	1.014
.540	1.026	1.013
.550	1.025	1.013
.560	1.024	1.012
.570	1.023	1.011
.580	1.021	1.011
.590	1.020	1.010

(b) To calculate the maximum volume of LP-gas that can be placed in a container when determining the length of the dip tube expressed as a percentage of total water content of the container, use the formula in (c) of this subsection.

(c) Determine the maximum weight of LP-gas that may be placed in a container for determining the length of a fixed dip tube by multiplying the maximum volume of LP-gas from Table U-6 by the pounds of LP-gas in a gallon at 40°F for aboveground and at 50°F for underground containers. Typical pounds per gallon are specified below:

Example: Assume a one hundred gallon total water capacity tank for aboveground storage of propane having a specific gravity of 0.510 at 60°F.

$$\frac{100 \text{ (gals.)} \times 42 \text{ (filling density)}}{0.510 \times 1.031 \text{ (correction factor from Table U-6)} \times 100} = \frac{4200}{52.6}$$

4200 = 79.8 gallons propane, the maximum amount permitted to be placed in a 100-gallon total water capacity aboveground container equipped with a fixed dip tube.

$$\frac{\text{Maximum volume of LP-gas (from formula in (a) of this subsection)} \times 100}{\text{Total water content of container in gallons}} = \text{Maximum percent of LP-gas}$$

	Aboveground, pounds per gallon	Underground, pounds per gallon
Propane	4.37	4.31
N Butane	4.97	4.92

(6) Fixed liquid-level gauges used on non-DOT containers must be stamped on the exterior of the gauge with the letters DT followed by the vertical distance (expressed in

inches and carried out to one decimal place) from the top of container to the end of the dip tube or to the centerline of the gauge when located at the maximum permitted filling level. For portable containers that may be filled in the horizontal and/or vertical position the letters DT must be followed by V with the vertical distance from the top of the container to the end of the dip tube for vertical filling, and with H followed by the proper distance for horizontal filling. For DOT containers the stamping must be placed both on the exterior of the gauge and on the container. On aboveground or cargo containers where the gauges are positioned at specific levels, the marking may be specified in percent of total tank contents and the marking must be stamped on the container.

(7) Columnar gauge glasses must be restricted to charging plants where the fuel is withdrawn in the liquid phase only. They must have valves with metallic handwheels, excess flow valves, and extra-heavy glass adequately protected with a metal housing applied by the gauge manufacturer. They must be shielded against the direct rays of the sun. Columnar gauge glasses are prohibited on tank trucks, motor fuel tanks, and containers used in domestic, commercial, and industrial installations.

(8) Float gauging devices or equivalent that do not require flow for their operation and that have connections extending outside the container do not have to have excess flow valves if the piping and fittings are adequately designed to withstand the container pressure and are properly protected against physical damage and breakage.

[Recodified as § 296-307-41049. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41049, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41051 What requirements apply to appliances? (1) New commercial and industrial gas consuming appliances must be approved.

Exception: Any appliance that was originally manufactured for operation with a gaseous fuel other than LP-gas and is in good condition may be used with LP-gas only after it is properly converted, adapted, and tested for performance with LP-gas before the appliance is placed in use.

(2) Unattended heaters used inside buildings for the purpose of animal or poultry production or care must have an approved automatic device designed to shut off the flow of gas to the main burners, and pilot if used, in case the flame goes out.

(3) All commercial, industrial, and agricultural appliances or equipment must be installed according to the requirements of these standards and according to the following:

(a) Domestic and commercial appliances, NFPA 54-1969, Standard for the Installation of Gas Appliances and Gas Piping.

(b) Industrial appliances, NFPA 54A-1969, Standard for the Installation of Gas Piping and Gas Equipment on Industrial Premises and Certain Other Premises.

(c) Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines, NFPA 37-1970.

(d) Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment, NFPA 96-1970.

[Recodified as § 296-307-41051. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41051, filed 10/31/96, effective 12/1/96.]

WAC 296-307-415 Cylinder systems.

[Recodified as § 296-307-415. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-415, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41501 What does this section cover? WAC 296-306A-415 applies to systems using DOT containers. Cylinder systems must meet all requirements of WAC 296-306A-410 (unless otherwise indicated) and the additional requirements of this section.

[Recodified as § 296-307-41501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41503 What is a "cylinder system?" A "cylinder system" includes the container base or bracket, containers, container valves, connectors, manifold valve assembly, regulators, and relief valves.

[Recodified as § 296-307-41503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41505 How must containers be marked for cylinder systems? (1) Containers must be marked according to DOT regulations. Additional markings that do not conflict with DOT regulations may be used.

(2) Each container must be marked with its water capacity in pounds or other identified unit of weight.

(3) Exception: If you are the only one who fills and maintains the container and if the water capacity of the container is identified by a code, subsection (2) of this section does not apply.

(4) Each container must be marked with its tare weight in pounds or other identified unit of weight including all permanently attached fittings but not the cap.

[Recodified as § 296-307-41505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41507 What additional requirements apply to cylinder systems installed outdoors? (1) Containers must not be buried below ground. However, systems may be installed in a compartment or recess below grade level, such as a niche in a slope or terrace wall that is used for no other purpose, if the container and regulating equipment are not in contact with the ground, and the compartment or recess is drained and ventilated horizontally to the outside air from its lowest level, with the outlet at least 3 feet away from any building opening below the level of the outlet.

(2) Except as provided in WAC 296-306A-41025(14), the discharge from safety-relief devices must be located at least three feet away from any building opening that is below the level of discharge and must not terminate beneath any building unless the space is well ventilated to the outside and is not enclosed on more than two sides.

(3) Containers must be set on firm foundation or otherwise firmly secured; the possible effect of settling on the outlet piping must be guarded against by a flexible connection or special fitting.

[Recodified as § 296-307-41507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41509 What additional requirements apply to cylinder system installed indoors?

(1) When portable containers are necessary and it is not practical to use them outdoors, containers and equipment may be used indoors only if they meet the requirements of this section.

(a) "Containers in use" means connected for use.

(b) Systems using containers with a water capacity greater than 2-1/2 pounds (nominal one pound LP-gas capacity) must have excess flow valves. Such excess flow valves must be either integral with the container valves or in the connections to the container valve outlets. In either case, an excess flow valve must be installed so that any strain beyond the excess flow valve will not cause breakage between the container and the excess flow valve. The installation of excess flow valves must take into account the type of valve protection provided.

(c) Regulators must be either directly connected to the container valves or to manifolds connected to the container valves. The regulator must be suitable for use with LP-gas. Manifolds and fittings connecting containers to pressure regulator inlets must be designed for at least 250 psig service pressure.

(d) Valves on containers having a water capacity greater than fifty pounds (nominal twenty pounds LP-gas capacity) must be protected while in use.

(e) Aluminum pipe or tubing is prohibited.

(f) Hose must be designed for a working pressure of at least 250 psig. Hose and hose connections shall be listed by a nationally recognized testing laboratory.

(i) Hose must be as short as practical.

(ii) Hose must be long enough to allow required spacing without kinking, straining, or allowing hose to be close enough to a burner to be damaged by heat.

(g) Portable heaters, including salamanders, must have an approved automatic device to shut off the flow of gas to the main burner, and pilot if used, in case the flame goes out. Heaters with inputs above 50,000 Btu manufactured on or after May 17, 1967, and heaters with inputs above 100,000 Btu manufactured before May 17, 1967, must have either:

(i) A pilot that must be lighted and proved before the main burner can be turned on; or

(ii) An electric ignition system;

(iii) Container valves, connectors, regulators, manifolds, piping, and tubing must not be used as structural supports for heaters.

Exception: These requirements do not apply to tar kettle burners, torches, melting pots, nor do they apply to portable heaters under 7,500 Btuh input when used with containers with a maximum water capacity of 2-1/2 pounds.

(h) Containers, regulating equipment, manifolds, piping, tubing, and hose must be located to minimize exposure to

abnormally high temperatures (such as may result from exposure to convection or radiation from heating equipment or installation in confined spaces), physical damage, or tampering.

(i) Heat producing equipment must be located and used to minimize the possibility of igniting combustibles.

(j) Containers with water capacity greater than 2-1/2 pounds (nominal one pound LP-gas capacity) connected for use, must stand on a firm and substantially level surface and, when necessary, must be secured in an upright position.

(k) Containers, including the valve protective devices, must be installed to minimize the probability of impingement of discharge of safety-relief devices upon containers.

(2) Containers with a maximum water capacity of 2-1/2 pounds (nominal one pound LP-gas capacity) may be used indoors as part of approved self-contained hand torch assemblies or similar appliances.

(3) When buildings frequented by the public are open to the public, containers may be used for repair or minor renovation as follows:

(a) The maximum water capacity of individual containers must be 50 pounds (nominal twenty pounds LP-gas capacity).

(b) The number of LP-gas containers must not exceed the number of employees assigned to use LP-gas.

(c) Containers with a water capacity greater than 2-1/2 pounds (nominal one pound LP-gas capacity) must be attended at all times.

(4) When buildings frequented by the public are closed to the public, containers may be used in buildings or structures for repairs or minor renovation as follows:

(a) The maximum water capacity of individual containers must be 245 pounds (nominal one hundred pounds LP-gas capacity).

(b) For temporary heating such as curing concrete, drying plaster and similar applications, heaters (other than integral heater-container units) must be located at least six feet from any LP-gas container. You may use heaters specifically designed for attachment to the container or to a supporting standard, if they are designed and installed to prevent direct or radiant heat application from the heater onto the container. Blower and radiant type heater must not be directed toward any LP-gas container within 20 feet.

(c) If two or more heater-container units are located in an unpartitioned area on the same floor, the container or containers of each unit must be separated from the container or containers of any other unit by at least 20 feet.

(d) When heaters are connected to containers for use in an unpartitioned area on the same floor, the total water capacity of containers manifolded together for connection to a heater or heaters shall not be greater than 735 pounds (nominal three hundred pounds LP-gas capacity). Such manifolds must be separated by at least 20 feet.

(e) On floors on which heaters are not connected for use, containers may be manifolded together for connection to a heater or heaters on another floor, if:

(i) The total water capacity of containers connected to any one manifold is a maximum of 2,450 pounds (nominal one thousand pounds LP-gas capacity) and;

(ii) Where more than one manifold having a total water capacity greater than 735 pounds (nominal three hundred

pounds LP-gas capacity) are located in the same unpartitioned area, they shall be separated by at least 50 feet.

(f) Containers with a water capacity greater than 2-1/2 pounds (nominal one pound LP-gas capacity) must be attended at all times.

(5) Containers may be used in industrial occupancies for processing, research, or experimental purposes as follows:

(a) The maximum water capacity of individual containers must be 245 pounds (nominal one hundred pounds LP-gas capacity).

(b) Containers connected to a manifold must have a total water capacity of a maximum of 735 pounds (nominal three hundred pounds LP-gas capacity) and only one manifold may be located in the same room unless separated at least 20 feet from a similar unit.

(c) LP-gas in containers for research and experimental use must use the smallest practical quantity.

(6) Containers used in industrial occupancies with essentially noncombustible contents where portable equipment for space heating is essential and where a permanent heating installation is not practical, must meet the requirements of subsection (5) of this section.

(7) Containers may be used in buildings for temporary emergency heating purposes, if necessary to prevent damage to the buildings or contents, when the permanent heating system is temporarily out of service, as follows:

(a) Containers and heaters must meet the requirements of subsection (5) of this section.

(b) The temporary heating equipment must be attended at all times.

(8) Containers may be used temporarily in buildings for training purposes related in installation and use of LP-gas systems, as follows:

(a) The maximum water capacity of individual containers must be 245 pounds (nominal one hundred pounds LP-gas capacity), but the maximum quantity of LP-gas that may be placed in each container is 20 pounds.

(b) If more than one container is located in the same room, the containers must be separated by at least 20 feet.

(c) Containers must be removed from the building when the training class has terminated.

[Recodified as § 296-307-41509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41511 What requirements apply to valves and accessories? (1) Valves in the assembly of multiple container systems must be arranged so that containers can be replaced without shutting off the flow of gas in the system.

Note: An automatic changeover device is not required.

(2) Regulators and low-pressure relief devices must be rigidly attached to the cylinder valves, cylinders, supporting standards, the building walls or otherwise rigidly secured and must be installed or protected so that weather will not affect their operation.

(3) Valves and connections to the containers must be protected while in transit, in storage, and while being moved into final use, as follows:

(a) By setting into the recess of the container to prevent the possibility of being struck if the container is dropped on a flat surface; or

(b) By ventilated cap or collar, fastened to the container capable of withstanding a blow from any direction equivalent to that of a 30-pound weight dropped four feet. Construction must ensure that a blow will not be transmitted to the valve or other connection.

(4) When containers are not connected to the system, the outlet valves must be kept tightly closed or plugged, even on empty containers.

(5) Containers having a water capacity in excess of 50 pounds (approximately 21 pounds LP-gas capacity), recharged at the installation, must have excess flow or backflow check valves to prevent the discharge of container contents in case of failure of the filling or equalizing connection.

[Recodified as § 296-307-41511. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41511, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41513 What requirements apply to safety devices for cylinder systems? (1) Containers must have safety devices as required by DOT regulations.

(2) A final stage regulator of an LP-gas system (excluding any appliance regulator) must have, on the low-pressure side, a relief valve that is set to start to discharge within the limits specified in Table U-7.

TABLE U-7

Relief valve start-to-discharge pressure setting (percent of regulator delivery pressure)

Regulator delivery pressure	Minimum	Maximum
1 psig or less	200	300
Above 1 psig but not over 3 psig	140	200
Above 3 psig	125	200

(3) When a regulator or pressure relief valve is used indoors for other than purposes specified in WAC 296-306A-41017(1), the relief valve and the space above the regulator and relief valve diaphragms shall be vented to the outside air with the discharge outlet located at least three feet horizontally away from any building opening that is below such discharge.

Exception: This requirement does not apply to individual appliance regulators when protection is otherwise provided, nor to WAC 296-306A-41509 and 296-306A-41025(14). In buildings devoted exclusively to gas distribution, the space above the diaphragm need not be vented to the outside.

[Recodified as § 296-307-41513. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41513, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41515 What other requirements apply to cylinder systems? (1) Containers must not be reinstalled unless they are requalified according to DOT regulations.

(2) A product must not be placed in a container marked with a service pressure less than four-fifths of the maximum vapor pressure of product at 130°F.

[Recodified as § 296-307-41515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-41515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-420 Systems using non-DOT containers.

[Recodified as § 296-307-420. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-420, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42001 What does this section cover? WAC 296-306A-420 applies to systems using storage containers not constructed according to DOT specifications. Non-DOT containers must meet all requirements of WAC 296-306A-410 (unless otherwise indicated) and the additional requirements of this section.

[Recodified as § 296-307-42001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42003 How must non-DOT containers be designed and classified? Storage containers must be designed and classified according to Table U-8.

TABLE U-8

Minimum design pressures of container lb. per sp. in. gauge

Container type	For gases with vapor press. Not to exceed lb. per sp. in. gauge 100°F (37.8°C.)	1949 and earlier editions of ASME Code (Par. U-68, U-69)	1949 edition of Code (Par. U-200, U-201); 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division I) editions of ASME Code; All editions of API-ASME Code ³
80 ¹	80 ¹	80 ¹	100 ¹
100	100	100	125
125	125	125	156
150	150	150	187
175	175	175	219
200 ²	215	200	250

¹New type 80 storage containers have not been authorized since Dec. 31, 1947.

²Container type may be increased by increments of 25. The minimum design pressure of containers shall be 100% of the container type designations when constructed under 1949 or earlier editions of the ASME Code (Par. U-68 and U-69). The minimum design pressure of containers shall be 125% of the container type designation when constructed under:

1. The 1949 ASME Code (Par. U-200 and U-201);
 2. 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division I) editions of the ASME Code; and
 3. All editions of the API-ASME Code.

³Construction of containers under the API-ASME Code is prohibited after July 1, 1961.

[Recodified as § 296-307-42003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42005 What requirements apply to valves and accessories, filler pipes, and discharge pipes for non-DOT containers? (1) The filling pipe inlet terminal must not be located inside a building. For containers with a water capacity of 125 gallons or more, such terminals must be located at least 10 feet from any building, and preferably at least 5 feet from any driveway, and must have a protective housing.

(2) The filling connection must be fitted with one of the following:

(a) Combination back-pressure check valve and excess flow valve.

(b) One double or two single back-pressure check valves.

(c) A positive shut-off valve in conjunction with either:

(i) An internal back pressure valve; or

(ii) An internal excess flow valve.

(3) All openings in a container must have approved automatic excess flow valves unless otherwise exempt.

(4) An excess flow valve is not required in the withdrawal service line if the following requirements are met:

(a) The total water capacity is a maximum of 2,000 U.S. gallons.

(b) The discharge from the service outlet is controlled by a manually operated shut-off valve that is:

(i) Threaded directly into the service outlet of the container; or

(ii) Is an integral part of a substantial fitting threaded into or on the service outlet of the container; or

(iii) Threaded directly into a substantial fitting threaded into or on the service outlet of the container.

(c) The shut-off valve is equipped with an attached handwheel or the equivalent.

(d) The controlling orifice between the contents of the container and the outlet of the shut-off valve is a maximum of 5/16 inch in diameter for vapor withdrawal systems and 1/8 inch in diameter for liquid withdrawal systems.

(e) An approved pressure-reducing regulator is directly attached to the outlet of the shut-off valve and is rigidly supported, or an approved pressure-reducing regulator is attached to the outlet of the shut-off valve by means of a suitable flexible connection, if the regulator is adequately supported and properly protected on or at the tank.

(5) All inlet and outlet connections except safety-relief valves, liquid-level gauging devices and pressure gauges on containers of 2,000 gallons water capacity, or more, and on any container used to supply fuel directly to an internal combustion engine, must be labeled to designate whether they communicate with vapor or liquid space. Labels may be on valves.

(6) Instead of an excess flow valve, openings may be fitted with a quick-closing internal valve that must remain closed when not in operation. The internal mechanism for such valves may have a secondary control that must have a fusible plug (not over 220°F melting point) that will cause the internal valve to close automatically in case of fire.

(7) A maximum of two plugged openings may be used on a container of 2,000 gallons or less water capacity.

(8) Containers of 125 gallons water capacity or more manufactured after July 1, 1961, must have an approved device for liquid evacuation, the size of which must be 3/4 inch national pipe thread minimum. A plugged opening does not satisfy this requirement.

[Recodified as § 296-307-42005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42007 What additional requirements apply to safety devices for non-DOT containers? (1) All safety devices must comply with the following:

(a) All container safety-relief devices must be located on the containers.

(b) In industrial and gas manufacturing plants, discharge pipe from safety-relief valves on pipe lines within a building must discharge upward and be piped to a point outside a building.

(c) Safety-relief device discharge terminals must be located to provide protection against physical damage and must be fitted with loose raincaps. Return bends and restrictive pipefittings are prohibited.

(d) If desired, discharge lines from two or more safety-relief devices located on the same unit, or similar lines from two or more different units, may be run into a common discharge header, if the cross-sectional area of the header is at least equal to the sum of the cross-sectional area of the individual discharge lines, and the setting of safety-relief valves are the same.

(e) Each storage container of over 2,000 gallons water capacity must have a suitable pressure gauge.

(f) A final stage regulator of an LP-gas system (excluding any appliance regulator) must have, on the low-pressure side, a relief valve that is set to start to discharge within the limits specified in Table U-7.

(g) When a regulator or pressure relief valve is installed indoors, the relief valve and the space above the regulator and relief valve diaphragms must be vented to the outside air with the discharge outlet located not less than 3 feet horizontally away from any opening into the building that is below such discharge.

Exception: This requirement does not apply to individual appliance regulators already protected. In buildings devoted exclusively to gas distribution, the space above the diaphragm need not be vented to the outside.

(2) Safety devices for aboveground containers must be provided as follows:

(a) Containers of 1,200 gallons water capacity or less that may contain liquid fuel when installed aboveground must have the rate of discharge required by WAC 296-306A-41025(2) provided by a spring-loaded relief valve or valves. In addition to the required spring-loaded relief valve, a suitable fuse plug may be used if the total discharge area of the fuse plug for each container does not exceed 0.25 square inch.

(b) The fusible metal of the fuse plugs must have a yield temperature of 208°F minimum and 220°F maximum. Relief valves and fuse plugs must have direct communication with the vapor space of the container.

(c) On a container having a water capacity between 125 and 2,000 gallons, the discharge from the safety-relief valves must be vented away from the container upwards and unobstructed to the open air so that it prevents any impingement of escaping gas upon the container; loose-fitting rain caps shall be used. Suitable provision must be made for draining condensate that may accumulate in the relief valve or its discharge pipe.

(d) On containers of 125 gallons water capacity or less, the discharge from safety-relief devices must be located at least 5 feet horizontally away from any opening into the building below the level of such discharge.

(e) On a container having a water capacity greater than 2,000 gallons, the discharge from the safety-relief valves must be vented away from the container upwards to a point at least 7 feet above the container, and unobstructed to the open air so that it prevents any impingement of escaping gas upon the container; loose-fitting rain caps shall be used. Suitable provision must be made so that any liquid or condensate that may accumulate inside of the safety-relief valve or its discharge pipe will not render the valve inoperative. If a drain is used, the container, adjacent containers, piping, or equipment must be protected against impingement of flame resulting from ignition of product escaping from the drain.

(3) On all containers that are installed underground and that contain no liquid fuel until buried and covered, the rate of discharge of the spring-loaded relief valve installed thereon may be reduced to a minimum of 30% of the rate of discharge specified in WAC 296-306A-41025(2). Containers so protected must remain covered after installation until the liquid fuel has been removed. Containers that may contain liquid fuel before being installed underground and before being completely covered with earth are aboveground containers when determining the rate of discharge requirement of the relief valves.

(4) On underground containers of over 2,000 gallons water capacity, the discharge from safety-relief devices must be piped directly upward to a point at least 7 feet above the ground.

(5) Where the manhole or housing may become flooded, the discharge from regulator vent lines must be above the highest probable water level. All manholes or housings must have ventilated louvers or equivalent, and the area of openings must be equal to or exceed the combined discharge areas of the safety-relief valves and other vent lines that discharge their content into the manhole housing.

(6) Safety devices for vaporizers must be provided as follows:

(a) Vaporizers of less than 1 quart total capacity, heated by the ground or the surrounding air, need not have safety-relief valves if adequate tests demonstrate that the assembly is safe without safety-relief valves.

(b) Fusible plugs are prohibited on vaporizers.

(c) In industrial and gas manufacturing plants, safety-relief valves on vaporizers within a building must be piped to a point outside the building and be discharged upward.

[Recodified as § 296-307-42007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42009 When may non-DOT containers be reinstalled? Containers may be reinstalled if they are free from harmful external corrosion or other damage. Where containers are reinstalled underground, the corrosion resistant coating must be put in good condition. Where containers are reinstalled aboveground, the safety devices and gauging devices must meet all requirements for aboveground containers.

[Recodified as § 296-307-42009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42011 What is the maximum capacity allowed for non-DOT containers? A non-DOT storage container must have a maximum 90,000 gallons water capacity.

[Recodified as § 296-307-42011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42013 How must non-DOT containers be installed? (1) Containers installed aboveground must have substantial masonry or noncombustible structural supports on firm masonry foundation, unless otherwise indicated.

(2) Aboveground containers must be supported as follows:

(a) Horizontal containers must be mounted on saddles that permit expansion and contraction. Structural metal supports may be used when they are protected against fire. Suitable means of preventing corrosion must be provided on that portion of the container in contact with the foundations or saddles.

(b) Containers of 2,000 gallons water capacity or less may be installed with nonfireproofed ferrous metal supports if mounted on concrete pads or footings, and if the distance from the outside bottom of the container shell to the concrete pad, footing, or the ground is a maximum of 24 inches.

(3) Any container may be installed with nonfireproofed ferrous metal supports if mounted on concrete pads or footings, and if the distance from the outside bottom of the container to the ground is a maximum of 5 feet, if the container is in an isolated location.

(4) Partially buried containers must meet the following requirements:

(a) The portion of the container below the surface and for a vertical distance not less than 3 inches above the surface of the ground is protected to resist corrosion, and the container is protected against settling and corrosion as required for fully buried containers.

(b) Partially buried containers must meet the same spacing requirements as underground tanks.

(c) Relief valve capacity must be the same as for aboveground containers.

(d) Container is protected against vehicular damage by location or other means.

(e) Partially buried containers must meet the same requirements for filling densities as for aboveground containers.

(5) Containers buried underground must be placed so that the top of the container is at least 6 inches below grade. Underground containers subject to abrasive action or physical damage must be:

(a) Placed not less than 2 feet below grade; or

(b) Otherwise protected against such physical damage.

It is not necessary to cover the portion of the container to which manhole and other connections are affixed. When necessary to prevent floating, containers must be securely anchored or weighted.

(6) Containers must be given a protective coating before being placed underground. This coating must be equivalent to hot-dip galvanizing or to two coatings of red lead followed by a heavy coating of coal tar or asphalt. In lowering the container into place, take care to prevent damage to the coating. Any damage to the coating must be repaired before backfilling.

Containers must be set on a firm foundation (firm earth may be used) and surrounded with earth or sand firmly tamped in place. Backfill should be free of rocks or other abrasive materials.

(7) Containers with foundations attached (portable or semiportable containers with suitable steel runners or skids popularly known as "skid tanks") must meet the requirements of WAC 296-306A-410 and the following:

(a) If they are to be used at a given general location for a temporary period of 6 months at most, they may be without fire-resisting foundations or saddles but must have adequate ferrous metal supports.

(b) They must not be located with the outside bottom of the container shell more than 5 feet above the surface of the ground unless fire-resisting supports are provided.

(c) The bottom of the skids must be between 2 and 12 inches below the outside bottom of the container shell.

(d) Flanges, nozzles, valves, fittings, and the like, having communication with the interior of the container, must be protected against physical damage.

(e) When not permanently located on fire-resisting foundations, piping connections must be flexible enough to minimize breakage or leakage of connections if the container settles, moves, or is otherwise displaced.

(f) Skids, or lugs for attachment of skids, must be secured to the container according to the rules under which the container is designed and built (with a minimum factor of safety of four) to withstand loading in any direction equal to four times the weight of the container and attachments when filled to the maximum permissible loaded weight.

(8) Field welding where necessary must be made only on saddle plates or brackets that were applied by the manufacturer of the tank.

(9) For aboveground containers, secure anchorage or adequate pier height must be provided against possible container flotation wherever high floodwater might occur.

(10) When permanently installed containers are interconnected, you must allow for expansion, contraction, vibration, and settling of containers, and interconnecting piping. Where flexible connections are used, they must be approved and designed for a bursting pressure of at least five times the vapor pressure of the product at 100°F. Nonmetallic hose is prohibited for permanently interconnecting containers.

(11) Container assemblies listed for interchangeable installation aboveground or underground must meet the requirements for aboveground installations for safety-relief capacity and filling density. For installation aboveground all other requirements for aboveground installations apply. For installation underground all other requirements for underground installations apply.

[Recodified as § 296-307-42013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42015 How must non-DOT containers be protected? (1) Valves, regulating, gauging, and other container accessory equipment must be protected against tampering and physical damage. Such accessories must also be protected during the transit of containers intended for installation underground.

(2) On underground or combination aboveground-underground containers, the service valve handwheel, the terminal for connecting the hose, and the opening through which there can be a flow from safety-relief valves must be at least 4 inches above the container and this opening must be located in the dome or housing. Underground systems must be installed so that all openings, including the regulator vent, are located above the normal maximum water table.

(3) All connections to the underground containers must be located within a substantial dome, housing, or manhole, with access protected by a substantial cover.

[Recodified as § 296-307-42015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42017 What requirements apply to non-DOT containers in industrial plants? General provisions applicable to systems in industrial plants (of 2,000 gallons water capacity and more) and to bulk filling plants.

(1) When standard watch service is provided, it must be extended to the LP-gas installation and personnel shall be properly trained.

(2) If loading and unloading are normally done during the night, adequate lights must be provided to illuminate storage containers, control valves, and other equipment.

(3) Suitable roadways or means of access for extinguishing equipment such as wheeled extinguishers or fire department apparatus must be provided.

(4) To minimize trespassing or tampering, the area that includes container accessories, pumping equipment, loading and unloading facilities, and cylinder-filling facilities must be enclosed with at least a 6-foot-high industrial fence unless otherwise adequately protected. There must be at least two means of emergency access.

[Recodified as § 296-307-42017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42019 What requirements apply to container-charging plants? (1) The container-charging room must be located at least:

(a) Ten feet from bulk storage containers.

(b) Twenty-five feet from line of adjoining property that may be built on.

(2) Tank truck filling station outlets must be located at least:

(a) Twenty-five feet from line of adjoining property that may be built on.

(b) Ten feet from pumps and compressors if housed in one or more separate buildings.

(3) The pumps or compressors may be located in the container-charging room or building, in a separate building, or outside of buildings. When housed in separate building, such building (a small noncombustible weather cover is not to be construed as a building) must be located at least:

(a) Ten feet from bulk storage tanks.

(b) Twenty-five feet from line of adjoining property that may be built on.

(c) Twenty-five feet from sources of ignition.

(4) When a part of the container-charging building is to be used for a boiler room or where open flames or similar sources of ignition exist or are employed, the space to be occupied must be separated from container charging room by a partition wall or walls of fire-resistant construction continuous from floor to roof or ceiling. Such separation walls must be without openings and must be joined to the floor, other walls, and ceiling or roof to provide a permanent gas-tight joint.

[Recodified as § 296-307-42019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42021 What fire protection must be provided for non-DOT containers? (1) Each bulk plant must have at least one approved portable fire extinguisher with a minimum rating of 12-B, C.

(2) In industrial installations involving containers of 150,000 gallons aggregate water capacity or more, you must provide an adequate supply of water at the container site for fire protection in the container area, unless other adequate means for fire control are provided. Water hydrants must be readily accessible and spaced to provide water protection for all containers. Enough firehose must be provided to facilitate easy movement of the hose in the container area. You should equip the outlet of each hose line with a combination fog nozzle. A shelter must be provided to protect the hose and its conveyor from the weather.

[Recodified as § 296-307-42021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42023 What other requirements apply to non-DOT containers? (1) Aboveground containers must be kept properly painted.

(2) Vaporizers for internal combustion engines must meet the requirements of WAC 296-306A-42515.

(3) Gas regulating and mixing equipment for internal combustion engines must meet the requirements of WAC 296-306A-42517.

(4) Where vaporized gas on the low-pressure side of the system may condense to a liquid at normal operating temperatures and pressures, means must be provided to revaporize condensate.

(5) You must protect LP-gas systems against damage from vehicular traffic.

(6) Avoid the use of pits when possible, except pits fitted with automatic flammable vapor detecting devices. No drains or blowoff lines must be directed into or in proximity to sewer systems used for other purposes.

[Recodified as § 296-307-42023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-425 LP-gas as a motor fuel.

[Recodified as § 296-307-425. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-425, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42501 What does this section cover?

(1) WAC 296-306A-425 applies to internal combustion engines, fuel containers, and pertinent equipment for the use of LP-gases as a motor fuel on easily movable, readily portable units including self-propelled vehicles. This section does not apply to containers for transportation of LP-gases nor to marine fuel use.

(2) All uses of LP-gas as a motor fuel must meet all requirements of WAC 296-306A-410 (unless otherwise indicated) and the additional requirements of this section.

[Recodified as § 296-307-42501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42503 What general requirements apply to LP-gas used as a motor fuel?

(1) Fuel may be used from the cargo tank of a truck while in transit, but not from cargo tanks on trailers or semitrailers. Fuel may be used from the cargo tanks to operate stationary engines if the wheels are securely blocked.

(2) Passenger-carrying vehicles must not be fueled while passengers are on board.

(3) Industrial trucks (including lift trucks) equipped with permanently mounted fuel containers must be charged outdoors. Charging equipment must meet the requirements of WAC 296-306A-440.

(4) LP-gas fueled industrial trucks must comply with the Standard for Type Designations, Areas of Use, Maintenance and Operation of Powered Industrial Trucks, NFPA 505-1969.

(5) Engines on vehicles must be shut down while fueling if the fueling operation involves venting to the atmosphere.

[Recodified as § 296-307-42503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42505 How must fuel containers be designed and classified?

(1) Containers must meet the following requirements:

Minimum design pressure of container lb. per sp. in. gauge

Container type	For gases with vapor press. Not to exceed lb. per sp. in. gauge at 100°F (37.8°C.)	1949 and earlier editions of ASME Code (Par. U-68, U-69)	1949 edition of ASME Code (Par. U-200, U-201); editions 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division I) editions of ASME Code; All editions of API-ASME Code ²
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200 ¹	215	200	250
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¹Container type may be increased by increments of 25. The minimum design pressure of containers shall be 100% of the container type designation when constructed under 1949 or earlier editions of the ASME Code (Par. U-68 and U-69). The minimum design pressure of containers shall be 125% of the container type designation when constructed under:

1. The 1949 ASME Code (Par. U-200 and U-201);
2. 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division I) editions of the ASME Code; and
3. All editions of the API-ASME Code.

²Construction of containers under the API-ASME Code is prohibited after July 1, 1961.

Exception: Fuel containers for use in industrial trucks (including lift trucks) shall be either DOT containers authorized for LP-gas service having a minimum service pressure of 240 psig or minimum Container Type 250. Under 1950 and later ASME Codes, this means a 312.5-psig design pressure container.

(2) DOT containers used as fuel containers must meet all requirements of this section.

(3) All container inlets and outlets except safety-relief valves and gauging devices must be labeled to designate whether they communicate with vapor or liquid space. (Labels may be on valves.)

[Recodified as § 296-307-42505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42507 How must fuel containers be installed?

(1) Containers must be located to minimize the possibility of damage to the container. Containers located in the rear of trucks and buses, when protected by substantial bumpers meet this requirement. Fuel containers on passenger-carrying vehicles must be installed as far from the engine as is practical, and the passenger space and any space containing radio equipment must be sealed from the container space to prevent direct seepage of gas to these spaces. The container compartment must be vented to the outside. In case the fuel container is mounted near the engine or the exhaust system, the container must be shielded against direct heat radiation.

(2) Containers must be installed with as much clearance as practical and at least the minimum road clearance of the vehicle under maximum spring deflection. This minimum clearance must be to the bottom of the container or to the lowest fitting on the container or housing, whichever is lower.

(3) Permanent and removable fuel containers must be securely mounted to prevent jarring loose, slipping, or rotating, and the fastenings must be designed and constructed

to withstand static loading in any direction equal to twice the weight of the tank and attachments when filled with fuel using a safety factor of at least four based on the ultimate strength of the material to be used. Field welding, when necessary, must be made only on saddle plates, lugs or brackets, attached to the container by the manufacturer.

(4) Fuel containers on buses must be permanently installed.

(5) Containers from which only vapor is to be withdrawn must be installed and equipped with suitable connections to minimize the accidental withdrawal of liquid.

[Recodified as § 296-307-42507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42509 What requirements apply to valves and accessories? (1) Container valves and accessories must have a rated working pressure of at least 250 psig, and must be suitable for LP-gas service.

(2) The filling connection must be fitted with an approved double back-pressure check valve, or a positive shut off in conjunction with an internal back-pressure check valve. On a removable container the filler valve may be a hand operated shut-off valve with an internal excess flow valve. Main shut-off valves on the container on liquid and vapor must be readily accessible.

(3) Filling connections equipped with approved automatic back-pressure check valves, and safety-relief valves, all connections to the containers having openings for the flow of gas in excess of a No. 54 drill size must have approved automatic excess flow valves to prevent discharge of content in case connections are broken.

(4) Liquid-level gauging devices must meet the following requirements:

(a) Variable liquid-level gauges that require the venting of fuel to the atmosphere are prohibited on fuel containers of industrial trucks (including lift trucks).

(b) On portable containers that may be filled in the vertical and/or horizontal position, the fixed liquid-level gauge must indicate maximum permitted filling level for both vertical and horizontal filling with the container oriented to place the safety-relief valve in communication with the vapor space.

(c) For containers used solely in farm tractor service and charged at a point at least 50 feet from any important building, the fixed liquid-level gauging device may be constructed so that the outward flow of container content exceeds that passed by a No. 54 drill size opening, but must never exceed that passed by a No. 31 drill-size opening. An excess flow valve is not required. Fittings equipped with restricted drill size opening and the container on which they are used must be marked to indicate the size of the opening.

(d) All valves and connections on containers must be adequately protected to prevent damage due to accidental contact with stationary objects or from loose objects thrown up from the road. All valves must be safeguarded against damage due to collision, overturning or other accident. Farm tractors where parts of the vehicle provide protection to valves and fittings meet this requirement. However, on removable type containers the protection for the fittings must be permanently attached to the container.

(e) You should normally exchange removable fuel outdoors. When removable fuel containers are used, means shall be provided in the fuel system to minimize the escape of fuel when the containers are exchanged. You must use one of the following methods:

(i) Using an approved automatic quick-closing coupling (a type closing in both directions when uncoupled) in the fuel line; or

(ii) Closing the valve at the fuel container and allowing the engine to run until the fuel in the line is consumed.

[Recodified as § 296-307-42509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42511 What requirements apply to piping, tubing, and fittings? (1) Pipe from fuel container to first-stage regulator must be at least schedule 80 wrought iron or steel (black or galvanized), brass or copper; or seamless copper, brass, or steel tubing. Steel tubing must have a minimum wall thickness of 0.049 inch. Steel pipe or tubing must be adequately protected against exterior corrosion. Copper tubing must be types K or L or equivalent with a minimum wall thickness of 0.032 inch. Approved flexible connections may be used between container and regulator or between regulator and gas-air mixer. Using aluminum pipe or tubing is prohibited. For removable containers, an approved flexible connection must be used between the container and the fuel line.

(2) All piping must be installed, braced, and supported to minimize vibration strains or wear.

[Recodified as § 296-307-42511. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42511, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42513 What requirements apply to safety devices? (1) Spring-loaded internal safety-relief valves must be used on all motor fuel containers.

(2) The discharge outlet from safety-relief valves must be located on the outside of enclosed spaces and as far as practical from possible sources of ignition, and vented upward within 45 degrees of the vertical to prevent impingement of escaping gas upon containers, or parts of vehicles, or on vehicles in adjacent lines of traffic. A rain cap or other protector must be used to keep water and dirt from collecting in the valve.

(3) When a discharge line from the container safety-relief valve is used, the line shall be metallic, other than aluminum, and must be sized, located, and maintained so as not to restrict the required flow of gas from the safety-relief valve. The discharge line must be able to withstand the pressure resulting from the discharge of vapor when the safety-relief valve is in the full open position. Flexible metal hose or tubing must be used when necessary.

(4) Portable containers equipped for volumetric filling may be filled in either the vertical or horizontal position when oriented to place the safety-relief valve in communication with the vapor space.

[Recodified as § 296-307-42513. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42513, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42515 What requirements apply to vaporizers? (1) Vaporizers, their parts, and other devices that may be subjected to container pressure must have a design pressure of at least 250 psig.

(2) Each vaporizer must have a valve or suitable plug that will permit substantially complete draining of the vaporizer. It must be located at or near the lowest portion of the section occupied by the water or other heating medium.

(3) Vaporizers must be securely fastened to minimize the possibility of loosening.

(4) Each vaporizer must be permanently marked at a visible point as follows:

(a) With the design pressure of the fuel-containing portion in psig.

(b) With the water capacity of the fuel-containing portion of the vaporizer in pounds.

(5) Devices to supply heat directly to a fuel container must have an automatic device to cut off the supply of heat before the pressure inside the fuel container reaches 80% of the start-to-discharge pressure setting of the safety-relief device on the fuel container.

(6) Engine exhaust gases may be used as a direct source of heat supply for the vaporization of fuel if the materials of construction of those parts of the vaporizer in contact with exhaust gases are resistant to the corrosive action of exhaust gases and the vaporizer system is designed to prevent excessive pressures.

(7) Fusible plugs are prohibited on vaporizers.

[Recodified as § 296-307-42515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42517 What requirements apply to gas regulating and mixing equipment? (1) Approved automatic pressure reducing equipment must be installed securely between the fuel supply container and gas-air mixer to reduce the pressure of the fuel delivered to the gas-air mixer.

(2) An approved automatic shut-off valve must be provided in the fuel system at some point ahead of the inlet of the gas-air mixer, designed to prevent flow of fuel to the mixer when the ignition is off and the engine is not running. For industrial trucks and engines operating in buildings other than those used exclusively to house engines, the automatic shut-off valve must be designed to operate if the engine stops. Atmospheric regulators (zero governors) are adequate as an automatic shut-off valve only in cases of outdoor operation such as farm tractors, construction equipment, irrigation pump engines, and other outdoor stationary engine installations.

(3) The source of air for combustion must be completely isolated from the passenger compartment, ventilating system, or air-conditioning system.

[Recodified as § 296-307-42517. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42517, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42519 What is the maximum container capacity allowed? A single fuel container used on

passenger carrying vehicles must have a maximum of 200 gallons water capacity. A single fuel container on other vehicles normally operating on the highway must have a maximum of 300 gallons water capacity except as provided in WAC 296-306A-42503(1).

[Recodified as § 296-307-42519. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42519, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42521 What requirements apply to stationary engines used indoors? Stationary engines and gas turbines installed in buildings, including portable engines used instead of or to supplement stationary engines, must comply with the Standard for the Institution and Use of Stationary Combustion Engines and Gas Turbines, NFPA 37-1970, and the appropriate requirements of WAC 296-306A-410 through 296-306A-420.

[Recodified as § 296-307-42521. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42521, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42523 What requirements apply to portable engines used indoors? (1) Portable engines may be used in buildings only for emergency use, and according to WAC 296-306A-42521.

(2) Exhaust gases must be discharged outside the building or to an area where they will not constitute a hazard.

(3) Provision must be made to supply sufficient air for combustion and cooling.

(4) An approved automatic shut-off valve must be provided in the fuel system ahead of the engine, designed to prevent flow of fuel to the engine when the ignition is off or if the engine should stop.

[Recodified as § 296-307-42523. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42523, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42525 What requirements apply to industrial trucks used indoors? (1) LP-gas-fueled industrial trucks may be used in buildings and structures.

(2) No more than two LP-gas containers must be used on an industrial truck for motor fuel purposes.

(3) LP-gas-fueled industrial trucks may be used in buildings frequented by the public, when occupied by the public. The total water capacity of containers on each industrial truck must be a maximum of 105 pounds (nominal 45 pounds LP-gas).

(4) Trucks must be attended at all times in areas occupied by the public.

(5) Industrial trucks must not be parked and left unattended in areas of possible excessive heat or sources of ignition.

[Recodified as § 296-307-42525. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42525, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42527 How must LP-gas-fueled vehicles be garaged? (1) LP-gas-fueled vehicles may be stored or serviced inside garages if there are no leaks in the

fuel system and the fuel tanks are not filled beyond the maximum filling capacity allowed.

(2) LP-gas-fueled vehicles being repaired in garages must have the container shut-off valve closed except when fuel is required for engine operation.

(3) Such vehicles must not be parked near sources of heat, open flames, or similar sources of ignition or near open pits unless such pits are adequately ventilated.

[Recodified as § 296-307-42527. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-42527, filed 10/31/96, effective 12/1/96.]

WAC 296-307-430 Storage of containers awaiting use or resale.

[Recodified as § 296-307-430. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-430, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43001 What does this section cover? WAC 296-306A-430 applies to the storage of portable containers a maximum of 1,000 pounds water capacity, filled or partially filled, at user location but not connected for use, or in storage for resale by dealers or resellers. This section does not apply to containers stored at charging plants or at plants devoted primarily to the storage and distribution of LP-gas or other petroleum products.

[Recodified as § 296-307-43001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43003 What general requirements apply to storage of containers? (1) Containers in storage must be located to minimize exposure to excessive temperature rise, physical damage, or tampering.

(2) Containers stored inside must be located away from exits, stairways, or in areas normally used or intended for the safe exit of people.

(3) Container valves must be protected while in storage as follows:

(a) By setting into recess of container to prevent the possibility of their being struck if the container is dropped upon a flat surface; or

(b) By ventilated cap or collar, fastened to container capable of withstanding blow from any direction equivalent to that of a thirty-pound weight dropped four feet. Construction must be such that a blow will not be transmitted to a valve or other connection.

(4) The outlet valves of containers in storage must be closed.

(5) Empty containers that have been in LP-gas service should preferably be stored in the open. When stored inside, they must be considered full containers for the purpose of determining the maximum quantity of LP-gas permitted by this section.

[Recodified as § 296-307-43003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43005 How must containers be stored within buildings frequented by the public? DOT

containers with a maximum individual water capacity of 2-1/2 pounds, used with completely self-contained hand torches and similar applications, may be stored or displayed in a building frequented by the public. The display of such containers must be limited to a total of 24 units of each brand and size. The total quantity on display and in storage must not exceed 200 pounds LP-gas.

[Recodified as § 296-307-43005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43007 How must containers be stored in buildings not frequented by the public? (1) The quantity of LP-gas stored must be a maximum of 300 pounds (approximately 2,550 cubic feet in vapor form), except when stored within special buildings or rooms.

(2) Containers carried as a part of service equipment on highway mobile vehicles are not considered in the total storage capacity if the vehicles are stored in private garages, and are limited to one container per vehicle with a maximum LP-gas capacity of 100 pounds. All container valves must be closed.

[Recodified as § 296-307-43007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43009 How must containers be stored within special buildings or rooms? (1) The quantity of LP-gas stored in special buildings or rooms must be a maximum of 10,000 pounds.

(2) The walls, floors, and ceilings of container storage rooms that are within or adjacent to other parts of the building must be constructed of material having at least a two-hour fire resistance rating.

(3) At least 10% of the exterior walls or roof must be of explosion relieving construction.

(4) Each opening from storage rooms to other parts of the building must be protected by a listed one and one-half hour "(B)" fire door.

(5) Such rooms must have no open flames for heating or lighting.

(6) Such rooms must be adequately ventilated both top and bottom to the outside only. The openings from such vents must be at least five feet away from any other opening into any building.

(7) The floors of such rooms must not be below ground level. Any space below the floor must be of solid fill or properly ventilated to the open air.

(8) Such storage rooms must not be located adjoining the line of property occupied by schools, churches, hospitals, athletic fields or other points of public gathering.

[Recodified as § 296-307-43009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43011 How must containers be stored outdoors? (1) Storage outside of buildings, for containers awaiting use or resale, must be located according to the table below with respect to:

(a) The nearest important building or group of buildings;

- (b) The line of adjoining property that may be built on;
- (c) Busy thoroughfares;
- (d) The line of adjoining property occupied by schools, churches, hospitals, athletic fields, or other points of public gathering.

Quantity of LP-Gas Stored	Distance
500 pounds or less	
501 to 2,500 pounds	0*
2,501 to 6,000 pounds	10 feet
6,001 to 10,000 pounds	20 feet
Over 10,000 pounds	25 feet

*Containers must be at least ten feet from any building on adjoining property, any sidewalk, or any of the exposures described in (c) or (d) of this subsection.

(2) Containers must be in a suitable enclosure or otherwise protected against tampering.

[Recodified as § 296-307-43011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43013 What fire protection must be provided for stored containers? Storage locations other than supply depots separated and located apart from dealer, reseller, or user establishments must have at least one approved portable fire extinguisher having a minimum rating of 8-B, C.

[Recodified as § 296-307-43013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-435 LP-gas system installations on commercial vehicles.

[Recodified as § 296-307-435. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-435, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43501 What does this section cover?

- (1) WAC 296-306A-435 applies to:
 - (a) LP-gas system installations on vehicles (self-propelled, trailers, or semitrailers) used for commercial or construction purposes;
 - (b) All exchangeable container systems with container capacities greater than 105 pounds water capacity (approximately 45 pounds LP-gas capacity); and
 - (c) Systems using containers permanently mounted on vehicles.
- (2) All LP-gas installations on commercial vehicles must meet all requirements of WAC 296-306A-410 (unless otherwise indicated) and the additional requirements of this section. When such a vehicle is permanently parked, and LP-gas is supplied from a system not mounted on and secured to the unit, WAC 296-306A-415 and 296-306A-420 also apply.

(3) This section does not apply to LP-gas motor fuel systems covered by WAC 296-306A-425.

[Recodified as § 296-307-43501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43503 How must containers be constructed? Containers must be constructed according to WAC 296-306A-41011, and marked according to the applicable requirements of WAC 296-306A-41015, and must also meet the following:

- (1) Containers designed for use as portable cylinders must be constructed according to DOT specifications.
- (2) All other containers whether designed for permanent mounting, or for portable or semiportable use (such as skid tanks), must be constructed as provided for by WAC 296-306A-41009(4) and 296-306A-41011(1).
- (3) Nonrecessed container fittings and accessories must be protected against damage by either:
 - (a) Their location;
 - (b) The vehicle frame or bumper; or
 - (c) Protective housing. The housing must meet the requirements under which the tanks are fabricated with respect to design and construction and must be designed to withstand static loading in any direction equal to twice the weight of the tank and attachments when filled with the lading at a safety factor of at least four, based on the ultimate strength of the material used. The housing must have a weather cover if necessary to ensure proper operation of valves and safety devices.
- (4) Manually operated shut-off valves or self-closing internal valves must be closed except during transfer operations.
- (5) Permanently installed containers must meet the following requirements:

(a) Tank motor vehicles with frames not made integral with the tank, as by welding, must have turnbuckles or similar positive devices for drawing the tank down tight on the frame. In addition, suitable stops or anchors must be attached to the frame and/or the tank to prevent relative motion between them from starting, stopping, and turning. The stops and anchors must be installed to be accessible for inspection and maintenance.

(b) Any tank motor vehicle designed and constructed so that the cargo tank constitutes the stress member used instead of a frame must be supported by external cradles enclosing at least 120 degrees of the shell circumference. The design calculations must include beam stress, shear stress, torsion stress, bending moment, and acceleration stress for the cargo tank as a whole using a factor of safety of four, based on the ultimate tensile strength of the material. Maximum concentrated stresses that might be created at pads and cradles due to shear, bending, and torsion shall also be calculated according to Appendix G of the American Society of Mechanical Engineers, Unfired Pressure Vessel Code, 1968. Fully loaded vehicles must be assumed to be operating under highway conditions equal to two "g" loading. The effects of fatigue shall be taken into consideration. Cargo tanks mounted on frames may be supported by upright supports attached to pads if these factors are taken into account.

(c) Where any tank support is attached to any part of a tank head, the stresses imposed upon the head must be provided for as required above.

(d) Tank supports, stops, anchors, and bumpers must not be welded directly to the tank but must be attached by means of pads of the same material as the tank. The pad thickness must be at least 1/4 inch, or the thickness of the shell material if less, and no greater than the shell material. Each pad must extend at least four times its thickness, in each direction, beyond the weld attaching the support, bumper, stop, or anchor. Each pad must be preformed to an inside radius no greater than the outside radius of the tank at the place of attachment. Each pad corner must be rounded to a radius at least one-fourth the width of the pad, and no greater than one-half the width of the pad. Weepholes and tell-tale holes, if used, must be drilled or punched before the pads are attached to the tank. Each pad must be attached to the tank by continuous fillet welding using filler material having properties that meet the recommendations of the maker of the shell and head material.

(6) Portable or semiportable containers must meet the applicable requirements of WAC 296-306A-42507(3). Containers designed for permanent installation as part of systems under WAC 296-306A-420 are prohibited.

(a) Filling connections must have an approved automatic back pressure check valve, excess flow check valve, or quick closing internal valve to prevent excessive escape of gas in case the filling connection is broken.

Exception: Where the filling and discharge connect on a common opening in the container shell, and the opening is fitted with a quick-closing internal valve, the automatic valve is not required.

Every inlet and outlet connection must have a manually or automatically operated shut-off valve. Liquid discharge openings, except those for engine fuel lines, on tanks built after September 1, 1965, must be fitted with a remotely controlled internal shut-off valve. Valves must meet the following requirements:

(i) The seat of the valve must be inside the tank, or in the opening nozzle or flange, or in a companion flange bolted to the nozzle or flange.

(ii) All parts of the valve inside the tank, nozzle, or companion flange must be made of material that protects against corrosion or other deterioration in the presence of the lading.

(iii) The parts must be arranged so that damage to parts exterior to the tank will not prevent effective seating of the valve.

(iv) The valve may be operated mechanically, by hydraulically, or by air, or gas pressure.

(v) The valve must have remote means of automatic closure, both mechanical and thermal, in at least two places for tanks over 3,500 gallons water capacity. These remote control stations must be located at each end of the tank and diagonally opposite. The thermal control mechanism must have a fusible element with a melting point between 220°F and 208°F. At least one remote control station must be provided for tanks of 3,500 gallons water capacity or less, and such actuating means may be mechanical.

(b) All other connections to containers, except those used for gauging devices, thermometer wells, safety-relief devices, and plugged openings, must have suitable automatic excess flow valves, or may instead be fitted with quick-closing internal valves.

The control mechanism for the internal valve must have a secondary control, remote from the fill or discharge connections (for use in the event of accidents or fire during delivery operations), and such control mechanism must have a fusible element with a melting point not over 220°F or less than 208°F.

(c) Excess flow valves must close automatically at the rated flow of vapor or liquid as specified by the valve manufacturers. The flow rating of the piping beyond the excess flow valve must be greater than that of the excess flow valve and such rating must include valves, fittings, and hose.

Exception: When branching or necessary restrictions are incorporated in a piping system so that flow ratings are less than that of the excess flow valve and the tank, then additional excess flow valves must be installed in the piping where such flow rate is reduced.

(d) Container inlets and outlets, except those used for safety-relief valves, liquid-level gauging devices, and pressure gauges, must be labeled to designate whether they communicate with vapor or liquid space when the container is filled to maximum permitted filling density. Labels may be on the valves.

[Recodified as § 296-307-43503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43505 What is the maximum capacity allowed for LP-gas installations on commercial vehicles? A single fuel container used on passenger carrying vehicles must not exceed 200 gallons water capacity.

[Recodified as § 296-307-43505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43507 Where must systems be located? (1) Containers must not be installed, transported, or stored (even temporarily) inside any vehicle covered by these standards except as provided by the DOT regulations.

(2) Containers, control valves, and regulating equipment comprising a complete system must be suitably protected against damage and weather. Systems may be installed in a recess vaportight to the inside of the vehicle and accessible from and vented to the outside.

(3) Systems installed outside of mobile units must be located so that discharge from safety-relief devices must be at least 3 feet horizontally away from any opening into the unit below the level of such discharge. When the system is located in a recess vaportight to the inside, vent openings in the recess must be at least 3 feet horizontally away from any opening into the mobile unit below the level of these vents.

(4) There must be no fuel connection between tractor and trailer or other vehicle units.

(5) The container or container carrier must be secured in place by fastenings designed and constructed with a minimum safety factor of four to withstand loading in any direction equal to twice the weight of the container when filled to normal capacity with LP-gas.

[Recodified as § 296-307-43507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43509 What requirements apply to valves and accessories? Container valves and accessories must be provided, protected and mounted as follows:

(1) Systems using DOT cylinders according to WAC 296-306A-41511.

(2) All other systems according to WAC 296-306A-42005 (2) through (8).

(3) Portable, semiportable and permanently mounted containers shall be mounted and protected as provided under WAC 296-306A-43503 (2), (5), and (6).

[Recodified as § 296-307-43509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43511 What requirements apply to safety devices? (1) DOT containers must have safety-relief devices as required by DOT regulations.

(2) A final stage regulator of an LP-gas system (excluding any appliance regulator) must have, on the low-pressure side, a relief valve that is set to start to discharge within the limits specified in Table U-7.

(3) The relief valve and space above the regulator and relief valve diaphragms must be vented to the outside air and terminate at a position to minimize the possibility of vapors accumulating at sources of ignition.

(4) Whenever equipment such as a cargo heater or cooler on commercial vehicles is designed to be in operation while in transit, suitable means to stop the flow such as an excess flow valve or other device, must be installed. This device will be actuated to stop the flow in the event of the break in the fuel supply line. All excess flow valves must comply with WAC 296-306A-41019(3).

[Recodified as § 296-307-43511. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43511, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43513 What types of systems may be used on commercial vehicles? Commercial vehicles must use either vapor withdrawal or liquid withdrawal systems.

[Recodified as § 296-307-43513. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43513, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43515 What requirements apply to enclosures and mounting? (1) Housing or enclosures must be designed to provide proper ventilation.

(2) Hoods, domes, or removable portions of cabinets must have means to keep them firmly in place during transit.

(3) The assembly must hold the containers firmly in position and prevent their movement during transit according to WAC 296-306A-42507(3).

(4) Containers must be mounted on a substantial support or base secured firmly to the vehicle chassis. Neither the container nor its support must extend below the frame.

[Recodified as § 296-307-43515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43517 What requirements apply to piping, tubing, and fittings? (1) Regulators must be

connected directly to the container valve outlet or mounted securely by means of support bracket and connected to the container valve or valves with a listed high pressure flexible connector.

(2) Provision must be made between the regulator outlet and the gas service lines by either a flexible connector or a tubing loop to provide for expansion, contraction, jarring, and vibration.

(3) Aluminum alloy piping is prohibited. Steel tubing must have a minimum wall thickness of 0.049 inch. Steel piping or tubing must be adequately protected against exterior corrosion.

(4) Approved gas tubing fittings must be used for tubing connections.

(5) The fuel line must be firmly fastened in a protected location and where under the vehicle and outside and below any insulation or false bottom, fastenings must prevent abrasion or damage to the gas line due to vibration. Where the fuel line passes through structural members or floors, a rubber grommet or equivalent must be installed to prevent chafing.

(6) The fuel line must be installed to enter the vehicle through the floor directly beneath or adjacent to the appliance that it serves. When a branch line is required, the tee connection must be in the main fuel line and located under the floor and outside the vehicle.

(7) All parts of the system assembly must be designed and secured to preclude such parts working loose during transit.

[Recodified as § 296-307-43517. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43517, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43519 What requirements apply to appliances? (1) LP-gas appliances must be approved for use on commercial vehicles.

(2) In vehicles not intended for human occupancy, where the gas-fired heating appliance is used to protect the cargo, such heater may be unvented, but provision must be made to dispose of the products of combustion to the outside.

(3) In vehicles intended for human occupancy, all gas-fired heating appliances, including water heaters, must be designed or installed to provide for complete separation of the combustion system from the atmosphere of the living space. Such appliances must be installed with the combustion air inlet assembly furnished as a component of the appliance, and with either:

(a) The flue gas outlet assembly furnished as a component of the appliance; or

(b) A listed roof jack if the appliance is listed for such use.

The combustion air inlet assembly, flue gas outlet assembly, and roof jack must extend to the outside atmosphere.

(4) Provision must be made to ensure an adequate supply of outside air for combustion.

(5) All gas-fired heating appliances and water heaters must have an approved automatic device designed to shut off

the flow of gas to the main burner and to the pilot in the event the pilot flame is extinguished.

(6) Gas-fired appliances installed in the cargo space must be readily accessible.

(7) Appliances must be constructed or protected to minimize the possible damage or impaired operation resulting from cargo shifting or handling.

(8) Appliances inside the vehicle must be located so that a fire at an appliance will not block the exit route.

[Recodified as § 296-307-43519. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43519, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43521 What general precautions must be followed for LP-gas system installations on commercial vehicles? (1) DOT containers must be marked, maintained, and requalified for use according to DOT regulations.

(2) Containers that have not been requalified according to DOT regulations must be removed from service. Requalified containers must be stamped with the date of requalification. When DOT cylinders are requalified by retesting, the retest must be made according to DOT regulations.

(3) Containers must not be charged with fuel unless they bear the proper markings of the code under which they were constructed, and with their water capacity. In the case of cylinders or portable containers filled by weight, the container must be marked with its tareweight.

(4) DOT containers that have been involved in a fire must not be recharged until they have been requalified for service according to DOT regulations.

(5) API-ASME containers or ASME containers that have been involved in a fire must not be recharged until they have been retested according to the requirements for their original hydrostatic test and found to be suitable for continued service.

"API-ASME (ASME) container" means a container constructed according to the Rules for Construction of Unfired Pressure Vessels, section VIII, Division 1, American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, 1968 edition.

(6) Containers must not be charged without the consent of the owner.

(7) A permanent caution plate must be provided on the appliance or adjacent to the container outside of any enclosure. It must include the word "caution" and the following or similar instructions.

(a) Be sure all appliance valves are closed before opening container valve.

(b) Connections at appliances, regulators, and containers must be checked periodically for leaks with soapy water or its equivalent.

(c) A match or flame must not be used to check for leaks.

(d) Container valves must be closed except when the equipment is in use.

[Recodified as § 296-307-43521. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43521, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43523 How must containers be charged? Containers must be charged according to DOT specifications.

[Recodified as § 296-307-43523. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43523, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43525 What fire protection must be provided for mobile cook units? Mobile cook units must have at least one approved portable fire extinguisher having a minimum rating of 8-B, C.

[Recodified as § 296-307-43525. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-43525, filed 10/31/96, effective 12/1/96.]

WAC 296-307-440 LP-gas service stations.

[Recodified as § 296-307-440. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-440, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44001 What does this section cover? WAC 296-306A-440 applies to storage containers, dispensing devices, and pertinent equipment in service stations where LP-gas is stored and dispensed into fuel tanks of motor vehicles. LP-gas service stations must meet all requirements of WAC 296-306A-410 and the requirements of this section.

[Recodified as § 296-307-44001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44003 How must storage containers be designed and classified? Storage containers must be designed and classified according to the following table:

Minimum design pressure of container lb. per sq. in. gauge

Container type	For gases with vapor press. Not to exceed lb. per sq. in. gauge 100°F (37.8°C.)	1949 and earlier editions of ASME Code (Par. U-68, U-69)	1949 edition of ASME Code (Par. U-200, U-201); 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division I) editions of ASME Code; All editions of API-ASME Code ²
200 ¹	215	200	250

¹ Container type may be increased by increments of 25. The minimum design pressure of containers shall be 100% of the container type designation when constructed under 1949 or earlier editions of ASME Code (Par. U-68 and U-69). The minimum design pressure of containers shall be 125% of the container type designation when constructed under: 1. The 1949 ASME Code (Par. U-200 and U-201), 2. 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division I) editions of the ASME Code, and 3. All editions of the API-ASME Code.

² Construction of containers under the API-ASME Code is not authorized after July 1, 1961.

[Recodified as § 296-307-44003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44005 What requirements apply to valves and accessories? (1) A filling connection on the container must be fitted with one of the following:

- (a) A combination back-pressure check and excess flow valve.
- (b) One double or two single back-pressure valves.
- (c) A positive shut-off valve, in conjunction with either:
 - (i) An internal back-pressure valve; or
 - (ii) An internal excess flow valve.

Instead of an excess flow valve, filling connections may be fitted with a quick-closing internal valve that only opens during operating periods. The mechanism for such valves may have a secondary control that will close automatically in case of fire. The melting point for a fusible plug must be a maximum of 220°F.

(2) A filling pipe inlet terminal off the container must have a positive shut-off valve and either:

- (a) A back pressure check valve; or
- (b) An excess flow check valve.

(3) All openings in the container must have approved excess flow check valves.

Exceptions:

- (a) Filling connections;
- (b) Safety-relief connections;
- (c) Liquid-level gauging devices; and
- (d) Pressure gauge connections.

(4) All container inlets and outlets must be labeled to designate whether they connect with vapor or liquid (labels may be on valves).

Exceptions:

- (a) Safety-relief valves;
- (b) Liquid-level gauging devices; and
- (c) Pressure gauges.

(5) Each storage container must have a suitable pressure gauge.

[Recodified as § 296-307-44005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44007 What requirements apply to safety devices? (1) All safety-relief devices must be installed as follows:

(a) On the container and directly connected with the vapor space.

(b) Safety-relief valves and discharge piping shall be protected against physical damage. The outlet must have loose-fitting rain caps. There shall be no return bends or restrictions in the discharge piping.

(c) The discharge from two or more safety-relief valves with the same pressure settings may be run into a common discharge header. The cross-sectional area of such header must be at least equal to the sum of the individual discharges.

(d) Discharge from a safety-relief device that terminates in or beneath any building is prohibited.

(2) Aboveground containers must have safety-relief valves as follows:

(a) The rate of discharge, which may be provided by one or more valves, must be at least that specified in WAC 296-306A-41025(2).

(b) The discharge from safety-relief valves must be vented upward to the open air to prevent impingement of escaping gas upon the container. You must use loose-fitting rain caps. On a container having a water capacity greater than 2,000 gallons, the discharge from the safety-relief valves must be vented upward away from the container to a point at least 7 feet above the container. Provisions must be made so that any liquid or condensate accumulation inside the relief valve or its discharge pipe will not render the valve inoperative. If a drain is used, you must protect the container, adjacent containers, piping, or equipment against impingement of flame resulting from ignition of the product escaping from the drain.

(3) Underground containers must have safety-relief valves as follows:

(a) The discharge from safety-relief valves must be piped upward to a point at least 10 feet above the ground. The discharge lines or pipes must be adequately supported and protected against physical damage.

(b) In areas where the manhole or housing may flood, the discharge from regulator vent lines should be above the highest probable water level.

(c) If no liquid is put into a container until after it is buried and covered, the rate of discharge of the relief valves may be reduced to at least 30 percent of the rate shown in WAC 296-306A-41025(2). If liquid fuel is present during installation of containers, the rate of discharge must be the same as for aboveground containers. Only empty containers may be uncovered.

[Recodified as § 296-307-44007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44009 What is the maximum capacity allowed for containers? Individual storage containers must be a maximum of 30,000 gallons water capacity.

[Recodified as § 296-307-44009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44011 How must storage containers be installed? (1) Each storage container used exclusively in service station operation must comply with the following table. This table outlines the minimum distances from a container to a building, group of buildings, or adjoining property lines that may be built on.

Minimum distances

Water capacity per container (gallons)	Aboveground and underground (feet)	Between aboveground containers (feet)
Up to 2,000	25	3
Over 2,000	50	5

Note: The above distances may be reduced to at least 10 feet for service station buildings of other than wood frame construction.

(a) Readily ignitable material including weeds and long dry grass, must be removed within 10 feet of containers.

(b) The minimum separation between LP-gas containers and flammable liquid tanks must be 20 feet and the minimum separation between a container and the centerline of the dike must be 10 feet.

(c) LP-gas containers located near flammable liquid containers must be protected against the flow or accumulation of flammable liquids by diking, diversion curbs, or grading.

(d) LP-gas containers located within diked areas for flammable liquid containers are prohibited.

(e) Field welding is permitted only on saddle plates or brackets that were applied by the container manufacturer.

(f) When permanently installed containers are interconnected, you must allow for expansion, contraction, vibration, and settling of containers and interconnecting piping. Where flexible connections are used, they must be approved and designed for a bursting pressure of at least five times the vapor pressure of the product at 100°F. Using nonmetallic hose is prohibited for interconnecting containers.

(g) Where high water table or flood conditions may be encountered, you must protect against container flotation.

(2) Aboveground containers must be installed according to this section.

(a) Containers may be installed horizontally or vertically.

(b) Containers must be protected by crash rails or guards to prevent physical damage unless they are protected by location. Servicing vehicles within 10 feet of containers is prohibited.

(c) Container foundations must be of substantial masonry or other noncombustible material. Containers must be mounted on saddles that permit expansion and contraction, and must provide against excess stresses. Corrosion protection must be provided for tank-mounting areas. Structural metal container supports must be protected against fire.

Exception: This protection is not required on prefabricated storage and pump assemblies, mounted on a common base, with container bottom a maximum of 24 inches above ground with water capacity of 2,000 gallons or less, if the piping connected to the storage and pump assembly is flexible enough to minimize breakage or leakage in case container supports fail.

(3) Underground containers must be installed according to this section.

(a) Containers must be given a protective coating before being placed underground. This coating must be equivalent to hot-dip galvanizing or to two coatings of red lead followed by a heavy coating of coal tar or asphalt. During installation, take care to minimize abrasion or other damage to the coating. Repair coating damage before back-filling.

(b) Containers must be set on a firm foundation (firm earth may be used) and surrounded with earth or sand firmly tamped in place. Backfill should be free of rocks or other abrasive materials.

(c) A minimum of 2 feet of earth cover must be provided. Where ground conditions make impractical, equivalent protection against physical damage must be provided. The portion of the container to which manhole

and other connections are attached may be left uncovered. If there is vehicle traffic at the site, containers must be protected by a concrete slab or other cover to prevent the weight of a loaded vehicle imposing a load on the container shell.

[Recodified as § 296-307-44011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44013 What equipment must be protected against tampering? Valves, regulators, gauges, and other container fittings must be protected against tampering and physical damage.

[Recodified as § 296-307-44013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44015 What requirements apply to the transport truck unloading point? (1) During unloading, the transport truck must not be parked on public thoroughfares and must be at least 5 feet from storage containers. The truck must be positioned so that shut-off valves are accessible.

(2) The filling pipe inlet terminal must not be located within a building nor within 10 feet of any building or driveway. It must be protected against physical damage.

[Recodified as § 296-307-44015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44017 What requirements apply to piping, valves, and fittings? (1) Piping may be underground, aboveground, or a combination of both. It must be well supported and protected against physical damage and corrosion.

(2) Piping laid beneath driveways must be installed to prevent physical damage by vehicles.

(3) Piping must be wrought iron or steel (black or galvanized), brass or copper pipe; or seamless copper, brass, or steel tubing and must be suitable for a minimum pressure of 250 psig. Pipe joints may be screwed, flanged, brazed, or welded. The use of aluminum alloy piping or tubing is prohibited.

(4) All shut-off valves (liquid or gas) must be suitable for LP-gas service and designed for at least the maximum pressure to which they may be subjected. Valves that may be subjected to container pressure must have a rated working pressure of at least 250 psig.

(5) All materials used for valve seats, packing, gaskets, diaphragms, etc., must be resistant to the action of LP-gas.

(6) Fittings must be steel, malleable iron, or brass having a minimum working pressure of 250 psig. Cast iron pipe fittings, such as ells, tees and unions must not be used.

(7) All piping must be tested after assembly and proved free from leaks at least at the normal operating pressures.

(8) You must allow for expansion, contraction, jarring, and vibration, and for settling. You may use flexible connections.

[Recodified as § 296-307-44017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44019 What requirements apply to pumps and accessory equipment? All pumps and accessory equipment must be suitable for LP-gas service, and designed for at least the maximum pressure to which they may be subjected. Accessories must have a minimum rated working pressure of 250 psig. Positive displacement pumps must have suitable pressure actuated bypass valves permitting flow from pump discharge to storage container or pump suction.

[Recodified as § 296-307-44019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44021 What requirements apply to LP-gas dispensing devices? (1) Meters, vapor separators, valves, and fittings in the dispenser must be suitable for LP-gas service and must be designed for a minimum working pressure of 250 psig.

(2) Provisions must be made for venting LP-gas from a dispensing device to a safe location.

(3) Pumps used to transfer LP-gas must allow control of the flow and to prevent leakage or accidental discharge. Means must be provided outside the dispensing device to readily shut off the power in the event of fire or accident.

(4) A manual shut-off valve and an excess flow check valve must be installed downstream of the pump and ahead of the dispenser inlet.

(a) Dispensing hose must be resistant to the action of LP-gas in the liquid phase and designed for a minimum bursting pressure of 1,250 psig.

(b) An excess flow check valve or automatic shut-off valve must be installed at the terminus of the liquid line at the point of attachment of the dispensing hose.

(5) LP-gas dispensing devices must be located at least 10 feet from aboveground storage containers greater than 2,000 gallons water capacity. The dispensing devices must be at least 20 feet from any building (not including canopies), basement, cellar, pit, or line of adjoining property that may be built on and at least 10 feet from sidewalks, streets, or thoroughfares. No drains or blowoff lines must be directed into or in proximity to the sewer systems used for other purposes.

(a) LP-gas dispensing devices must be installed on a concrete foundation or as part of a complete storage and dispensing assembly mounted on a common base, and must be adequately protected from physical damage.

(b) LP-gas dispensing devices must not be installed within a building.

Exception: Dispensing devices may be located under a weather shelter or canopy if the area is not enclosed on more than two sides. If the enclosing sides are adjacent, the area shall be properly ventilated.

(6) Dispensing LP-gas into the fuel container of a vehicle shall be performed by a competent attendant who shall remain at the LP-gas dispenser during the entire transfer operation.

[Recodified as § 296-307-44021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44023 Is smoking allowed at LP-gas service stations? Smoking is prohibited on the driveway of service stations in the dispensing areas or transport truck unloading areas. Conspicuous signs prohibiting smoking must be posted within sight of the customer being served. Letters on such signs must be at least 4 inches high. The motors of all vehicles being fueled must be shut off during the fueling operations.

[Recodified as § 296-307-44023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44025 What fire protection must be provided at LP-gas service stations? Each service station must have at least one approved portable fire extinguisher with at least an 8-B, C, rating.

[Recodified as § 296-307-44025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-44025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-450 Other hazardous materials.

[Recodified as § 296-307-450. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-450, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45001 What general requirements apply to hazardous materials and flammable and combustible liquids? (1) Fuel must be stored, handled and marked according to the recommendations of the National Fire Protection Association (NFPA) or other agencies with jurisdiction.

(2) You must ensure that compressed gas cylinders under your control are in a safe condition to the extent that you can determine by visual inspection. Inspections must be conducted according to the hazardous materials regulations of the Department of Transportation (49 CFR Parts 171-179 and 14 CFR Part 103).

Exception: Where those regulations are not applicable, inspections must be conducted according to the Compressed Gas Association Pamphlets C-6-1968 and C-8-1962.

(3) Compressed gas cylinders, portable tanks, and cargo tanks must have pressure relief devices installed and maintained according to Compressed Gas Association Pamphlets S-1.1-1963 and 1965 addenda and S-1.2-1963.

(4) The following equipment must be shut down during refueling:

- Tractors;
- Agricultural equipment employing open flames; and
- Equipment with integral containers, such as flame cultivators, weed burners.

[Recodified as § 296-307-45001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45003 What requirements apply to dip tanks containing flammable or combustible liquids? Dip tanks containing flammable or combustible liquids must meet the requirements of WAC 296-306A-450.

[Recodified as § 296-307-45003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45005 What definitions apply to this section? "Dip tank" means a tank, vat, or container of flammable or combustible liquid in which articles or materials are immersed for coating, finishing, treating, or similar processes.

"Vapor area" means any area containing dangerous quantities of flammable vapors in the vicinity of dip tanks, drainboards or other drying, conveying, or other equipment during operation or shutdown.

[Recodified as § 296-307-45005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45007 What requirements must ventilation systems meet? (1) Vapor areas must be limited to the smallest practical space by maintaining a properly designed ventilation system arranged to move air from all directions towards the vapor area and to a safe outside location. Ventilating systems must meet the requirements of the Standards for Blower and Exhaust Systems (NFPA Pamphlet No. 91-1969).

(2) For drying operations that use a heating system that is a potential source of ignition, the ventilation system must have a preventilation process that must operate before the heating system can be started. The failure of any ventilating fan must automatically shut down the heating system. The installation must meet the requirements of the Standard for Ovens and Furnaces (NFPA No. 86A-1969).

[Recodified as § 296-307-45007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45009 What general requirements apply to the construction of dip tanks? (1) Dip tanks and drainboards must be constructed of substantial noncombustible material, and their supports must be of heavy metal, reinforced concrete, or masonry. Where dip tanks extend through a floor to the story below or where the weakening of the tank supports by fire may result in the tank collapse, supports should be of material with at least 1-hour fire resistance.

(2) The capacity of the salvage tank must be greater than the capacity of the dip tanks to which they are connected.

(3) All dip tanks exceeding 150 gallons liquid capacity or having a liquid surface area exceeding 4 square feet must be protected by at least one of the automatic extinguishing facilities in WAC 296-306A-45021 (2), (3), (4), (5) or (6).

Exception: Hardening and tempering tanks must meet the requirements of WAC 296-306A-45023.

(4) Dip tanks that use a conveyor system must be arranged so that, in the event of fire, the conveyor system must automatically stop and the bottom drains shall open. Conveyor systems must automatically stop unless required ventilation is in full operation.

(5) When dip tank liquids are heated by dipping heated articles or by other application of heat to the liquid, you must prevent a temperature rise greater than 50°F below the flashpoint of the liquid.

[Recodified as § 296-307-45009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45011 How must overflow pipes for dip tanks be constructed? (1) Dip tanks of over 150 gallons in capacity or 10 square feet in liquid surface area must have a properly trapped overflow pipe leading to a safe location outside buildings. When practical, smaller dip tanks should be equipped the same way.

(2) The location and arrangement of the discharge of the overflow pipe must prevent hazards if the combustible contents of the dip tank overflows through the overflow pipe from fire fighting water. The overflow pipe should be large enough to conduct the maximum amount of water expected to be applied from automatic sprinklers or other sources in a fire.

(3) Overflow pipes must be large enough to overflow the maximum delivery of dip tank liquid fill pipes. They must be at least 3 inches in diameter or larger depending on the area of the liquid surface and the length and pitch of pipe.

(4) Piping connections on drains and overflow lines must be designed to allow access for inspection and cleaning of the interior.

(5) The bottom of the overflow connection must be at least 6 inches below the top of the tank.

[Recodified as § 296-307-45011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45013 How must the bottom drains of dip tanks be constructed? (1) Dip tanks over 500 gallons in liquid capacity must have bottom drains that are automatically and manually arranged to quickly drain the tank in the event of fire. Manual operation must be from a safely accessible location. Where gravity flow is not practical, automatic pumps are required.

Exception: This requirement does not apply if the viscosity of the liquid at normal atmospheric temperature makes this impractical.

(2) Bottom drains must be trapped and discharged to a closed properly vented salvage tank or to a safe location outside.

(3) According to tank capacity, the diameter of the bottom drainpipe must be at least the following:

Gallons	Inches
500 to 750	3
750 to 1,000	4
1,000 to 2,500	5
2,500 to 4,000	6
Over 4,000	8

[Recodified as § 296-307-45013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45015 How must liquids used in dip tanks be stored and handled? The storage of flammable and combustible liquids in connection with dipping operations must meet the requirements of the National Fire Protection Association Standard for Drycleaning Plants, NFPA No. 32-1970; the National Fire Protection Association Standard for the Manufacture of Organic Coatings, NFPA No. 35-1970; the National Fire Protection Association Standard for Solvent Extraction Plants, NFPA No. 36-1967; and the National Fire Protection Association Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines, NFPA No. 37-1970.

Where portable containers are used to replenish flammable and combustible liquids, you must ensure that both the container and tank are positively grounded and electrically bonded to prevent static electric sparks.

[Recodified as § 296-307-45015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45017 What measures must an employer take to prevent hazards from electrical and other ignition sources? (1) In vapor areas, there must be no open flames, spark producing devices, or heated surfaces hot enough to ignite vapors. Electrical wiring and equipment in any vapor area must be explosion proof as required in chapter 296-306A WAC Part T for Class I locations and must meet the requirements of chapter 296-306A WAC Part T.

Exception: The requirements for electrostatic apparatus are in WAC 296-306A-45027.

(2) Electrical equipment is prohibited in the vicinity of dip tanks, drainboards, or drying operations that are subject to splashing or dripping of dip tank liquids, unless the equipment is approved for locations containing deposits of readily ignitable residues and explosive vapors.

Exception: Wiring in rigid conduit or in threaded boxes or fittings containing no taps, splices, or terminal connections are permitted. Other exceptions are in WAC 296-306A-45027.

(3) In any floor space outside a vapor area but within 20 feet and not separated by tight partitions, open flames or spark producing devices are prohibited. Electrical wiring and equipment must meet the requirements of chapter 296-306A WAC Part T.

Exception: Open flames are only allowed as specifically permitted in NFPA Standard No. 86A-1969, Ovens and Furnaces, paragraph 200-7.

[Recodified as § 296-307-45017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45019 How must dip tanks be operated and maintained? (1) The area around dip tanks must be kept as clear of combustible stock as practical and must be kept entirely free of combustible debris.

(2) When waste or rags are used in connection with dipping operations, approved metal waste cans must be provided. All impregnated rags or waste must be deposited in the cans immediately after use. The contents of waste cans must be properly disposed of at least once daily at the end of each shift.

(3) You must periodically inspect or test all dip tank facilities, including covers, overflow pipe inlets and discharge, bottom drains and valves, electrical wiring and equipment and grounding connections, ventilating facilities, and all extinguishing equipment. Any defects found must be promptly corrected.

(4) "No smoking" signs in large letters on contrasting color background must be conspicuously posted in the vicinity of dip tanks.

[Recodified as § 296-307-45019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45021 What requirements must fire extinguishing systems meet? (1) Dip tank areas must have portable fire extinguishers suitable for flammable and combustible liquid fires, and that meet the requirements of WAC 296-306A-085.

(2) Automatic water spray extinguishing systems must meet the requirements of ANSI/NFPA No. 13, Sprinkler Systems, and NFPA No. 13, Sprinkler Systems Maintenance, and shall be arranged to protect tanks, drainboards, and stock over drainboards.

(3) Automatic foam extinguishing systems must meet the requirements of ANSI/NFPA No. 11, Foam Extinguishing Systems.

(a) The foam-producing material must be suitable for intended use, taking into account the characteristics of the dip tank liquid.

(b) The overflow pipe must be arranged to prevent foam from floating away and clogging the overflow pipe. You must use one of the following methods:

(i) The overflow pipe may be extended through tank wall and terminated in an ell pointing downward. The bottom of the overflow pipe at the point it enters the tank wall should be a maximum of 2 inches above the opening or the face of the ell.

(ii) The overflow pipe inlet may have a removable screen of 1/4-inch mesh with an area at least twice the cross-sectional area of overflow pipe. Screens that may be clogged by dip tank ingredients must be inspected and cleaned periodically.

(4) Automatic carbon dioxide systems must meet the requirements of ANSI/NFPA No. 12, Carbon Dioxide, and must be arranged to protect dip tanks and drainboards. The system must be arranged to protect stock over drainboards unless the stock is otherwise protected with automatic extinguishing facilities.

(5) Dry chemical extinguishing systems must meet the requirements of ANSI/NFPA No. 17, Dry Chemical Systems, and must be arranged to protect dip tanks and drainboards. The system must be arranged to protect stock over drainboards unless the stock is otherwise protected with automatic extinguishing facilities.

(6) Dip tank covers must meet the following requirements:

(a) Covers arranged to close automatically in the event of fire must be actuated by approved automatic devices and shall also be designed for manual operation.

(b) Covers must be of substantial noncombustible material or tin-clad with enclosing metal applied with locked joints.

(c) Chains or wire rope must be used for the cover support or operating mechanism where a burnt cord would interfere with the device action.

(d) Covers must be kept closed when tanks are not in use.

[Recodified as § 296-307-45021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45023 What requirements apply to hardening and tempering tanks? (1) Tanks must be located as far as practical from furnaces and away from combustible floors.

(2) Tanks must have a noncombustible hood and vent or other equivalent means of venting to the outside of the building that will serve as a vent in case of fire. All vent ducts must be treated as flues and be kept away from combustible roofs or materials.

(3) Tanks must be designed so that the maximum workload is incapable of raising the temperature of the cooling medium to within 50°F below its flashpoint, or tanks must have circulating cooling systems that will provide equal protection.

(4) Tanks must have a high temperature limit switch arranged to sound an alarm when the temperature of the quenching medium reaches within 50°F below the flashpoint. If practical from an operating standpoint, such limit switches must also shut down conveying equipment supplying work to the tank.

(5) All hardening and tempering tanks exceeding 500 gallons liquid capacity or having a liquid surface area exceeding 25 square feet must be protected with at least one of the automatic extinguishing facilities conforming to WAC 296-306A-45021 (2), (3), (4), (5) or (6).

(6) Using air under pressure to fill or to agitate oil tanks is prohibited.

(7) Bottom drains may be combined with the oil circulating system or arranged independently to drain the oil to a safe location. The drain valve must be operated automatically with approved heat actuated devices or manually. The valve of a manual device must be operated from a safe distance.

[Recodified as § 296-307-45023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45025 What requirements apply to flow coat applications? (1) All dip tank requirements must apply to flow coat operations.

(2) All piping must be strongly erected and rigidly supported.

(3) Paint must be supplied by direct low-pressure pumping arranged to automatically shut down by an ap-

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proved heat actuated device in the case of fire, or paint may be supplied by a gravity tank with a maximum capacity of 10 gallons.

(4) The sump area and any areas on which paint flows should be considered the area of dip tank.

[Recodified as § 296-307-45025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45027 What requirements apply to electrostatic apparatus? (1) All requirements of WAC 296-306A-450 apply to electrostatic detearing equipment unless otherwise specified.

(2) Electrostatic apparatus and devices used in connection with paint detearing operations must be approved.

(3) Transformers, powerpacks, control apparatus, and all other electrical portions of the equipment must be located outside the vapor area or must meet the requirements of WAC 296-306A-45017.

Exception: This requirement does not apply to high voltage grids and their connections.

(4) Electrodes must be substantially constructed, rigidly supported in permanent locations, and insulated from ground. Insulators must be nonporous and noncombustible.

(5) High voltage leads to electrodes must be permanently supported on suitable insulators, and guarded against accidental contact or grounding. An automatic means must be provided for grounding and discharging any accumulated residual charge on the electrode assembly or the secondary circuit of the high voltage transformer when the transformer primary is disconnected from the supply source.

(6) Maintain space between goods being deteared and electrodes or conductors of at least twice the sparking distance. A sign stating the sparking distance must be conspicuously posted near the assembly.

(7) Goods being deteared using the electrostatic process must be supported on conveyors. The conveyors must be arranged to maintain safe distances between the goods and the electrodes at all times. All goods must be supported to prevent any swinging or movement that would reduce the clearance to less than twice the sparking distance.

Exception: The electrostatic process is prohibited where goods being deteared are manipulated by hand.

(8) Electrostatic apparatus must have automatic controls that will operate immediately to disconnect the power supply to the high voltage transformer and to signal the operator under any of the following conditions:

(a) The ventilating fans stop or the ventilating equipment fails for any cause;

(b) The conveyor carrying goods past the high voltage grid stops;

(c) A ground or imminent ground at any point on the high voltage system occurs; or

(d) Clearance is reduced below twice the sparking distance.

(9) Adequate fencing, railings, or guards must be placed so that they ensure that the process is safely isolated from plant storage or employees. Such railings, fencing and guards must be of conducting material, adequately grounded, and should be at least 5 feet from processing equipment.

(10) Electrode insulators must be kept clean and dry.

(11) The detearing area must be ventilated according to WAC 296-306A-45007.

(12) All areas for detearing must be protected by automatic sprinklers where this protection is available. Where this protection is not available, other approved automatic extinguishing equipment must be provided.

(13) Drip plates and screens subject to paint deposits must be removable and shall be taken to a safe place for cleaning.

[Recodified as § 296-307-45027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45029 What requirements apply to roll coating applications? Sparks from static electricity must be prevented by electrically bonding and grounding all rotating metal and other machinery, and by the installation of static collectors or maintaining a conductive atmosphere such as a high relative humidity.

[Recodified as § 296-307-45029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-45029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-475 Welding, cutting, and brazing.

[Recodified as § 296-307-475. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-475, filed 10/31/96, effective 12/1/96.]

WAC 296-307-47501 What definitions apply to this part? "Welder" and "welding operator" mean any operator of electric or gas welding and cutting equipment.

All other welding terms are defined according to American Welding Society, Terms and Definitions, A3.0-1969.

[Recodified as § 296-307-47501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-47501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-480 Installation and operation of oxygen fuel gas systems for welding and cutting.

[Recodified as § 296-307-480. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-480, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48001 What general requirements apply to oxygen fuel gas systems? (1) Explosive mixtures of fuel gases and air or oxygen must be guarded against. No accessory that allows air or oxygen to mix with flammable gases prior to use must be allowed unless approved for that purpose.

Exception: Air or oxygen may mix with flammable gases at the burner or in a standard torch.

(2) Acetylene must never be generated, piped (except in approved cylinder manifolds) or used at a pressure in excess of 15 psi gauge pressure or 30 psi absolute pressure. (The

30 psi absolute pressure limit is intended to prevent unsafe use of acetylene in pressurized chambers such as caissons, underground excavations or tunnel construction.) Using liquid acetylene is prohibited.

Exception: This requirement does not apply to storage of acetylene dissolved in a suitable solvent in cylinders manufactured and maintained according to DOT requirements, or to acetylene for chemical use.

(3) Only approved apparatus such as torches, regulators or pressure-reducing valves, acetylene generators, and manifolds must be used. Replacement tips may be used on approved torches, if the replacement tips are made to the same specifications as the original, or when replacements are used with convertor/adaptors that meet the same specifications.

(4) Before leaving any employee in charge of the oxygen or fuel-gas supply equipment, including generators, and oxygen or fuel-gas distribution piping systems, you must ensure that the employee has received proper instruction and is competent to do the work. Rules and instructions covering the operation and maintenance of oxygen or fuel-gas supply equipment including generators, and oxygen or fuel-gas distribution piping systems must be readily available.

[Recodified as § 296-307-48001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48003 What requirements apply to portable cylinders? All portable cylinders used for storing and shipping compressed gases must be constructed and maintained according to DOT regulations.

(1) Compressed gas cylinders must be legibly marked with either the chemical or the trade name of the gas. The marking must be a permanent stencil, stamp, or label. Whenever practical, the marking must be located on the shoulder of the cylinder.

(2) Compressed gas cylinders must have connections that meet the requirements of the American National Standard Compressed Gas Cylinder Valve Outlet and Inlet Connections, ANSI B 57.1-1965.

(3) All cylinders with a water weight capacity greater than thirty pounds must have means of connecting a valve protection cap or with a collar or recess to protect the valve.

[Recodified as § 296-307-48003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48005 What general requirements apply to storing compressed gas cylinders? (1) Cylinders must be kept away from radiators and other sources of heat.

(2) Indoors, cylinders must be stored in a well-protected, well-ventilated, dry area, at least twenty feet from highly combustible materials such as oil or excelsior. Cylinders should be stored in assigned places away from elevators, stairs, or gangways. Assigned storage spaces must be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering. All cylinder enclosures must be ventilated.

(3) Empty cylinders must have their valves closed.

(4) Valve protection caps on cylinders designed to accept a cap, must always be in place and hand-tight, except when cylinders are in use or connected for use.

[Recodified as § 296-307-48005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48007 How must fuel-gas cylinders be stored? Cylinders stored indoors, except those in use or attached ready for use, must be limited to a total gas capacity of 2,000 cubic feet or 300 pounds of LP-gas.

(1) Cylinders in excess of 2,000 cubic feet total gas capacity or 300 pounds of LP-gas, must be stored in a separate room or compartment that meets the requirements of 252 (a)(8) and (9) CFR, or cylinders must be kept outside or in a special building. Special buildings, rooms or compartments must be free from open flame for heating or lighting and must be well ventilated. They may also be used for storage of a maximum of 600 pounds of calcium carbide, when contained in metal containers complying with 252 (a)(7)(a) and (b) CFR. Signs should be conspicuously posted in such rooms reading, "Danger—No smoking, matches or open lights," or other equivalent wording.

(2) Acetylene cylinders must be stored valve end up.

[Recodified as § 296-307-48007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48009 How must oxygen cylinders be stored? (1) Oxygen cylinders must not be stored near highly combustible material, especially oil and grease; or near reserve stocks of carbide and acetylene or other fuel-gas cylinders, or near any other substance likely to cause or accelerate fire; or in an acetylene generator compartment.

(2) Oxygen cylinders stored in outside generator houses must be separated from the generator or carbide storage rooms by a noncombustible partition having a fire-resistance rating of at least one hour. This partition must be without openings and must be gastight.

(3) Oxygen cylinders in storage must be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum of 20 feet or by a noncombustible barrier at least five feet high having a fire-resistance rating of at least one-half hour. (Cylinders "in-use," secured to a hand truck or structural member, with regulators, hoses, and torch temporarily removed for security purposes overnight or weekends, are not considered "in-storage.")

(4) Where a liquid oxygen system is to be used to supply gaseous oxygen for welding or cutting and the system has a storage capacity of more than 13,000 cubic feet of oxygen (measured at 14.7 psi(a) and 70°F), connected in service or ready for service, or more than 25,000 cubic feet of oxygen (measured at 14.7 psi(a) and 70°F), including unconnected reserves on hand at the site, it must meet the requirements of the Standard for Bulk Oxygen Systems at Consumer Sites, NFPA No. 566-1965.

[Recodified as § 296-307-48009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48011 What general operating procedures apply to working with cylinders and containers? (1) The numbers and markings stamped into cylinders must not be tampered with.

(2) Cylinders, cylinder valves, couplings, regulators, hose, and apparatus must be kept free from oily or greasy substances. Oxygen cylinders or apparatus must not be handled with oily hands or gloves. A jet of oxygen must never be permitted to strike an oily surface, greasy clothes, or enter a fuel oil or other storage tank.

(3) Cylinders must be kept far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them, or fire-resistant shields must be provided.

(4) No person, other than the gas supplier, may attempt to mix gases in a cylinder. No one, except the owner of the cylinder or person authorized by the owner, may refill a cylinder.

(5) Cylinders must not be placed where they might become part of an electric circuit. Contacts with third rails, trolley wires, etc., must be avoided.

(6) Fuel-gas cylinders must be placed with valve end up whenever they are in use. Liquefied gases must be stored and shipped with the valve end up.

(7) A suitable cylinder truck, chain, or other steadying device must be used to prevent cylinders from being knocked over while in use.

[Recodified as § 296-307-48011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48013 What requirements apply to safety devices on cylinders? (1) Valve-protection caps must not be used for lifting cylinders from one vertical position to another. Bars must not be used under valves or valve-protection caps to pry cylinders loose when frozen to the ground or otherwise fixed; we recommend using warm (not boiling) water. Valve-protection caps are designed to protect cylinder valves from damage.

(2) Cylinders without fixed hand wheels must have keys, handles, or nonadjustable wrenches on valve stems while these cylinders are in service. In multiple cylinder installations only one key or handle is required for each manifold.

(3) No one may tamper with safety devices in cylinders or valves.

(4) Nothing may be placed on top of an acetylene cylinder when in use that may damage the safety device or interfere with the quick closing of the valve.

(5) Where a special wrench is required it must be left in position on the stem of the valve while the cylinder is in use so that the fuel-gas flow can be quickly turned off in case of emergency. In the case of manifolded or coupled cylinders at least one such wrench must always be available for immediate use.

(6) Cylinders with leaking fuse plugs or other leaking safety devices should be plainly marked with a warning not to approach them with a lighted cigarette or other source of ignition. You should notify the supplier promptly and follow the supplier's instructions as to their return.

[Recodified as § 296-307-48013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48015 How must cylinders be transported? (1) When transporting cylinders by a crane or derrick, a cradle, boat, or suitable platform must be used. Slings or electric magnets are prohibited for this purpose. Valve-protection caps, where cylinder is designed to accept a cap, must always be in place.

(2) Unless cylinders are secured on a special truck, regulators must be removed and valve-protection caps, when provided for, must be put in place before cylinders are moved.

(3) When cylinders are transported by powered vehicle they must be secured in a vertical position.

[Recodified as § 296-307-48015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48017 How must cylinders be handled? (1) Cylinders must not be dropped or struck or permitted to strike each other violently.

(2) Cylinders must be handled carefully. Cylinders must not be subjected to rough handling, knocks, or falls that are liable to damage the cylinder, valve or safety devices and cause leakage.

(3) Cylinders must never be used as rollers or supports, whether full or empty.

[Recodified as § 296-307-48017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48019 What requirements apply to cylinder valves? (1) Cylinder valves must be closed before moving cylinders.

(2) Cylinder valves must be closed when work is finished.

(3) Valves of empty cylinders must be closed.

(4) A hammer or wrench must not be used to open cylinder valves. If valves cannot be opened by hand, the supplier must be notified.

(5) Cylinder valves must not be tampered with nor should any attempt be made to repair them. If you have trouble with a cylinder, you should send a report to the supplier indicating the character of the trouble and the cylinder's serial number. You must follow the supplier's instructions on what to do with the cylinder.

(6) Complete removal of the stem from a diaphragm-type cylinder valve must be avoided.

(7) If cylinders are found to have leaky valves or fittings that cannot be stopped by closing of the valve, the cylinders must be taken outdoors away from sources of ignition and slowly emptied.

(8) The cylinder valve must always be opened slowly.

(9) An acetylene cylinder valve must not be opened more than one and one-half turns of the spindle, and preferably no more than three-fourths of a turn.

[Recodified as § 296-307-48019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48021 What requirements apply to cylinder regulators? (1) Unless connected to a manifold, oxygen from a cylinder must first have an oxygen regulator attached to the cylinder valve.

(2) Before connecting a regulator to a cylinder valve, the valve must be opened slightly and closed immediately. The valve must be opened while standing to one side of the outlet; never in front of it. Fuel-gas cylinder valves must not be cracked near other welding work or near sparks, flame, or other possible sources of ignition.

(3) Before a regulator is removed from a cylinder valve, the cylinder valve must be closed and the gas released from the regulator.

(4) Fuel-gas must not be used from cylinders through torches or other devices equipped with shut-off valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.

[Recodified as § 296-307-48021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48023 What requirements apply to fuel-gas manifolds? (1) Manifolds must be approved either separately for each component part or as an assembled unit.

(2) Fuel-gas cylinders connected to one manifold inside a building must be limited to a maximum total capacity of 300 pounds of LP-gas or 3,000 cubic feet of other fuel-gas. More than one such manifold with connected cylinders may be located in the same room if the manifolds are at least 50 feet apart or separated by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.

(3) Exception: Fuel-gas cylinders connected to one manifold having an aggregate capacity exceeding 300 pounds of LP-gas or 3,000 cubic feet of other fuel-gas must be located outdoors, or in a separate building or room constructed according to 252 (a)(8) and (9) CFR.

(4) Separate manifold buildings or rooms may also be used for the storage of drums of calcium carbide and cylinders containing fuel gases as provided in WAC 296-306A-48007. Such buildings or rooms must have no open flames for heating or lighting and must be well ventilated.

(5) High-pressure fuel-gas manifolds must have approved pressure regulating devices.

[Recodified as § 296-307-48023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48025 What requirements apply to high pressure oxygen manifolds? This section applies to cylinders with a DOT service pressure above 200 psig.

(1) Manifolds must be approved either separately for each component or as an assembled unit.

(2) Oxygen manifolds must not be located in an acetylene generator room. Oxygen manifolds must be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.

(3) Oxygen cylinders connected to one manifold must be limited to a total gas capacity of 6,000 cubic feet. More than one such manifold with connected cylinders may be located in the same room if the manifolds are at least 50 feet apart or separated by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.

(4) Exception: An oxygen manifold, to which cylinders having an aggregate capacity of more than 6,000 cubic feet of oxygen are connected, should be located outdoors or in a separate noncombustible building. Such a manifold, if located inside a building having other occupancy, must be located in a separate room of noncombustible construction having a fire-resistance rating of at least one-half hour or in an area with no combustible material within 20 feet of the manifold.

(5) An oxygen manifold or oxygen bulk supply system that has storage capacity of more than 13,000 cubic feet of oxygen (measured at 14.7 psia and 70°F), connected in service or ready for service, or more than 25,000 cubic feet of oxygen (measured at 14.7 psia and 70°F), including unconnected reserves on hand at the site, must meet the requirements of the Standard for Bulk Oxygen Systems at Consumer Sites, NFPA No. 566-1965.

(6) High-pressure oxygen manifolds must have approved pressure-regulating devices.

[Recodified as § 296-307-48025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48027 What requirements apply to low pressure oxygen manifolds? This section applies to cylinders with a maximum DOT service pressure of 200 psig.

(1) Manifolds must be of substantial construction suitable for use with oxygen at a pressure of 250 psig. They must have a minimum bursting pressure of 1,000 psig and must be protected by a safety-relief device that will relieve at a maximum pressure of 500 psig.

Note: DOT-4L200 cylinders have safety devices that relieve at a maximum pressure of 250 psig (or 235 psig if vacuum insulation is used).

(2) Hose and hose connections subject to cylinder pressure must meet the requirements of WAC 296-306A-48049. Hose must have a minimum bursting pressure of 1,000 psig.

(3) The assembled manifold including leads must be tested and proven gas-tight at a pressure of 300 psig. The fluid used for testing oxygen manifolds must be oil-free and not combustible.

(4) The location of manifolds must meet the requirements of WAC 296-306A-48025.

(5) The following sign must be conspicuously posted at each manifold:

Low-Pressure Manifold
Do Not Connect High-Pressure Cylinders
Maximum Pressure—250 PSIG

[Recodified as § 296-307-48027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48029 What requirements apply to manifolding portable outlet headers? (1) Portable outlet headers must not be used indoors except for temporary service where the conditions preclude a direct supply from outlets located on the service piping system.

(2) Each outlet on the service piping from which oxygen or fuel-gas is withdrawn to supply a portable outlet header must have a readily accessible shut-off valve.

(3) Hose and hose connections used for connecting the portable outlet header to the service piping must meet the requirements of WAC 296-306A-48051.

(4) Master shut-off valves for both oxygen and fuel-gas must be provided at the entry end of the portable outlet header.

(5) Portable outlet headers for fuel-gas service must have an approved hydraulic back-pressure valve installed at the inlet and preceding the service outlets, unless an approved pressure-reducing regulator, an approved backflow check valve, or an approved hydraulic back-pressure valve is installed at each outlet. Outlets provided on headers for oxygen service may be fitted for use with pressure-reducing regulators or for direct hose connection.

(6) Each service outlet on portable outlet headers must have a valve assembly that includes a detachable outlet seal cap, chained or otherwise attached to the body of the valve.

(7) Materials and fabrication procedures for portable outlet headers must comply with WAC 296-306A-48033, 296-306A-48035, and 296-306A-48041.

(8) Portable outlet headers must have frames that will support the equipment securely in the correct operating position and protect them from damage during handling and operation.

[Recodified as § 296-307-48029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48031 What operating procedures apply to cylinder manifolds? (1) Cylinder manifolds must be installed under the supervision of someone familiar with the proper practices of construction and use.

(2) All component parts used in the methods of manifolding described in WAC 296-306A-48023 must have the materials, design and construction approved either separately or as an assembled unit.

(3) All manifolds and parts used in methods of manifolding must be used only for the gas or gases for which they are approved.

(4) When acetylene cylinders are coupled, approved flash arresters must be installed between each cylinder and the coupler block. For outdoor use only, and when the number of cylinders coupled does not exceed three, one flash arrester installed between the coupler block and regulator is acceptable.

(5) Each fuel-gas cylinder lead should have a backflow check valve.

(6) The maximum aggregate capacity of fuel-gas cylinders connected to a portable manifold inside a building must be 3,000 cubic feet of gas.

(7) Acetylene and liquefied fuel-gas cylinders must be manifolded vertically.

(8) The pressure in the gas cylinders connected to and discharged simultaneously through a common manifold must be approximately equal.

[Recodified as § 296-307-48031. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48031, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48033 How must service piping systems be designed? (1) Piping and fittings must comply with Section 2, Industrial Gas and Air Piping Systems, of the American National Standard Code for Pressure Piping, ANSI B 31.1-1967, if they do not conflict with subsections (2) and (3) of this section.

(2) Pipe must be at least Schedule 40 and fittings must be at least standard weight in sizes up to and including 6-inch nominal.

(3) Copper tubing must be Types K or L according to the Standard Specification for Seamless Copper Water Tube, ASTM B88-66a.

(4) Piping must be steel, wrought iron, brass or copper pipe, or seamless copper, brass or stainless steel tubing, except as provided in subsections (5) through (9) of this section.

(5) Oxygen piping and fittings at pressures in excess of 700 psig, must be stainless steel or copper alloys.

(6) Hose connections and hose complying with WAC 296-306A-48051 may be used to connect the outlet of a manifold pressure regulator to piping if the working pressure of the piping is 250 psig or less and the length of the hose is a maximum of 5 feet. Hose must have a minimum bursting pressure of 1,000 psig.

(7) When oxygen is supplied to a service piping system from a low-pressure oxygen manifold without an intervening pressure regulating device, the piping system must have a minimum design pressure of 250 psig. A pressure regulating device must be used at each station outlet when the connected equipment is for use at pressures less than 250 psig.

(8) Piping for acetylene or acetylenic compounds must be steel or wrought iron.

(9) Unalloyed copper must only be used for acetylene or acetylenic compounds in listed equipment.

[Recodified as § 296-307-48033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48035 What requirements apply to piping joints? (1) Joints in steel or wrought iron piping must be welded, threaded or flanged. Fittings, such as ells, tees, couplings, and unions, must be rolled, forged or cast steel, malleable iron or nodular iron. Gray or white cast iron fittings are prohibited.

(2) Joints in brass or copper pipe must be welded, brazed, threaded, or flanged. Socket type joints must be brazed with silver-brazing alloy or similar high melting point (not less than 800°F) filler metal.

(3) Joints in seamless copper, brass, or stainless steel tubing must be approved gas tubing fittings or the joints must be brazed. Socket type joints must be brazed with silver-brazing alloy or similar high melting point (not less than 800°F) filler metal.

[Recodified as § 296-307-48035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48035, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48037 How must service piping systems be installed? (1) Distribution lines must be installed and maintained in a safe operating condition.

(2) Piping may be above or below ground. All piping must be run as directly as practical, protected against physical damage, with an allowance for expansion and contraction, jarring and vibration. Pipe laid underground in earth must be below the frost line and protected against corrosion. After assembly, piping must be thoroughly blown out with air or nitrogen to remove foreign materials. For oxygen piping, only oil-free air, oil-free nitrogen, or oil-free carbon dioxide must be used.

(3) Only piping that has been welded or brazed must be installed in tunnels, trenches or ducts. Shut-off valves must be located outside such conduits. Oxygen piping may be placed in the same tunnel, trench or duct with fuel-gas pipelines, if there is good natural or forced ventilation.

(4) Low points in piping carrying moist gas must be drained into drip pots constructed to permit pumping or draining out the condensate at necessary intervals. Drain valves must be installed for this purpose having outlets normally closed with screw caps or plugs. Open end valves or petcocks are prohibited, except that in drips located outdoors, underground, and not readily accessible, valves may be used at such points if they have means to secure them in the closed position. Pipes leading to the surface of the ground must be cased or jacketed where necessary to prevent loosening or breaking.

(5) Gas cocks or valves must be provided for all buildings at points where they will be readily accessible for shutting off the gas supply to these buildings in any emergency. Underground valve boxes or manholes should be avoided wherever possible. There must be a shut-off valve in the discharge line from the generator, gas holder, manifold or other source of supply.

(6) Shut-off valves must not be installed in safety-relief lines in such a manner that the safety-relief device can be rendered ineffective.

(7) Fittings and lengths of pipe must be examined internally before assembly and, if necessary, freed from scale or dirt. Oxygen piping and fittings must be washed out with a suitable solution that will effectively remove grease and dirt but will not react with oxygen.

Note: Hot water solutions of caustic soda or trisodium phosphate are effective for this purpose.

(8) Piping must be thoroughly blown out after assembly to remove foreign materials. For oxygen piping, oil-free air, oil-free nitrogen, or oil-free carbon dioxide must be used. For other piping, air or inert gas may be used.

(9) When flammable gas lines or other parts of equipment are being purged of air or gas, open lights or other sources of ignition are prohibited near uncapped openings.

(10) No welding or cutting must be performed on an acetylene or oxygen pipeline, including the attachment of hangers or supports, until the line has been purged. Only

oil-free air, oil-free nitrogen, or oil-free carbon dioxide must be used to purge oxygen lines.

[Recodified as § 296-307-48037. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48037, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48039 How must service piping systems be painted and marked? (1) Underground pipe and tubing and outdoor ferrous pipe and tubing must be covered or painted with a suitable material for protection against corrosion.

(2) Aboveground piping systems must be marked according to the American National Standard Scheme for the Identification of Piping Systems, ANSI A 13.1-1956.

(3) Station outlets must be marked to indicate the name of the gas.

[Recodified as § 296-307-48039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48041 How must service piping systems be tested? (1) Piping systems must be tested and proved gastight at 1-1/2 times the maximum operating pressure, and must be thoroughly purged of air before being placed in service. The material used for testing oxygen lines must be oil free and noncombustible. Flames must not be used to detect leaks.

(2) When flammable gas lines or other parts of equipment are being purged of air or gas, sources of ignition are prohibited near uncapped openings.

[Recodified as § 296-307-48041. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48041, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48043 How must equipment be installed? Equipment shall be installed and used only in the service for which it is approved and as recommended by the manufacturer.

[Recodified as § 296-307-48043. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48043, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48045 How must service piping systems be protected? Service piping systems must be protected by pressure relief devices set to function at not more than the design pressure of the systems and discharging upwards to a safe location.

[Recodified as § 296-307-48045. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48045, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48047 What requirements apply to piping protective equipment? (1) The fuel-gas and oxygen piping systems, including portable outlet headers must incorporate the protective equipment shown in Figures V-1, V-2, and V-3.

When only a portion of a fuel-gas system is to be used with oxygen, only that portion must meet this requirement.

(2) Approved protective equipment (designated PF in Figs. V-1, V-2, and V-3) must be installed in fuel-gas piping to prevent:

- (a) Backflow of oxygen into the fuel-gas supply system;
- (b) Passage of a flash back into the fuel-gas supply system; and
- (c) Excessive back pressure of oxygen in the fuel-gas supply system. The three functions of the protective equipment may be combined in one device or may be provided by separate devices.

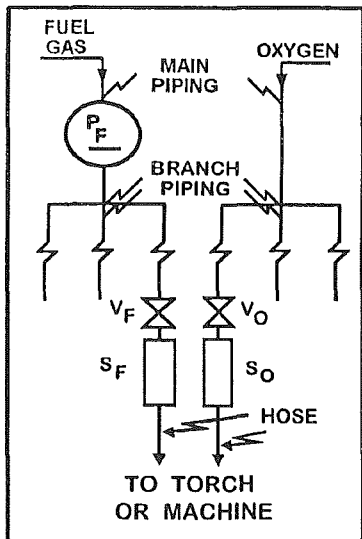


Fig. 1

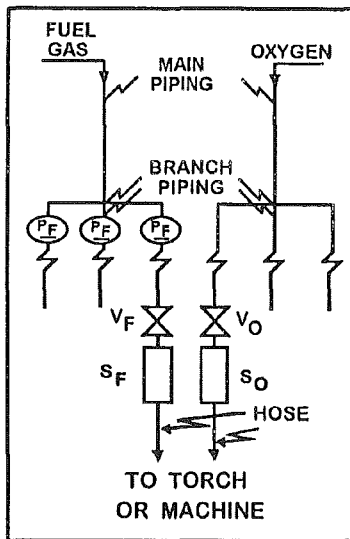


Fig. 2

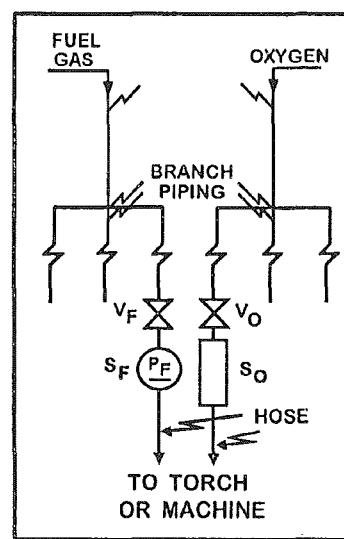


Fig. 3

PF = Protective equipment in fuel-gas piping
 VF = Fuel-gas station outlet valve
 VO = Oxygen station outlet valve

SF = Backflow prevention device(s) at fuel-gas station outlet
 SO = Backflow prevention device(s) at oxygen station outlet

(3) The protective equipment must be located in the main supply line, as in Figure 1 or at the head of each branch line, as in Figure 2 or at each location where fuel-gas is withdrawn, as in Figure 3. Where branch lines are of 2-inch pipe size or larger or of substantial length, protective equipment (designated as PF) shall be located as shown in either 2 or 3.

(4) Backflow protection must be provided by an approved device that will prevent oxygen from flowing into the fuel-gas system or fuel from flowing into the oxygen system (see SF, Figs. 1 and 2).

(5) Flash-back protection must be provided by an approved device that will prevent flame from passing into the fuel-gas system.

(6) Back-pressure protection must be provided by an approved pressure-relief device set at a pressure not greater than the pressure rating of the backflow or the flashback protection device, whichever is lower. The pressure-relief device must be located on the downstream side of the backflow and flashback protection devices. The vent from the pressure-relief device must be at least as large as the relief device inlet and must be installed without low points that may collect moisture. If low points are unavoidable, drip pots with drains closed with screw plugs or caps shall be installed at the low points. The vent terminus must not endanger personnel or property through gas discharge; must be located away from ignition sources; and must terminate in a hood or bend.

(7) If pipeline protective equipment incorporates a liquid, the liquid level must be maintained, and a suitable antifreeze may be used to prevent freezing.

(8) Fuel-gas for use with equipment not requiring oxygen must be withdrawn upstream of the piping protective devices.

[Recodified as § 296-307-48047. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48047, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48049 What requirements apply to station outlet protective equipment? (1) A check valve pressure regulator, hydraulic seal, or combination of these devices must be provided at each station outlet, including those on portable headers, to prevent backflow, as shown in Figures 1, 2, and 3 and designated as SF and SO.

(2) When approved pipeline protective equipment (designated PF) is located at the station outlet as in Figure 3, no additional check valve, pressure regulator, or hydraulic seal is required.

(3) Each station outlet must have a shut-off valve (designated VF and VO) installed on the upstream side of other station outlet equipment.

(4) If the station outlet is equipped with a detachable regulator, the outlet must terminate in a union connection that meets the requirements of the Regulator Connection Standards, 1958, Compressed Gas Association.

(5) If the station outlet is connected directly to a hose, the outlet must terminate in a union connection that meets the requirements of the Standard Hose Connection Specifications, 1957, Compressed Gas Association.

(6) Station outlets may terminate in pipe threads to which permanent connections are to be made, such as to a machine.

(7) Station outlets must have a detachable outlet seal cap secured in place. This cap must be used to seal the outlet except when a hose, a regulator, or piping is attached.

(8) Where station outlets are equipped with approved backflow and flashback protective devices, as many as four torches may be supplied from one station outlet through rigid piping, if each outlet from such piping, is equipped with a shut-off valve and if the fuel-gas capacity of any one torch does not exceed 15 cubic feet per hour. This rule does not apply to machines.

[Recodified as § 296-307-48049. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48049, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48051 What requirements apply to hose and hose connections? (1) Hose for oxy-fuel gas service must meet the requirements of the Specification for Rubber Welding Hose, 1958, Compressed Gas Association and Rubber Manufacturers Association.

(2) The generally recognized colors are red for acetylene and other fuel-gas hose, green for oxygen hose, and black for inert-gas and air hose.

(3) When parallel lengths of oxygen and acetylene hose are taped together for convenience and to prevent tangling, a maximum of 4 inches out of 12 inches must be covered by tape.

(4) Hose connections must meet the requirements of the Standard Hose Connection Specifications, 1957, Compressed Gas Association.

(5) Hose connections must be clamped or otherwise securely fastened so they will withstand, without leakage, twice the pressure to which they are normally subjected in service, but never less than a pressure of 300 psi. Oil-free air or an oil-free inert gas must be used for the test.

(6) Hose showing leaks, burns, worn places, or other defects rendering it unfit for service must be repaired or replaced.

[Recodified as § 296-307-48051. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48051, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48053 What requirements apply to pressure-reducing regulators? (1) Pressure-reducing regulators must be used only for the gas and pressures for which they are intended. The regulator inlet connections must meet the requirements of the Regulator Connection Standards, 1958, Compressed Gas Association.

(2) When regulators or parts of regulators, including gauges, need repair, the work must be performed by skilled mechanics who have been properly instructed.

(3) Gauges on oxygen regulators must be marked "USE NO OIL."

(4) Union nuts and connections on regulators must be inspected before use to detect faulty seats that may cause leakage of gas when the regulators are attached to the cylinder valves. Damaged nuts or connections must be destroyed.

[Recodified as § 296-307-48053. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48053, filed 10/31/96, effective 12/1/96.]

WAC 296-307-485 Installation and operation of resistance welding equipment.

[Recodified as § 296-307-485. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-485, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48501 What general requirements apply to resistance welding equipment? (1) All equipment must be installed by a qualified electrician according to the requirements of chapter 296-306A WAC Part T. There must be a safety-type disconnecting switch or a circuit breaker or circuit interrupter to open each power circuit to the machine, conveniently located at or near the machine, so that the power can be shut off when the machine or its controls are to be serviced.

(2) Ignitron tubes used in resistance welding equipment must have a thermal protection switch.

(3) Employees designated to operate resistance welding equipment must have been properly instructed and judged competent to operate such equipment.

(4) Controls of all automatic or air and hydraulic clamps must be arranged or guarded to prevent the operator from accidentally activating them.

[Recodified as § 296-307-48501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48503 What requirements apply to portable welding machines? (1) All portable welding guns must have suitable counter-balanced devices for supporting the guns, including cables, unless the design of the gun or fixture makes counterbalancing impractical or unnecessary.

(2) All portable welding guns, transformers, and related equipment that is suspended from overhead structures, eye beams, or trolleys must have safety chains or cables. Safety chains or cables shall be able to support the total shock load in the event of failure of any component of the supporting system.

(3) When trolleys are used to support portable welding equipment, they must have suitable forged steel clevis for the attachment of safety chains. Each clevis must be able to support the total shock load of the suspended equipment in the event of trolley failure.

(4) All initiating switches, including retraction and dual schedule switches, located on the portable welding gun must have suitable guards able to prevent accidental initiation through contact with fixturing, operator's clothing, etc. Initiating switch voltage must be a maximum of 24 volts.

(5) The movable holder, where it enters the gun frame, must have enough clearance to prevent the shearing an operator's fingers if placed on the operating movable holder.

(6) The secondary and case of all portable welding transformers must be grounded. Secondary grounding may be by center tapped secondary or by a center tapped grounding reactor connected across the secondary.

[Recodified as § 296-307-48503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48505 What requirements apply to flash welding equipment? (1) Flash welding machines must have a hood to control flying flash. In cases of high production, where materials may contain a film of oil and where toxic elements and metal fumes are given off, ventilation must be provided according to WAC 296-306A-50009 through 296-306A-50029.

(2) For the protection of the operators of nearby equipment, fire-resistant curtains or suitable shields must be set up around the machine and in such a manner that the operator's movements are not hampered.

(3) If the welding process cannot be isolated, anyone who may be exposed to the hazard of arc flash must be properly protected.

[Recodified as § 296-307-48505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48507 Who must perform a job hazard analysis? A qualified person must perform a job hazard analysis on the operations to be performed on each welding machine to determine the safeguards and personal protective equipment that shall be used for each job.

[Recodified as § 296-307-48507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48509 What maintenance requirements apply to resistance welding equipment? Qualified maintenance personnel must periodically inspect the equipment and maintain records of the inspections. The operator must be instructed to report any equipment defects to the supervisor and the use of the equipment must be discontinued until safety repairs have been completed.

[Recodified as § 296-307-48509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-48509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-490 Application, installation, and operation of arc welding and cutting equipment.

[Recodified as § 296-307-490. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-490, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49001 What environmental conditions must be taken into account when selecting arc welding equipment?

Note: You may ensure that your equipment is designed for safety by choosing equipment that complies with the Requirements for Electric Arc-Welding Apparatus, NEMA EW-1-1962, National Electrical Manufacturers Association or the Safety Standard for Transformer-Type Arc-Welding Machines, ANSI C33.2-1956, Underwriters' Laboratories.

(1) Standard machines for arc welding service must be designed and constructed to carry their rated load with rated temperature rises where the temperature of the cooling air is

a maximum of 40°C (104°F) and where the altitude is a maximum of 3,300 feet, and must be suitable for operation in atmospheres containing gases, dust, and light rays produced by the welding arc.

(2) When exposed to the following or other conditions, machines must be designed to safely meet the requirements of the service.

- Unusually corrosive fumes;
- Steam or excessive humidity;
- Excessive oil vapor;
- Flammable gases;
- Abnormal vibration or shock;
- Excessive dust;
- Weather;
- Unusual seacoast or shipboard conditions.

[Recodified as § 296-307-49001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49003 What voltages must arc welding equipment use? Open circuit (no load) voltages of arc welding and cutting machines should be as low as possible consistent with satisfactory welding or cutting being done. Following are the maximum limits:

(1) For alternating-current machines:

(a) Manual arc welding and cutting—80 volts.

(b) Automatic (machine or mechanized) arc welding and cutting—100 volts.

(2) For direct-current machines:

(a) Manual arc welding and cutting—100 volts.

(b) Automatic (machine or mechanized) arc welding and cutting—100 volts.

(3) When special welding and cutting processes require values of open circuit voltages higher than the above, means must be provided to prevent the operator from making accidental contact with the high voltage by adequate insulation or other means.

Note: For a.c. welding under wet conditions or warm surroundings where perspiration is a factor, the use of reliable automatic controls for reducing no load voltage is recommended to reduce the shock hazard.

[Recodified as § 296-307-49003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49005 How must arc welding equipment be designed? (1) A controller integrally mounted in an electric motor driven welder must be able to carry the rated motor current, must be able to make and interrupt stalled rotor current of the motor, and may serve as the running overcurrent device if provided with the number of over-current units as specified by chapter 296-306A WAC Part T. Starters with magnetic undervoltage release should be used with machines installed more than one to a circuit to prevent circuit overload caused by simultaneously starting several motors upon return of voltage.

(2) On all types of arc welding machines, control apparatus must be enclosed except for the operating wheels, levers, or handles.

Note: Control handles and wheels should be large enough to be easily grasped by a gloved hand.

(3) Input power terminals, tap change devices, and live metal parts connected to input circuits must be completely enclosed and accessible only by tools.

(4) Terminals for welding leads should be protected from accidental electrical contact by employees or by metal objects i.e., vehicles, crane hooks, etc. You may provide protection with:

- Dead-front receptacles for plug connections;
- Recessed openings with nonremovable hinged covers;
- Heavy insulating sleeving or taping; or
- Other equivalent electrical and mechanical protection.

If a welding lead terminal that is intended to be used exclusively for connection to the work is connected to the grounded enclosure, it must be done by a conductor at least two AWG sizes smaller than the grounding conductor and the terminal must be marked to indicate that it is grounded.

(5) No connections for portable control devices (such as push buttons to be carried by the operator) must be connected to an a.c. circuit of higher than 120 volts. Exposed metal parts of portable control devices operating on circuits above 50 volts must be grounded by a grounding conductor in the control cable.

(6) Auto transformers or a.c. reactors must not be used to draw welding current directly from any a.c. power source having a voltage exceeding 80 volts.

[Recodified as § 296-307-49005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49007 How must arc welding equipment be installed? Arc welding equipment, including the power supply, must be installed according to the requirements of chapter 296-306A WAC Part T.

[Recodified as § 296-307-49007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49009 How must arc welding equipment be grounded? (1) The frame or case of the welding machine (except engine-driven machines) must be grounded according to the requirements of chapter 296-306A WAC Part T.

(2) Conduits containing electrical conductors must not be used for completing a work-lead circuit. Pipelines must not be used as a permanent part of a work-lead circuit, but may be used during construction, extension or repair if current is not carried through threaded joints, flanged bolted joints, or caulked joints and special precautions are used to avoid sparking at connection of the work-lead cable.

(3) Using chains, wire ropes, cranes, hoists, and elevators to carry welding current is prohibited.

(4) Where a structure, conveyor, or fixture is regularly used as a welding current return circuit, joints must be bonded or provided with adequate current collecting devices and appropriate periodic inspection should be conducted to ensure that no electrocution, shock, or fire hazard exists.

(5) All ground connections must be checked to determine that they are mechanically strong and electrically adequate for the required current.

[Recodified as § 296-307-49009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49011 What requirements apply to supply connections and conductors? (1) A disconnecting switch or controller must be provided at or near each welding machine without a switch or controller mounted as an integral part of the machine. The switch must meet the requirements of chapter 296-306A WAC Part T. Overcurrent protection must be provided as specified in chapter 296-306A WAC Part T. A disconnect switch with overload protection or equivalent disconnect and protection means, permitted by chapter 296-306A WAC Part T must be provided for each outlet intended for connection to a portable welding machine.

(2) For individual welding machines, the rated current-carrying capacity of the supply conductors must be at least that of the rated primary current of the welding machines.

(3) For groups of welding machines, the rated current-carrying capacity of conductors may be less than the sum of the rated primary currents of the welding machines supplied. The conductor rating must be determined according to the machine loading based on the use to be made of each welding machine and the allowance permissible in the event that all the welding machines supplied by the conductors will not be in use at the same time.

(4) In operations involving several welders on one structure, d.c. welding process requirements may require the use of both polarities; or supply circuit limitations for a.c. welding may require distribution of machines among the phases of the supply circuit. In such cases, no load voltages between electrode holders will be two times normal in d.c. or 1, 1.4, 1.73, or 2 times normal on a.c. machines. Similar voltage differences will exist if both a.c. and d.c. welding are done on the same structure.

(a) All d.c. machines must be connected with the same polarity.

(b) All a.c. machines must be connected to the same phase of the supply circuit and with the same instantaneous polarity.

[Recodified as § 296-307-49011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49013 How must arc welding equipment be operated? (1) Employees assigned to operate or maintain arc welding equipment must be acquainted with the requirements of WAC 296-306A-490, 296-306A-495, and 296-306A-500; if doing gas-shielded arc welding, also Recommended Safe Practices for Gas-Shielded Arc Welding, A6.1-1966, American Welding Society.

(2) Before starting operations, all connections to the machine must be checked to make certain they are properly made. The work lead must be firmly attached to the work; magnetic work clamps shall be freed from adherent metal particles of spatter on contact surfaces. Coiled welding cable must be spread out before use to avoid serious overheating and damage to insulation.

(3) You must ensure that the welding machine frame grounding is checked with special attention given to safety connections of portable machines.

(4) Cylinders must be kept away from radiators, piping systems, layout tables, etc., that may be used for grounding electric circuits. Any practice such as the tapping of an electrode against a cylinder to strike an arc is prohibited.

(5) There must be no leaks of cooling water, shielding gas or engine fuel.

(6) You must ensure that the machine has proper switching equipment for shutting down.

(7) Printed rules and instructions covering operation of equipment supplied by the manufacturers must be strictly followed.

(8) Electrode holders when not in use must be placed so that they cannot make electrical contact with persons, conducting objects, fuel or compressed gas tanks.

(9) Cables with splices within 10 feet of the holder are prohibited. The welder should not coil or loop welding electrode cable around parts of the body.

[Recodified as § 296-307-49013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49015 How must arc welding equipment be maintained? (1) The operator should report any equipment defect or safety hazard to the supervisor and discontinue using the equipment until its safety is ensured. Repairs must be made only by qualified persons.

(2) Machines that have become wet must be thoroughly dried and tested before being used.

(3) Work and electrode lead cables should be frequently inspected for wear and damage. Cables with damaged insulation or exposed bare conductors must be replaced. Lengths of work and electrode cables must be joined by connecting means specifically intended for the purpose. The connecting means must have insulation adequate for the service conditions.

[Recodified as § 296-307-49015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-495 Fire prevention and protection.

[Recodified as § 296-307-495. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-495, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49501 What basic fire prevention precautions must be taken? For more information on these basic precautions and the special precautions of WAC 296-306A-49503, including fire protection and prevention responsibilities of welders, cutters, their supervisors (including outside contractors), and management, see the Standard for Fire Prevention in Use of Cutting and Welding Processes, NFPA Standard 51B, 1962.

The basic precautions for fire prevention in welding or cutting work are:

(1) If the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity must be taken to a safe place.

(2) If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards must be used to confine the heat, sparks, and slag, and to protect the fire hazards.

(3) If the requirements of this section cannot be met, then welding and cutting are prohibited.

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WAC 296-307-49503 What special fire prevention precautions must be taken? When the nature of the work to be performed falls within the scope of WAC 296-306A-49501(2), certain additional precautions may be necessary:

(1) Wherever there are floor openings or cracks in the flooring that cannot be closed, precautions must be taken so that no readily combustible materials on the floor below will be exposed to sparks that drop through. The same precautions must be observed with regard to cracks or holes in walls, open doorways, and open or broken windows.

(2) Suitable fire extinguishing equipment must be maintained in a state of readiness for instant use. Such equipment may consist of pails of water, buckets of sand, hose, or portable extinguishers depending upon the nature and quantity of the combustible material exposed.

(3) The following requirements apply to fire watch:

(a) Fire watchers are required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:

(i) Appreciable combustible material, in building construction or contents, closer than 35 feet to the point of operation.

(ii) Appreciable combustibles are more than 35 feet away but are easily ignited by sparks.

(iii) Wall or floor openings within a 35-foot radius expose combustible material in adjacent areas including concealed spaces in walls or floors.

(iv) Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

(b) Fire watchers must have fire extinguishing equipment readily available and be trained in its use. They must be familiar with facilities for sounding an alarm in the event of a fire. They must watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch must be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.

(4) Before cutting or welding is permitted, the area must be inspected by the individual responsible for authorizing cutting and welding operations. The responsible individual must designate precautions to be followed in granting authorization to proceed, preferably in the form of a written permit.

(5) Where combustible materials such as paper clippings, wood shavings, or textile fibers are on the floor, the

floor must be swept clean for a radius of 35 feet. Combustible floors must be kept wet, covered with damp sand, or protected by fire-resistant shields. Where floors have been wet down, employees operating arc welding or cutting equipment must be protected from possible shock.

(6) Cutting and welding are prohibited in the following situations:

(a) In areas not authorized by management.

(b) In sprinklered buildings while such protection is impaired.

(c) In the presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dusts with air), or where explosive atmospheres may develop inside uncleaned or improperly prepared tanks or equipment that have previously contained such materials, or that may develop in areas with an accumulation of combustible dusts.

(d) In areas near the storage of large quantities of exposed, readily ignitable materials such as bulk sulphur, baled paper, or cotton.

(7) Where practical, all combustibles must be relocated at least 35 feet from the worksite. Where relocation is impractical, combustibles must be protected with flameproofed covers or otherwise shielded with metal or asbestos guards or curtains. Edges of covers at the floor should be tight to prevent sparks from going under them. This precaution is also important at overlaps where several covers are used to protect a large pile.

(8) Ducts and conveyor systems that might carry sparks to distant combustibles must be suitably protected or shut down.

(9) Where cutting or welding is done near walls, partitions, ceiling, or roof of combustible construction, fire-resistant shields or guards must be provided to prevent ignition.

(10) If welding is to be done on a metal wall, partition, ceiling, or roof, precautions must be taken to prevent ignition of combustibles on the other side, due to conduction or radiation, preferably by relocating combustibles. Where combustibles are not relocated, a fire watch on the opposite side from the work must be provided.

(11) Welding must not be attempted on a metal partition, wall, ceiling, or roof having a combustible covering nor on walls or partitions of combustible sandwich-type panel construction.

(12) Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings or roofs must not be undertaken if the work is close enough to cause ignition by conduction.

(13) You are responsible for the safe use of cutting and welding equipment on your property and:

(a) Based on fire potentials of plant facilities, you must establish areas and procedures for cutting and welding;

(b) You must designate an individual responsible for authorizing cutting and welding operations in areas not specifically designed for such processes;

(c) You must insist that cutters or welders and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process; and

(d) You must advise all contractors about flammable materials or hazardous conditions of which they may not be aware.

(14) The supervisor must:

(a) Ensure that cutting and welding equipment is handled and used safely.

(b) Determine the combustible materials and hazardous areas present or likely to be present in the work location.

(c) Protect combustibles from ignition by the following:

(i) Have the work moved to a location free from dangerous combustibles;

(ii) If the work cannot be moved, have the combustibles moved to a safe distance from the work or have the combustibles properly shielded against ignition; and

(iii) See that cutting and welding are so scheduled that plant operations that might expose combustibles to ignition are not started during cutting or welding.

(d) Secure authorization for the cutting or welding operations from the designated management representative.

(e) Determine that the cutter or welder secures their approval that conditions are safe before going ahead;

(f) Determine that fire protection and extinguishing equipment are properly located at the site; and

(g) Ensure fire watches are available at the site when required.

(15) Cutting or welding is permitted only in areas that are or have been made fire safe. Within the confines of an operating plant or building, cutting and welding should preferably be done in a specific area designed for such work, such as a maintenance shop or a detached outside location. Such areas should be of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas. When work cannot be moved practically, as in most construction work, the area must be made safe by removing combustibles or protecting combustibles from ignition sources.

[Recodified as § 296-307-49503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49505 What precautions must be taken when welding or cutting containers? (1) No welding, cutting, or other hot work may be performed on used drums, barrels, tanks or other containers until they have been cleaned thoroughly enough to be certain that there are no flammable materials present or any substances such as greases, tars, acids, or other materials which when subjected to heat, might produce flammable or toxic vapors. Any pipe lines or connections to the drum or vessel must be disconnected or blanked.

(2) All hollow spaces, cavities, or containers must be vented to permit the escape of air or gases before preheating, cutting or welding. Purging with inert gas is recommended.

[Recodified as § 296-307-49505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49507 What precautions must be taken when welding in confined spaces? (1) When arc welding work is stopped for a substantial time, such as during lunch or overnight, all electrodes must be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine be disconnected from the power source.

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(2) In order to eliminate the possibility of gas escaping through leaks or improperly closed valves, when gas welding or cutting, the torch valves must be closed and the gas supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practical, the torch and hose must also be removed from the confined space.

[Recodified as § 296-307-49507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-49507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-500 Protection of employees.

[Recodified as § 296-307-500. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-500, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50001 How must eye protection be selected? (1) Helmets or hand shields must be used during all arc welding or arc cutting operations, excluding submerged arc welding. Goggles should also be worn during arc welding or cutting operations to provide protection from injurious rays from adjacent work, and from flying objects. The goggles may have either clear or colored glass, depending on the amount of exposure to adjacent welding operations. Helpers or attendants must have proper eye protection.

(2) Goggles or other suitable eye protection must be used during all gas welding or oxygen cutting operations. Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing, or for inspection.

(3) All operators and attendants of resistance welding or resistance brazing equipment must use transparent face shields or goggles, depending on the job, to protect their faces or eyes as required.

(4) Suitable goggles must be provided where needed for brazing operations not above.

[Recodified as § 296-307-50001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50003 What specifications must eye protection meet? (1) Helmets and hand shields must be made of a material that is an insulator for heat and electricity. Helmets, shields and goggles must be not readily flammable and must be able to be sterilized.

(2) Helmets and hand shields must be arranged to protect the face, neck and ears from direct radiant energy from the arc.

(3) Helmets must have filter plates and cover plates designed for easy removal.

(4) All parts must be constructed of a material that will not readily corrode or discolor the skin.

(5) Goggles must be ventilated to prevent fogging of the lenses as much as practical.

(6) Cover lenses or plates should be provided to protect each helmet, hand shield, or goggle filter lens or plate.

(7) All glass for lenses must be tempered, substantially free from scratches, air bubbles, waves and other flaws. Except when a lens is ground to provide proper optical correction for defective vision, the front and rear surfaces of lenses and windows must be smooth and parallel.

(8) Lenses must be marked with the source and shade.

(9) Following is a guide to select proper shade numbers. Individual needs may vary.

Welding Operation	Shade No.
Shielded metal-arc welding—1/16-, 3/32-, 1/8-, 5/32-inch electrodes	10
Gas-shielded arc welding (nonferrous)—1/16-, 3/32-, 1/8-, 5/32-inch electrodes	11
Gas-shielded arc welding (ferrous)—1/16-, 3/32-, 1/8-, 5/32-inch electrodes	12
Shielded metal-arc welding: 3/16-, 7/32-, 1/4-inch electrodes	12
5/16-, 3/8-inch electrodes	14
Atomic hydrogen welding	10-14
Carbon arc welding	14
Soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, 6 inches and over	5 or 6
Gas welding (light) up to 1/8 inch	4 or 5
Gas welding (medium) 1/8 inch to 1/2 inch	5 or 6
Gas welding (heavy) 1/2 inch and over	6 or 8

Note: In gas welding or oxygen cutting where the torch produces a high yellow light it is desirable to use a filter or lens that absorbs the yellow or sodium line in the visible light of the operation.

(10) All filter lenses and plates must meet the test for transmission of radiant energy prescribed in ANSI Z 87.1-1968—American National Standard Practice for Occupational and Educational Eye and Face Protection.

(11) Where the work permits, an arc welder should be enclosed in an individual booth painted with a finish of low-reflectivity such as zinc oxide (an important factor for absorbing ultraviolet radiations) and lamp black, or must be enclosed with noncombustible screens similarly painted. Booths and screens must permit circulation of air at floor level. Employees or other persons adjacent to the welding areas must be protected from the rays by noncombustible or flameproof screens or shields or must be required to wear appropriate goggles.

[Recodified as § 296-307-50003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50005 What protective clothing must welders wear? (1) Employees exposed to the hazards created by welding, cutting, or brazing operations must be protected by personal protective equipment according to the requirements of chapter 296-306A WAC Part H. Appropriate protective clothing required for any welding operation will vary with the size, nature and location of the work to be performed.

(2) The following suggestions may be helpful when choosing protective clothing:

(a) Except when engaged in light work, all welders should wear flameproof gauntlet gloves.

(b) Flameproof aprons made of leather, asbestos, or other suitable material may help to protect against radiated heat and sparks.

(c) Woolen clothing is better than cotton because it is less easily ignited and helps to protect the welder from changes in temperature. Cotton clothing, if used, should be chemically treated to reduce its combustibility. All outer clothing such as jumpers or overalls should be reasonably free from oil or grease.

(d) Sparks may lodge in rolled-up sleeves, pockets, or cuffs. Therefore sleeves and collars should be buttoned, and clothing should have no front pockets. Trousers or overalls should be uncuffed.

(e) For heavy work, fire-resistant leggings, high boots, or other equivalent means should be used.

(f) In production work a sheet metal screen in front of the employee's legs can provide further protection against sparks and molten metal in cutting operations.

(g) Capes or shoulder covers made of leather or other suitable materials should be worn during overhead welding or cutting operations. Leather skull caps may be worn under helmets to prevent head burns.

(h) For welding and cutting overhead or in extremely confined spaces, ear protection is sometimes desirable.

(i) Where there is exposure to sharp or heavy falling objects, or a hazard of bumping in confined spaces, hard hats or head protectors must be used.

[Recodified as § 296-307-50005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50007 What other requirements apply to employee protection? (1) You must ensure that a welder or helper working on platforms, scaffolds, or runways is protected against falling by using railings, safety belts, life lines, or other equally effective safeguards.

(2) Welders must place welding cable and other equipment so that it is clear of passageways, ladders, and stairways.

[Recodified as § 296-307-50007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50009 What employee protection must be provided in confined spaces? "Confined space" means a relatively small or restricted space such as a tank, boiler, pressure vessel, or small compartment of a ship.

(1) Confined spaces must be ventilated. For ventilation requirements see WAC 296-306A-50011 through 296-306A-50029.

(2) When welding or cutting in a confined space, the gas cylinders and welding machines must be left outside. Before operations are started, heavy portable equipment mounted on wheels must be securely blocked to prevent accidental movement.

(3) Where a welder must enter a confined space through a manhole or other small opening, means must be provided for quickly removing the welder in case of emergency. When safety belts and lifelines are used, they must be attached so that the welder's body cannot be jammed in a small exit opening. An attendant with a preplanned rescue procedure must be stationed outside to observe the welder at all times and be able to put rescue operations into effect.

(4) After welding operations are completed, the welder must mark the hot metal or provide some other means of warning other employees.

[Recodified as § 296-307-50009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50011 What general requirements apply to welding ventilation? (1) The following three factors in arc and gas welding must be considered when determining the amount of contamination to which welders may be exposed:

(a) Dimensions of space in which welding is to be done (especially ceiling height);

(b) Number of welders; and

(c) The possibility of hazardous fumes, gases, or dust according to the metals involved.

(2) Other factors involved may require ventilation or respiratory protective devices as needed to meet the requirements of this section. Such factors include:

(a) Atmospheric conditions;

(b) Heat generated; and

(c) Presence of volatile solvents.

(3) When welding must be performed in a space entirely screened on all sides, the screens must be arranged so that no serious restriction of ventilation exists. The screens should be mounted so that they are about 2 feet above the floor unless the work is performed at so low a level that the screen must be extended nearer to the floor to protect nearby employees from the glare of welding.

(4) Local exhaust or general ventilating systems must be provided and arranged to keep the amount of toxic fumes, gases, or dusts below the maximum allowable in chapter 296-62 WAC.

Note: A number of potentially hazardous materials are employed in fluxes, coatings, coverings, and filler metals used in welding and cutting or are released to the atmosphere during welding and cutting. These include but are not limited to the materials itemized in WAC 296-306A-50019 through 296-306A-50029.

(5) You must determine which potentially hazardous materials are associated with welding and cutting and inform employees through signs, labels or other appropriate means.

(a) Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. Use adequate ventilation. See ANSI Z 49.1-1967, Safety in Welding and Cutting, published by the American Welding Society.

(b) Brazing (welding) filler metals containing cadmium in significant amounts must carry the following notice on tags, boxes, or other containers:

WARNING

CONTAINS CADMIUM—POISONOUS FUMES MAY BE FORMED ON HEATING

- Do not breathe fumes. Use only with adequate ventilation such as fume collectors, exhaust ventilators, or air-supplied respirators. See ANSI Z 49.1-1967.

- If chest pain, cough, or fever develops after use call physician immediately.

- Keep children away when using.

(c) Brazing and gas welding fluxes containing fluorine compounds must have a cautionary wording to indicate that they contain fluorine compounds. The American Welding Society recommends the following for brazing and gas welding fluxes:

CAUTION

CONTAINS FLUORIDES

This flux when heated gives off fumes that may irritate eyes, nose and throat.

- Avoid fumes. Use only in well-ventilated spaces.

- Avoid contact of flux with eyes or skin.

- Do not take internally.

[Recodified as § 296-307-50011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50013 What ventilation must be provided for general welding and cutting? (1) Mechanical ventilation must be provided when welding or cutting is done on metals not covered in WAC 296-306A-50019 through 296-306A-50029 in the following locations:

(a) In a space of less than 10,000 cubic feet per welder.

(b) In a room with a ceiling height of less than 16 feet.

(c) In confined spaces or where the welding space contains partitions, balconies, or other structural barriers to the extent that they significantly obstruct cross-ventilation.

(2) Ventilation must be at the minimum rate of 2,000 cubic feet per minute per welder.

Exception: This requirement does not apply where local exhaust hoods and booths that meet the requirements of WAC 296-306A-50015, or airline respirators approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for such purposes are provided. Natural ventilation is considered sufficient for welding or cutting operations where the restrictions in subsection (1) of this section are not present.

[Recodified as § 296-307-50013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50015 What requirements apply to local exhaust hoods and booths? Mechanical local exhaust ventilation may be provided by either of the following:

(1) Freely movable hoods intended to be placed by the welder as near as practical to the work being welded and provided with a rate of airflow sufficient to maintain a velocity in the direction of the hood of 100 linear feet per minute in the zone of welding when the hood is at its most remote distance from the point of welding. The rates of ventilation required to accomplish this control velocity using

a 3-inch wide flanged suction opening are shown in the following table:

Welding zone	Minimum air flow cubic feet/minutes	Duct diameter inches
4 to 6 inches from arc or torch	150	3
6 to 8 inches from arc or torch	275	3-1/2
8 to 10 inches from arc or torch	425	4-1/2
10 to 12 inches from arc or torch	600	5-1/2

- 1 When brazing with cadmium bearing materials or when cutting on such materials increased rates of ventilation may be required.
- 2 Nearest half-inch duct diameter based on 4,000 feet per minute velocity in pipe.

(2) A fixed enclosure with a top and at least two sides that surround the welding or cutting operations and with a rate of airflow sufficient to maintain a velocity away from the welder of not less than 100 linear feet per minute.

[Recodified as § 296-307-50015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50017 What ventilation must be provided in confined spaces? (1) All welding and cutting operations carried on in confined spaces must be adequately ventilated to prevent the accumulation of toxic materials or possible oxygen deficiency. This applies to welders, helpers, and other employees in the immediate vicinity. All replacement air must be clean and respirable.

(2) In circumstances where it is impossible to provide such ventilation, airline respirators or hose masks approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for this purpose must be used.

(3) In areas immediately hazardous to life, hose masks with blowers or self-contained breathing equipment must be used. The breathing equipment must be approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH).

(4) Where welding operations are carried on in confined spaces and where welders and helpers are provided with hose masks, hose masks with blowers or self-contained breathing equipment approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH), an employee must be stationed on the outside of such confined spaces to ensure the safety of those working within.

(5) Oxygen must not be used for ventilation.

[Recodified as § 296-307-50017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50019 What requirements apply to welding fluorine compounds? In confined spaces, welding or cutting involving fluxes, coverings, or other materials that contain fluorine compounds must be done according to WAC 296-306A-50017.

"Fluorine compound" means a compound that contains fluorine as an element in chemical combination, not as a free gas.

Note: The need for local exhaust ventilation or airline respirators for welding or cutting in other than confined spaces will depend on the circumstances. However, such protection is desirable for fixed-location production welding and for all production welding on stainless steels. Where air samples taken at the welding location indicate that the fluorides liberated are below the maximum allowable concentration, such protection is not necessary.

[Recodified as § 296-307-50019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50021 What requirements apply to welding zinc? (1) In confined spaces welding or cutting involving zinc-bearing base or filler metals or metals coated with zinc-bearing materials must be done according to WAC 296-306A-50017.

(2) Indoors, welding or cutting involving zinc-bearing base or filler metals coated with zinc-bearing materials must be done according to WAC 296-306A-50015.

[Recodified as § 296-307-50021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50023 What requirements apply to welding lead? (1) In confined spaces, welding involving lead-base metals (erroneously called lead-burning) must be done according to WAC 296-306A-50017.

(2) Indoors, welding involving lead-base metals must be done according to WAC 296-306A-50015.

(3) In confined spaces or indoors, welding or cutting involving metals containing lead, other than as an impurity, or involving metals coated with lead-bearing materials, including paint, must be done using local exhaust ventilation or airline respirators. Outdoors, such operations must be done using respiratory protective equipment approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for such purposes. In all cases, employees in the immediate vicinity of the cutting operation must be protected as necessary by local exhaust ventilation or airline respirators.

Note: See chapter 296-62 WAC for additional requirements on lead.

[Recodified as § 296-307-50023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50025 What requirements apply to welding beryllium? Welding or cutting indoors, outdoors, or in confined spaces involving beryllium-containing base or filler metals must be done using local exhaust ventilation and airline respirators unless atmospheric tests under the most adverse conditions have established that employee exposure is within the acceptable concentrations defined by chapter 296-62 WAC. In all cases, employees in the immediate vicinity of the welding or cutting operations must be protected as necessary by local exhaust ventilation or airline respirators.

[Recodified as § 296-307-50025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50027 What requirements apply to welding cadmium? (1) Welding or cutting indoors or in confined spaces involving cadmium-bearing or cadmium-coated base metals must be done using local exhaust ventilation or airline respirators unless atmospheric tests under the most adverse conditions have established that employee exposure is within the acceptable concentrations defined by chapter 296-62 WAC. Outdoors, such operations must be done using respiratory protective equipment such as fume respirators approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for such purposes.

(2) Welding (brazing) involving cadmium-bearing filler metals must be done using ventilation as prescribed in WAC 296-306A-50015 or 296-306A-50017 if the work is to be done in a confined space.

Note: See chapter 296-62 WAC for additional requirements on cadmium.

[Recodified as § 296-307-50027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50029 What requirements apply to welding mercury? Welding or cutting indoors or in a confined space involving metals coated with mercury-bearing materials, including paint, must be done using local exhaust ventilation or airline respirators unless atmospheric tests under the most adverse conditions have established that employee exposure is within the acceptable concentrations defined by chapter 296-62 WAC. Outdoors, such operations must be done using respiratory protective equipment approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for such purposes.

[Recodified as § 296-307-50029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-50029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-520 Powered industrial trucks (forklifts).

[Recodified as § 296-307-520. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-520, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52001 What does this section cover? WAC 296-306A-520 applies to all powered industrial trucks used in agricultural operations.

[Recodified as § 296-307-52001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52003 What is a "powered industrial truck"? "Powered industrial truck" (or "truck") means a fork truck, industrial tractor, platform lift truck, motorized hand truck, or other specialized industrial trucks, powered by electric motors or internal combustion engines. The definition does not include compressed gas-operated industrial

trucks, farm vehicles, or vehicles intended primarily for earth moving or over-the-road hauling.

[Recodified as § 296-307-52003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52005 What manufacturer's requirements apply to powered industrial trucks? (1) All powered industrial trucks must meet the design and construction requirements for powered industrial trucks established in the ANSI B56.1-1969, "Powered Industrial Trucks."

(2) Approved trucks must have a label indicating approval by the testing laboratory as meeting the specifications and requirements of ANSI B56.1-1969.

(3) Modifications or additions must only be performed with the manufacturer's prior written approval. When modifications or additions are made, capacity, operation, and maintenance instruction plates, tags, or decals must be changed accordingly.

(4) If the truck is equipped with front-end attachments other than factory installed attachments, it shall be marked to identify the attachments and show the approximate weight of the truck and attachment combination at maximum elevation with the load centered from side to side.

(5) The user must ensure that all nameplates and markings are in place and legible.

[Recodified as § 296-307-52005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52007 What are the classifications of powered industrial trucks? Powered industrial trucks are identified according to the following classifications:

(1) "D" units are similar to G units except that they are diesel engine powered instead of gasoline engine powered.

(2) "DS" units are diesel powered units with additional safeguards to the exhaust, fuel, and electrical systems. They may be used in some locations where a D unit may not be considered suitable.

(3) "DY" units are diesel powered units that have all the safeguards of the DS units; in addition, they do not have any electrical equipment, including the ignition, and are equipped with temperature limitation features.

(4) "E" units are electrically powered units with minimum acceptable safeguards against inherent fire hazards.

(5) "ES" units are electrically powered units that, in addition to all of the requirements for the E units, are provided with additional safeguards to the electrical system to prevent emission of hazardous sparks and to limit surface temperatures. They may be used in some locations where the use of an E unit may not be considered suitable.

(6) "EE" units are electrically powered units that have, in addition to all of the requirements for the ES units, electric motors and all other electrical equipment completely enclosed. The EE unit may be used where the use of an E or ES unit may not be considered suitable.

(7) "EX" units are electrically powered units that differ from E, ES, or EE units in that the electrical fittings and equipment are so designed, constructed, and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.

(8) "G" units are gasoline powered units having minimum acceptable safeguards against inherent fire hazards.

(9) "GS" units are gasoline powered units with additional safeguards to the exhaust, fuel, and electrical systems. They may be used in some locations where the use of a G unit may not be considered suitable.

(10) "LP" units are similar to G units except that LP-gas is used for fuel instead of gasoline.

(11) "LPS" units are LP-gas powered units with additional safeguards to the exhaust, fuel, and electrical systems. They may be used in some locations where the use of an LP unit may not be considered suitable.

[Recodified as § 296-307-52007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52009 What must a user consider before choosing a powered industrial truck? Before choosing the industrial truck to use, the user must determine whether the atmosphere or location is hazardous or nonhazardous. The type of industrial truck shall be chosen according to the requirements of WAC 296-306A-52011.

[Recodified as § 296-307-52009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52011 What requirements determine which trucks to use in specific hazardous environments? Following are the minimum truck types required in specific hazardous environments. You may choose to use industrial trucks having greater safeguards.

(1) Powered industrial trucks are prohibited in atmospheres with a hazardous concentration of acetylene, butadiene, ethylene oxide, hydrogen (or gases or vapors equivalent in hazard to hydrogen, such as manufactured gas), propylene oxide, acetaldehyde, cyclopropane, diethyl ether, ethylene, isoprene, or unsymmetrical dimethyl hydrazine (UDMH).

(a) Approved EX trucks must be used in atmospheres containing hazardous concentrations of metal dust, including aluminum, magnesium, and their commercial alloys; other metals of similarly hazardous characteristics; or in atmospheres containing carbon black, coal, or coke dust.

(b) In atmospheres where dust of magnesium, aluminum or aluminum bronze may be present, fuses, switches, motor controllers, and circuit breakers of trucks must have enclosures specifically approved for such locations.

(2) Approved EX trucks must be used in atmospheres containing acetone, acrylonitrile, alcohol, ammonia, benzene, butane, ethylene dichloride, gasoline, hexane, lacquer solvent vapors, naphtha, natural gas, propane, propylene, styrene, vinyl acetate, vinyl chloride, or xylenes in quantities sufficient to produce explosive or ignitable mixtures.

(3) Approved DY, EE, or EX trucks must be used in locations where volatile flammable liquids or flammable gases are handled, processed or used, if the hazardous liquids, vapors or gases are normally confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown, or in case of abnormal equipment operation.

Approved DY, EE, or EX trucks may also be used in locations in which hazardous concentrations of gases or vapors are normally prevented by mechanical ventilation but that might become hazardous through failure or abnormal operation of the ventilating equipment.

(4) Approved DS, ES, GS, or LPS trucks must be used in locations used for the storage of hazardous liquids in sealed containers or liquefied or compressed gases in containers. This classification includes locations where volatile flammable liquids or flammable gases or vapors are used but are hazardous only in case of an accident or an unusual operation condition.

The quantity of hazardous material that might escape in case of accident, the adequacy of ventilating equipment, the total area involved, and the business's history of explosions or fires are all factors that should be considered in determining which truck has sufficient safeguards for the location.

(a) Approved EX trucks must be used in atmospheres in which combustible dust is or may be suspended in quantities sufficient to produce explosive or ignitable mixtures, or where mechanical failure or abnormal operation of machinery or equipment might cause such mixtures to be produced.

(b) The EX classification usually includes the working areas of: Grain handling and storage plants, rooms containing grinders or pulverizers, cleaners, graders, scalpels, open conveyors or spouts, open bins or hoppers, mixers or blenders, automatic or hopper scales, packing machinery, elevator heads and boots, stock distributors, dust and stock collectors (except all-metal collectors vented to the outside), and all similar dust producing machinery and equipment in grain processing plants, starch plants, sugar pulverizing plants, malting plants, hay grinding plants, and other similar locations; and areas where combustible dust may, under normal operating conditions, be present in the air in quantities sufficient to produce explosive or ignitable mixtures.

(5) Approved DY, EE, or EX trucks must be used in atmospheres in which deposits or accumulations of combustible dust may be ignited by arcs or sparks from the truck, if combustible dust will not normally be suspended or thrown into suspension by the normal operation of equipment or apparatus in quantities sufficient to produce explosive or ignitable mixtures.

(6) Approved DY, EE, or EX trucks must be used in locations with easily ignitable fibers or flyings if the fibers or flyings are not likely to be suspended in quantities sufficient to produce ignitable mixtures.

(7) Approved DS, DY, ES, EE, EX, GS, or LPS trucks must be used in locations, including outside storage, where easily ignitable fibers are stored or handled, but are not processed or manufactured. E trucks that have been previously used in these locations may continue to be used.

(8) If storage warehouses and outside storage locations are hazardous, the specified approved truck must be used. If not classified as hazardous, any approved D, E, G, or LP truck may be used, or trucks meeting the requirements for these types may be used.

**The Uses of Industrial Trucks in Hazardous Locations
Unclassified & Class I**

Classes	Unclassified	Class I locations			
Description of classes	Locations not possessing atmospheres as described in other columns	Locations in which flammable gases or vapors are, or may be, present in the air in quantities sufficient to produce explosive or ignitable mixtures			
Groups in classes	None	A	B	C	D
Examples of locations or atmospheres in classes and groups	Piers and wharves, inside and outside general storage, general industrial or commercial properties	Acetylene	Hydrogen	Ethyl ether	Gasoline Naphtha Alcohols Acetone Lacquer solvent Benzene
		1		2	
Divisions (nature of hazardous conditions)	None	Above condition exists continuously, intermittently, or periodically under normal operating conditions		Above condition may occur accidentally due to a puncture of a storage drum	

Class II & III

Classes	Class II location			Class III locations	
Description of classes	Locations that are hazardous because of the presence of combustible dust			Locations where easily ignitable fibers or flyings are present but not likely to be in suspension in quantities sufficient to produce ignitable mixtures	
Groups in classes	E	F	G	None	
Examples of locations or atmospheres in classes and groups	Metal dust Coal dust Coke dust	Carbon black Starch dust Organic dust	Grain dust Flour dust	Baled waste, cocoa fiber, cotton, excelsior, hemp, istle, jute, kapok, oakum, sisal, Spanish moss, synthetic fibers, tow.	
	1		2		
Divisions (nature of hazardous conditions)	Explosive mixture may be present under normal operating conditions, or where failure of equipment may cause the condition to exist simultaneously with arcing or sparking of electrical equipment, or where dusts of an electrically conducting nature may be present	Explosive mixture not normally present, but where deposits of dust may cause heat rise in electrical equipment, or where such deposits may be ignited by arcs or sparks from electrical equipment	Locations in which easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used	Locations in which easily ignitable fibers are stored or handled (except in the process of manufacture)	

Groups in classes--None, A, B, C, and D

Groups in classes	None	A	B	C	D	A	B	C	D
Types of trucks authorized:									
Diesel:									
Type D	D*								
Type DS									DS
Type DY									DY
Electric:									
Type E	E*								
Type ES									ES
Type EE									EE
Type EX					EX				EX
Gasoline:									
Type G	G*								
Type GS									GS
LP-Gas:									
Type LP	LP*								
Type LPS									LPS

*These types of trucks may also be used.

Groups in class--E, F, G, and None

Groups in classes	E	F	G	E	F	G	None	None
Types of trucks authorized:								
Diesel:								
Type D								
Type DS						DS		DS
Type DY						DY	DY	DY
Electric:								
Type E								E
Type ES						ES		ES
Type EE						EE	EE	EE
Type EX		EX	EX			EX	EX	EX
Gasoline:								
Type G								
Type GS						GS		GS
LP-Gas:								
Type LP								
Type LPS						LPS		LPS

[Recodified as § 296-307-52011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52013 In what environments may converted trucks be used? When powered industrial trucks that were originally approved to use gasoline are converted

to use LP-gas according to WAC 296-306A-52047(12), they may be used in locations where G, GS or LP, and LPS trucks are specified.

[Recodified as § 296-307-52013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52015 What requirements apply to overhead safety guards? (1) High-lift rider trucks must be fitted with an overhead guard manufactured according to WAC 296-306A-52005(1), unless operating conditions do not permit.

(2) An overhead guard must be used as protection against falling objects.

Note: An overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, and other objects involved in the job, but not to withstand the impact of a falling capacity load.

[Recodified as § 296-307-52015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52017 What requirements apply to load backrests? (1) A load backrest extension must be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.

(2) If the type of load presents a hazard, the user must equip fork trucks with a vertical load backrest extension manufactured according to WAC 296-306A-52005(1).

[Recodified as § 296-307-52017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52019 What requirements apply to fuel handling and storage? (1) You must ensure that liquid fuels such as gasoline and diesel fuel are stored and handled according to NFPA Flammable and Combustible Liquids Code (NFPA No. 30-1969).

(2) You must ensure that LP-gas fuel is stored and handled according to NFPA Storage and Handling of Liquefied Petroleum Gases (NFPA No. 58-1969).

[Recodified as § 296-307-52019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52021 What requirements apply to lighting for operating areas? (1) Adequate lighting should be provided in operating areas. (See ANSI Practice for Industrial Lighting, All.1-1965 (R1970).)

(2) Where general lighting is inadequate, directional lighting must be provided on the truck.

[Recodified as § 296-307-52021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52023 What level of carbon monoxide gas is allowed? Concentration levels of carbon monoxide gas created by truck operations must not exceed the levels specified in WAC 296-62-075 (general occupational health standards).

Note: Questions concerning degree of concentration and methods of sampling should be referred to a qualified industrial hygienist.

[Recodified as § 296-307-52023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52025 What requirements apply to dockboards (bridge plates)? (1) Portable and powered dockboards must be strong enough to support the load carried on them.

(2) Portable dockboards must be secured in position, either by anchors or anti-slipping devices.

(3) Powered dockboards must meet the design and construction requirements of Commercial Standard CS202-56 (1956) "Industrial Lifts and Hinged Loading Ramps" published by the U.S. Department of Commerce.

(4) Dockboard or bridge plates must be driven over carefully and slowly and their rated capacity never exceeded.

(5) Portable dockboards must have handholds for safe handling.

(6) Railroad cars must be kept stationary while dockboards or bridge plates are in position.

[Recodified as § 296-307-52025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52027 What rules apply to loading trucks, trailers, and railroad cars with powered industrial trucks? (1) Wheel stops or other positive protection must be provided to prevent railroad cars from moving during loading or unloading.

(2) Fixed jacks may be necessary to support a semi-trailer and prevent up-ending during loading or unloading if the trailer is not coupled to a tractor.

(3) Many truck-trailers are equipped with a rear-end protection device to prevent cars from wedging underneath during a collision. These protection devices must be used with equipment that secures the truck-trailer to the loading dock. Wheel chocks are not required under the following conditions:

(a) Trucks or trailers are secured to the loading dock with a mechanical system that prevents movement away from the dock during loading, unloading, and boarding.

(b) All of the mechanical equipment is installed, maintained, and used as recommended by the manufacturer.

(c) Any damaged mechanical equipment is removed from service immediately and is not used to secure trucks and trailers.

(4) The flooring of trucks, trailers, and railroad cars must be checked for breaks and weakness before use.

[Recodified as § 296-307-52027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52029 Who may operate powered industrial trucks? You must only allow trained and authorized operators to operate powered industrial trucks. You must provide training in the safe operation of powered industrial trucks to employee-operators.

[Recodified as § 296-307-52-52029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52031 What requirements apply to operating powered industrial trucks? (1) No operator

may drive a truck up to anyone standing in front of a fixed object.

(2) No one may stand or pass under the elevated portion of any truck, whether loaded or empty.

(3) Only authorized personnel may ride on powered industrial trucks. The truck must have a safe place to ride when riding is authorized.

(4) You must prohibit employees from placing their arms or legs between the uprights of the mast or outside the running lines of the truck.

(5) When an operator leaves a powered industrial truck unattended:

(a) The load must be fully lowered;

(b) The controls must be neutralized;

(c) The power must be shut off; and

(d) The brakes must be set.

(e) If the truck is parked on an incline, the wheels must be blocked.

A powered industrial truck is "unattended" when the operator is 25 feet or more away from the vehicle, which remains in view, or whenever the operator leaves the vehicle and it is not in view.

(6) When a truck operator is dismounted, within 25 feet of the truck, and still in view, the load must be fully lowered, the controls must be neutralized, and the brakes must be set to prevent movement.

(7) The operator must maintain a safe distance from the edge of ramps or platforms while operating on any elevated dock, or platform or freight car.

(8) There must be enough headroom for trucks to operate under overhead installations, lights, pipes, sprinkler systems, or other overhead projections.

[Recodified as § 296-307-52031. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52031, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52033 When may trucks be used to open or close freight car doors? Trucks may only be used for opening or closing freight car doors with an approved device that meets the following requirements:

(1) The door opening or closing device requires that the force applied by the device to the door is parallel to the door travel.

(2) The truck operator is trained in the use of the door opening or closing device and keeps the operation in full view while opening and closing.

(3) The area is clear of people while the door is moved with a device.

[Recodified as § 296-307-52033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52035 What requirements apply to lifting employees on the forks of trucks? Employees may be lifted on the lifting carriage or forks of a powered industrial truck under the following conditions:

(1) The truck is equipped with vertical only, or vertical and horizontal controls elevatable with the lifting carriage or forks.

(2) A safety platform is firmly secured to the lifting carriage and/or forks.

(3) Employees on the platform have a mechanism to shut off power to the truck.

(4) Employees on the platform are protected from falling objects according to the operating conditions.

[Recodified as § 296-307-52035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52035, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52037 What requirements apply to using platforms for hoisting employees? A platform built specifically for hoisting people may be used to lift employees when:

(1) The platform is securely attached to the forks and has standard guardrails and toeboards installed on all sides.

(2) The hydraulic system is designed so that the lift mechanism will not drop faster than 135 feet per minute in the event of a failure in any part of the system. Forklifts used for elevating work platforms are identified as meeting this requirement.

(3) A safety strap is installed or the control lever is locked to prevent the boom from tilting.

(4) An operator attends the lift equipment while employees are on the platform.

(5) The operator is in the normal operating position while raising or lowering the platform.

(6) The vehicle remains stationary while employees are on the platform.

Exception: Inching or maneuvering at very slow speed is permissible.

(7) The area between employees on the platform and the mast is adequately guarded to prevent contact with chains or other shear points.

[Recodified as § 296-307-52037. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52037, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52039 What requirements apply to traveling in a powered industrial truck? (1) The operator must maintain a safe distance of approximately three truck lengths from the truck ahead. The truck must be kept under control at all times.

(2) The operator must yield the right of way to ambulances, fire trucks, or other vehicles in emergency situations.

(3) Passing other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations is prohibited.

(4) Railroad tracks must be crossed diagonally wherever possible. The operator must not park closer than 8 feet from the center of railroad tracks.

(5) The operator must look in the direction of, and keep a clear view of, the path of travel.

(6) Stunt driving and horseplay are prohibited.

(7) The operator must approach elevators slowly, and then enter squarely after the elevator car is properly leveled. Once on the elevator, the operator must neutralize controls, shut off power, and set the brakes.

(8) Motorized hand trucks must enter elevator or other confined areas with load end forward.

(9) The operator must avoid running over loose objects on the roadway surface.

[Recodified as § 296-307-52039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52041 What requirements apply to traveling speeds of powered industrial trucks? (1) The operator must observe all traffic regulations, including authorized plant speed limits.

(2) The operator must slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load obstructs a forward view, the driver must travel with the load trailing.

Exception: If traveling with the load trailing creates new hazards, it is not required.

(3) The operator must ascend and descend grades slowly.

(a) At grades over 10 percent, loaded trucks must be driven with the load upgrade.

(b) Unloaded trucks should be operated on all grades with the load carrier downgrade.

(c) On all grades the load and load carrier must be tilted back if applicable, and raised only as far as necessary to clear the road surface.

(4) Under all travel conditions, the truck must be operated at a speed that will permit it to be stopped safely.

(5) The driver must slow down for wet and slippery floors.

(6) While negotiating turns, the operator must slow to a safe speed and turn the wheel in a smooth, sweeping motion.

[Recodified as § 296-307-52041. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52041, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52043 What requirements apply to loading powered industrial trucks? (1) All loads must be stable or safely arranged. Exercise caution when handling off-center loads that cannot be centered.

(2) All loads must be within the rated capacity of the truck.

(3) Take care securing, manipulating, positioning, and transporting loads when attachments are used. Trucks with attachments must be operated as partially loaded trucks when not handling a load.

(4) Place the load carrier under the load as far as possible. Tilt the mast backward to stabilize the load.

(5) Use extreme care when tilting the load forward or backward, particularly when high tiering. Avoid tilting the load forward with the load carrier elevated except to pick up a load, or when the load is in a deposit position over a rack or stack. When stacking or tiering, use only enough backward tilt to stabilize the load.

[Recodified as § 296-307-52043. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52043, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52045 What requirements apply to servicing powered industrial trucks? (1) Powered industrial

trucks that need repairs, are defective, or in any way unsafe must be taken out of service until restored to safe operating condition.

(2) Stop the engine before filling fuel tanks. Avoid spilling fuel.

(3) When oil or fuel spills, wash the spill away carefully or evaporate the spill completely and replace the fuel tank cap before restarting engine.

(4) No truck may be operated with a leak in the fuel system.

(5) Open flames are prohibited for checking electrolyte level in storage batteries or gasoline level in fuel tanks.

[Recodified as § 296-307-52045. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52045, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52047 What requirements apply to maintaining powered industrial trucks? (1) Powered industrial trucks must be removed from service when not in safe operating condition. All repairs must be made by an authorized employee.

(2) No repairs may be made in Class I, II, and III locations.

(3) When repairs to fuel and ignition systems of industrial trucks involve fire hazards, the repairs must be conducted only in designated locations.

(4) Trucks in need of repairs to the electrical system must have the battery disconnected prior to repair.

(5) Industrial truck parts must be replaced only by parts of equivalent safety.

(6) Industrial trucks must not be altered so that the relative positions of parts are different from when they were manufactured. Industrial trucks must not have parts added or eliminated, except as provided in WAC 296-306A-52005. Fork trucks must not have additional counterweighting added unless approved by the truck manufacturer.

(7) Industrial trucks must be examined at least daily before being placed in service. Industrial trucks must not be placed in service if the examination shows any unsafe condition.

Where industrial trucks are used on a round-the-clock basis, they shall be examined after each shift. Defects must be immediately reported and corrected.

(8) Water mufflers must be filled daily or as frequently as necessary to prevent the water supply from dropping below 75 percent. Vehicles must not be operated if muffler screens or other parts are clogged. Any vehicle that emits hazardous sparks or flames from the exhaust system must immediately be removed from service until the emission of such sparks and flames has been eliminated.

(9) When the temperature of any part of any truck exceeds its normal operating temperature, the vehicle must be removed from service until the cause for overheating has been eliminated.

(10) Industrial trucks must be kept clean and free of excess accumulations of combustible materials, oil, and grease. Noncombustible agents should be used for cleaning trucks. Low flash point (below 100°F) solvents must not be used. High flash point (at or above 100°F) solvents may be used. Take precautions regarding toxicity, ventilation, and fire hazard according to the agent or solvent used.

(11) Glycol base antifreeze must be used in the engine cooling system.

(12) Industrial trucks originally approved to use gasoline fuel may be converted to use LP-gas fuel if the converted truck has the features specified for LP or LPS designated trucks. The converted equipment must be approved. You may find a description of the conversion system and the recommended method of installation in the "listed by report" of a nationally recognized testing laboratory.

[Recodified as § 296-307-52047. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-52047, filed 10/31/96, effective 12/1/96.]

WAC 296-307-530 Rim wheel servicing.

[Recodified as § 296-307-530. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-530, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53001 What does this section cover?

WAC 296-306A-530 applies to the servicing of multipiece and single-piece rim wheels used on large vehicles such as trucks, tractors, trailers, buses and off-road machines. It does not apply to servicing rim wheels used on automobiles, or on pickup trucks and vans with automobile tires or truck tires designated "LT."

[Recodified as § 296-307-53001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53003 What definitions apply to rim wheel servicing? "Barrier" means a fence, wall, or structure placed between a single-piece rim wheel and an employee during tire inflation, to contain the rim wheel components in the event of the sudden release of the contained air of the single-piece rim wheel.

"Charts" means the United States Department of Labor, Occupational Safety and Health Administration (OSHA) publications entitled "Demounting and Mounting Procedures for Truck/Bus Tires" and "Multi-Piece Rim Matching Chart," the National Highway Traffic Safety Administration (NHTSA) publications entitled "Demounting and Mounting Procedures for Truck/Bus Tires" and "Multi-Piece Rim Matching Chart," or any other poster that contains at least the same instructions, safety precautions and other information contained in the charts that is applicable to the types of wheels being serviced.

"Installing a rim wheel" means the transfer and attachment of an assembled rim wheel onto a vehicle axle hub. "Removing" means the opposite of installing.

"Mounting a tire" means the assembly or putting together of the wheel and tire components to form a rim wheel, including inflation. "Demounting" means the opposite of mounting.

"Multipiece rim wheel" means the assembly of a multipiece wheel with the tire tube and other components.

"Multipiece wheel" means a vehicle wheel consisting of two or more parts, one of which is a side or locking ring designed to hold the tire on the wheel by interlocking components, when the tire is inflated.

"Restraining device" means a cage, rack, assembly of bars, or other components that will constrain all rim wheel components during an explosive separation of a multipiece rim wheel, or during the sudden release of the contained air of a single-piece rim wheel.

"Rim manual" means a publication containing instructions from the manufacturer or other qualified organization for correct mounting, demounting, maintenance, and safety precautions peculiar to the type of wheel being serviced.

"Rim wheel" means an assembly of tire, tube and liner (where appropriate), and wheel components.

"Service" or "servicing" means the mounting and demounting of rim wheels, and related activities such as inflating, deflating, installing, removing, and handling.

"Service area" means that part of an employer's premises used for the servicing of rim wheels, or any other place where an employee services rim wheels.

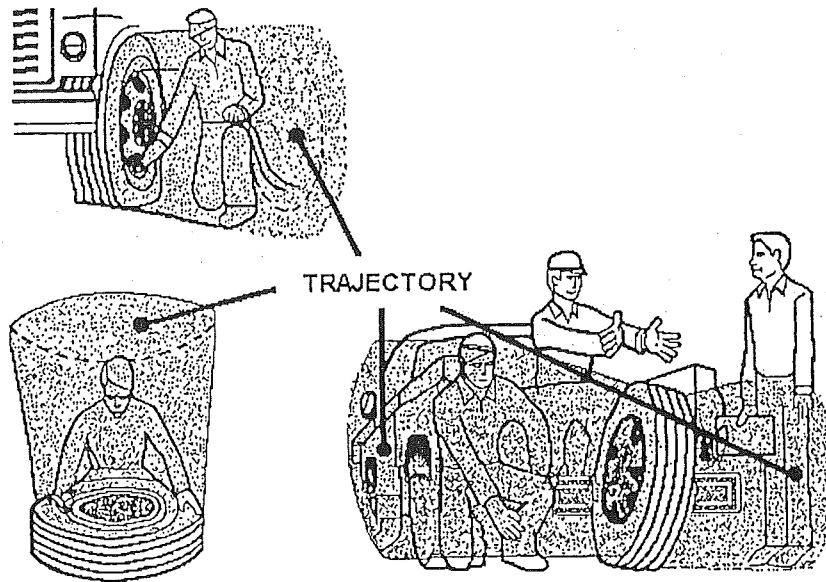
"Single-piece rim wheel" means the assembly of single-piece rim wheel with the tire and other components.

"Single-piece wheel" means a vehicle wheel consisting of one part, designed to hold the tire on the wheel when the tire is inflated.

"Trajectory" means:

- Any potential path that a rim wheel component may travel during an explosive separation, or the sudden release of the pressurized air; or
- An area at which an air blast from a single-piece rim wheel may be released.

The trajectory may deviate from paths that are perpendicular to the assembled position of the rim wheel. (See Figure for examples of trajectories.)



"Wheel" means the part of a rim wheel that provides the method of attachment of the assembly to the axle of a vehicle and also provides the means to contain the inflated portion of the assembly (i.e., the tire and/or tube).

[Recodified as § 296-307-53003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53005 What training must an employer provide for employees who service rim wheels?

(1) You must implement a training program that covers at least the following:

- (a) The hazards involved in servicing rim wheels;
 - (b) The safe operating procedures for the types of wheel serviced, described in WAC 296-306A-53013 and 296-306A-53015; and
 - (c) The applicable data contained in the charts (rim manuals) and the contents of this standard.
- (2) You must ensure that each employee demonstrates and maintains the ability to service rim wheels safely, including the following:
- (a) Demounting tires (including deflation);
 - (b) Inspecting and identifying the rim wheel components;
 - (c) Mounting tires (including inflation with a restraining device or other safeguard required by this section);
 - (d) Using the restraining device and other equipment required by this section;
 - (e) Handling rim wheels;
 - (f) Inflating the tire when a single-piece rim wheel is mounted on a vehicle;
 - (g) Understanding the necessity of standing outside the trajectory both during inflation of the tire and during inspection of the rim wheel following inflation; and
 - (h) Installing and removing rim wheels.

(3) If you believe that any employee is unable to read and understand the charts or rim manual, you must instruct the employee in the contents of the charts and rim manual in a manner that the employee can understand.

(4) You must evaluate each employee's ability to perform these tasks safely, and provide additional training as necessary to ensure that each employee maintains proficiency.

[Recodified as § 296-307-53005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53007 What requirements apply to restraining devices? (1) You must furnish a restraining device for inflating tires on multipiece wheels.

(2) You must provide a restraining device for inflating tires on single-piece wheels unless the rim wheel will be bolted onto a vehicle during inflation.

(3) Restraining devices must:

- (a) Withstand the force of a rim wheel separation occurring at 150% of the maximum tire pressure for the rim wheel being serviced.
- (b) Prevent the rim wheel components from being thrown out of the device.
- (c) The restraining device is visually inspected before each day's use and after any rim wheel separation or sudden release of contained air. Any damaged restraining device is immediately removed from service.
- (d) If the restraining device is removed from service, it is not returned to service until repaired and reinspected. If the restraining device requires structural repair, it is not returned to service until certified by either the manufacturer or a registered professional engineer to meet the strength requirements of (a) of this subsection.

[Recodified as § 296-307-53007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53009 What other equipment must an employer provide for rim wheel servicing? (1) You must furnish an air line assembly and ensure that employees use it for inflating tire.

(2) The air line assembly must contain the following components:

- (a) A clip-on chuck;
- (b) An in-line valve with a pressure gauge or a presettable regulator; and
- (c) Enough hose between the clip-on chuck and the in-line valve (if one is used) to allow the employee to stand outside the trajectory.

(3) Current charts or rim manuals for the types of wheels being serviced shall be available in the service area.

(4) You must furnish the tools recommended in the rim manual for the type of wheel being serviced and ensure that they are the only tools used to service rim wheels.

[Recodified as § 296-307-53009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53011 What requirements apply to wheel component assembly? (1) You must ensure that multipiece wheel components are not interchanged except as provided in the charts or rim manual.

(2) Multipiece wheel components and single-piece wheels must be inspected prior to assembly. Any wheel or wheel component that is bent out of shape, pitted from corrosion, broken, or cracked shall not be used. Mark damaged wheels or components "unserviceable" and remove from the service area. Replace damaged or leaky valves.

(3) Rim flanges, rim gutters, rings, bead seating surfaces and the bead areas of tires must be free of any dirt, surface rust, scale or loose or flaked rubber build-up prior to mounting and inflation.

(4) The size (bead diameter and tire/wheel widths) and type of both the tire and the wheel must be checked for compatibility before assembly.

[Recodified as § 296-307-53011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53013 What are the safe operating procedures for servicing multipiece rim wheels? You must establish safe operating procedures for servicing multipiece rim wheels, and ensure that employees are instructed in and follow the procedures. Your procedures must include at least the following:

(1) Before demounting, remove the valve core to completely deflate the tire.

(2) Remove the valve core to completely deflate the tire before removing a rim wheel from the axle whenever:

- (a) The tire has been driven on underinflated at eighty percent or less of its recommended pressure; or
- (b) There is obvious or suspected damage to the tire or wheel components.

(3) Apply rubber lubricant to bead and rim mating surfaces during wheel assembly and tire inflation, unless the tire or wheel manufacturer recommends against it.

(4) A tire on a vehicle underinflated at more than eighty percent of the recommended pressure may be inflated while the rim wheel is on the vehicle, only if remote control inflation equipment is used and no employees remain in the trajectory during inflation.

(5) Tires may be inflated outside a restraining device only to pressure sufficient to force the tire bead onto the rim ledge and to create an airtight seal with the tire and bead.

(6) Whenever a rim wheel is in a restraining device, the employee must not rest any part of the body or equipment on the restraining device.

(7) After tire inflation, inspect the tire and wheel components while still within the restraining device. Ensure that they are properly seated and locked. If further adjustment to the tire or wheel components is necessary, deflate the tire by removing the valve core before making adjustments.

(8) Never correct the seating of side and lock rings by hammering, striking, or forcing the components while the tire is pressurized.

(9) Cracked, broken, bent, or otherwise damaged rim components shall not be reworked, welded, brazed, or otherwise heated.

(10) When handling multipiece rim wheels, employees must stay out of the trajectory unless the performance of the servicing makes the employee's presence in the trajectory necessary.

(11) Do not apply heat to a multipiece wheel or wheel component.

[Recodified as § 296-307-53013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53015 What are the safe operating procedures for servicing single-piece rim wheels? You must establish safe operating procedures for servicing single-piece rim wheels, and ensure that employees are instructed in and follow the procedures. Your procedures must include at least the following:

(1) Before demounting, remove the valve core to completely deflate the tire.

(2) Mount and demount tires only from the narrow ledge side of the wheel. Take care to avoid damaging the tire beads while mounting. Only mount tires on compatible wheels of matching bead diameter and width.

(3) Apply nonflammable rubber lubricant to bead and wheel mating surfaces before rim wheel assembly, unless the tire or wheel manufacturer recommends against it.

(4) When using a tire changing machine, inflate tires only to the minimum pressure necessary to force the tire bead onto the rim ledge while on the tire changing machine.

(5) When using a bead expander, remove the bead expander before the valve core is installed and as soon as the rim wheel becomes airtight (the tire bead slips onto the bead seat).

(6) Always inflate tires within a restraining device, positioned behind a barrier, or bolted on the vehicle with the lug nuts fully tightened.

(7) Inflate tires only when the trajectory area is clear of flat, solid objects.

(8) Employees stay out of the trajectory when inflating a tire.

(9) Tires must not be inflated to more than the inflation pressure stamped in the sidewall unless a higher pressure is recommended by the manufacturer.

(10) Tires must not be inflated above the maximum pressure recommended by the manufacturer to seat the tire bead firmly against the rim flange.

(11) Heat must not be applied to a single-piece wheel.

(12) Cracked, broken, bent, or otherwise damaged wheels must not be reworked, welded, brazed, or otherwise heated.

[Recodified as § 296-307-53015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53017 How can an employer order the OSHA charts? OSHA charts are available through OSHA area offices. You may find the address and telephone number of the nearest OSHA office in the local telephone directory under U.S. Government, U.S. Department of Labor, Occupational Safety and Health Administration. Single copies are available without charge.

If you want multiple copies of these charts, you may order them from the Publications Office, U.S. Department of Labor, Room N3101, Washington, D.C. 20210. Telephone: (202) 523-9667.

[Recodified as § 296-307-53017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-53017, filed 10/31/96, effective 12/1/96.]

Chapter 296-400 WAC

CERTIFICATION OF COMPETENCY FOR JOURNEYMAN PLUMBERS

WAC

296-400-005 through 296-400-300 Repealed.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

296-400-005 Definitions. [Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-005, filed 9/17/86.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-020 Plumbers with license or practicing the plumbing trade at effective date of the act. [Order 76-2, § 296-400-020, filed 1/30/76; Order 73-20, § 296-400-020, filed 10/29/73.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-030 Issuing of temporary certificate. [Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-030, filed 9/17/86. Statutory Authority: RCW 18.106.140 and 1983 c 124 § 10. 83-19-044 (Order 83-26), § 296-400-030, filed 9/16/83; Order 74-13, § 296-400-030, filed 4/15/74; Order 73-20, § 296-400-030, filed 10/29/73.] Repealed by 97-11-052, filed 5/20/97, effective

6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-035 Inactive status. [Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-035, filed 9/17/86.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-045 Plumber examination, certification, reinstatement, and temporary permit fees. [Statutory Authority: RCW 18.106.125. 89-12-004 (Order 89-04), § 296-400-045, filed 5/25/89; 88-06-037 (Order 87-32), § 296-400-045, filed 2/29/88. Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-045, filed 9/17/86. Statutory Authority: RCW 18.106.140 and 1983 c 124 § 10. 83-19-044 (Order 83-26), § 296-400-045, filed 9/16/83.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-050 Meetings of governor's advisory board. [Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-050, filed 9/17/86; Order 73-20, § 296-400-050, filed 10/29/73.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-070 Reciprocity. [Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-070, filed 9/17/86.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-100 Computation of years of employment. [Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-100, filed 9/17/86.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-110 Previous experience credit. [Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-110, filed 9/17/86.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-120 Plumber trainee certificates. [Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-120, filed 9/17/86.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-130 Penalties for false statements or material misrepresentation. [Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-130, filed 9/17/86.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-140 Enforcement. [Statutory Authority: Chapter 18.106 RCW. 86-19-083 (Order 86-30), § 296-400-140, filed 9/17/86.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

296-400-300 Procedures for notices of infraction. [Statutory Authority: RCW 18.27.040, 18.27.200 and 18.106.020. 84-12-018 (Order 84-08), § 296-400-300, filed 5/25/84.] Repealed by 97-11-052, filed 5/20/97, effective 6/30/97. Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270.

WAC 296-400-005 through 296-400-300 Repealed.
See Disposition Table at beginning of this chapter.

Chapter 296-400A WAC
CERTIFICATION OF COMPETENCY FOR
JOURNEYMAN PLUMBERS

WAC

296-400A-005	What definitions do I need to know to understand these rules?
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296-400A-030	Do I need a temporary permit?
296-400A-031	How do I qualify for a temporary permit?
296-400A-032	How do I obtain a temporary permit?
296-400A-033	What is the duration of a temporary permit?
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296-400A-121	What do I need to know about trainee experience and plumber examination requirements?
296-400A-130	What if I make a false statement or a material misrepresentation on an application, an employment report or a trainee certificate?
296-400A-140	How does the department enforce plumbers certification requirements?
296-400A-300	What procedures does the department follow when issuing a notice of infraction?
296-400A-400	What are the monetary penalties for violating certification requirements?
296-400A-425	What if I owe outstanding penalties related to a department issued plumber infraction?

WAC 296-400A-005 What definitions do I need to know to understand these rules? Unless a different meaning is clearly required by the context, the following terms and definitions are important:

"Advisory board" is the state advisory board of plumbers.

"Department" is the department of labor and industries.

"Director" is the director of the department of labor and industries.

"Journeyman plumber" is anyone who has learned the commercial plumbing trade and has been issued a journeyman certificate of competency by the department. A journeyman plumber may work on plumbing projects including residential, commercial and industrial worksite locations.

"Medical gas piping systems" are piping systems that convey or involve oxygen, nitrous oxide, high pressure nitrogen, medical compressed air and medical vacuum systems.

"Plumbing" is that craft involved in installing, altering, repairing and renovating potable water systems, liquid waste systems and medical gas piping systems within a building. The installation of water softening or water treatment equipment into a water system is not considered plumbing.

"Specialty plumber" is anyone who has been issued a specialty plumbers certificate of competency by the department. Specialty plumber certificates are limited to the installation, maintenance and repair of plumbing for single-

family dwellings, duplexes and apartment buildings which do not exceed three stories.

"Trainee plumber" is anyone who has been issued a trainee certificate and is learning or being trained in the plumbing trade with direct supervision of either a journeyman plumber or specialty plumber working in their specialty.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-005, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-020 How do I obtain a certificate of competency? You can obtain a certificate of competency by completing the following requirements:

(1) Submitting a competency examination application to the department; and

(2) Paying the examination fee shown in WAC 296-400A-045; and

(3) Submitting the required evidence of competency and experience to the department; and

(4) Passing the competency examination.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-020, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-030 Do I need a temporary permit?

If you are an out-of-state journeyman residing in a state that does not have a reciprocal agreement with Washington and you would like to work as a plumber in Washington, you need a temporary permit.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-030, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-031 How do I qualify for a temporary permit? To qualify for a temporary permit, you must:

(1) Have a state-issued journeyman plumbers certificate; and

(2) Give the department sufficient qualifying evidence for a journeyman plumber certificate of competency; and

(3) Never have taken the journeyman competency examination in Washington state; and

(4) Not be an apprentice plumber.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-031, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-032 How do I obtain a temporary permit? If you qualify, you can obtain a temporary permit by applying to the department and paying both the examination application fee and the temporary permit fee shown in WAC 296-400A-045.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-032, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-033 What is the duration of a temporary permit? A temporary permit is valid for ninety days and is nonrenewable.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-033, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-035 How can I be placed on inactive status? To be placed on inactive status, you must meet these three requirements:

- (1) Be a currently registered plumber; and
- (2) Be at least sixty-two years of age; and
- (3) Not be working in the plumbing trade.

Inactive status means that you are not currently working in the plumbing trade and you are not required to pay the annual certificate renewal fee. You may return to active status, without reexamination, by paying the reinstatement of a journeyman certificate fee shown in WAC 296-400A-045.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-035, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-045 What fees will I have to pay?

The following are the department's plumbers fees:

<u>Type of Fee</u>	<u>Period Covered by Fee</u>	<u>Dollar Amount of Fee</u>
Examination application	Per examination	\$104.25
Reciprocity application	Per application	\$104.25
Trainee certificate*	One year	\$31.25
Trainee certificate	Less than one year	\$3.00 per month with a minimum fee of \$20.75
Temporary permit	90 days	\$52.00
Journeyman or specialty certificate**	Two years	\$83.50
Journeyman or specialty certificate	Less than two years	\$3.50 per month with a minimum fee of \$31.25
Reinstatement of a journeyman certificate		\$167.00
Replacement of all certificates		\$31.25

* The trainee certificate shall expire one year from the date of issuance and be renewed on or before the date of expiration.

** This fee applies to either the original issuance or a renewal of a certificate. If you have passed the plumbers certificate of competency examination and paid the certificate fee, you will be issued a certificate of competency that will expire on your birthdate.

If your birth year is:

- (1) In an even-numbered year, your certificate will expire on your birthdate in the next even-numbered year.
- (2) In an odd-numbered year, your certificate will expire on your birthdate in the next odd-numbered year.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-045, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-050 When does the advisory board of plumbers meet? The advisory board of plumbers meets every quarter on the third Tuesday of January, April, July and October.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-050, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-070 Can I work as a certified plumber in Washington without taking the Washington state plumbers competency examination? You may be eligible to work in Washington state without taking an examination if:

- (1) You have a current plumber's certificate or license from another state; and
- (2) That state has a current reciprocal agreement with the department of labor and industries; and
- (3) You pay the reciprocity application fee and journeyman or specialty certificate fee shown in WAC 296-400A-045.

The director of labor and industries negotiates reciprocal agreements with states that have equivalent requirements for certification and licensing of journeyman and specialty plumbers. The agreement allows plumbers from those states to work in Washington and Washington-registered plumbers to work in the other state without taking competency examinations. To find out if your state has an agreement with the department, contact the plumber's certification clerk at the department's Tumwater, WA headquarters.

Reciprocity agreements cannot be used to take the Washington state competency examination instead of the examination in your home state.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-070, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-100 For certification purposes, how are "years of employment" computed and documented?

(1) For certification purposes, 2,000 hours of employment is considered one year. See RCW 18.106.070(2).

(2) When you renew your certificate, you must document your previous years' plumbing work by accurately completing the department's approved form and submitting it to the department.

(3) If you have completed a one, two, three, four or more years plumbing construction trainee program, you must have the necessary training hours for the year in which you are registered. See RCW 18.106.040.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-100, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-110 Does previous work experience count toward my trainee certificate?

If your work experience was in plumbing construction, you will be given credit for all verifiable hours that are properly submitted on the department's approved form. (Refer to the definition of "plumbing" in WAC 296-400A-005.)

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-110, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-120 What do I need to know about plumber trainee certificates?

(1) The department issues separate trainee certificates according to the following schedule:

<u>Certificate Year</u>	<u>Hours Employed As Plumber Trainee</u>
First	Less than 2,000 hours
Second	More than 1,999 hours but less than 4,000 hours
Third	More than 3,999 hours but less than 6,000 hours
Fourth	More than 5,999 hours

(2) You may apply for the next year's trainee certificate whenever you have the required documented work hours.

(3) You cannot be issued a training certificate for more than eight years unless the department determines that there are extenuating circumstances.

(4) If you are a trainee applying for a journeyman certificate, you must complete a minimum of two of the required four years commercial plumbing experience.

(5) A certified specialty plumber working on a commercial job site may work as a journeyman trainee only if they have a current trainee certificate on their person while performing commercial plumbing work.

(6) On a job site, the ratio of certified plumbers to noncertified plumbers must be:

(a) One specialty plumber or journeyman working on a specialty plumbing job may supervise no more than two trainees.

(b) One journeyman plumber working on a commercial job may supervise no more than one trainee.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-120, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-121 What do I need to know about trainee experience and plumber examination requirements?

(1) If you possess a trainee certificate:

(a) You may take the specialty plumber examination after completing 6,000 hours of documented training.

(b) You may take the journeyman examination after completing 8,000 hours of documented training which must include 4,000 hours of commercial plumbing experience.

(2) All journeyman trainees must work under the direct supervision of a journeyman plumber until they have completed 7,500 hours of training. After completing the 7,500 supervised hours, a trainee may work without direct supervision until they complete 8,000 hours. (See RCW 18.106.070(3).)

When 8,000 training hours have been completed, the trainee must take the journeyman examination. Any trainee who has failed the journeyman plumber examination cannot retake the examination for at least one month and must work under the direct supervision of a journeyman plumber until the examination is passed.

(3) To be eligible for the specialty plumber's examination, a specialty trainee must complete 6,000 hours of training under the direct supervision of either a certified specialty plumber or a journeyman plumber. Any specialty trainee who has failed the specialty examination, cannot retake the examination for at least one month and must work under the direct supervision of a certified plumber until the examination is passed.

(4) **Any applicant** (trainee, specialty plumber or journeyman) who fails an examination, will be required to wait at least one month before retaking the examination. If an applicant fails the second attempt, the waiting period for reexamination will be extended to at least two months. An applicant who fails the examination a third time will have a mandatory waiting period of at least four months.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-121, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-130 What if I make a false statement or a material misrepresentation on an application, an employment report or a trainee certificate?

(1) All required applications and annual statements of employment hours are made under oath. Making false statements and/or material misrepresentations carry serious consequences. Any person who knowingly makes a false statement or material misrepresentation on an application, an affidavit of experience or a trainee certificate may be referred to the county prosecutor for criminal prosecution. In addition, the department may subtract a maximum of 2,000 employment hours from a trainee's acceptable total hours.

(2) The department's decisions, under this section, can be appealed to the advisory board. The appeal hearing will be conducted according to the appropriate provisions of chapter 34.05 RCW.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-130, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-140 How does the department enforce plumbers certification requirements? The department enforces plumber certification requirements by means of job-site inspections conducted by department compliance inspectors. The inspector must determine whether:

- (1) Each person doing plumbing work has a proper certificate on their person; and
- (2) The ratio of certified specialty and/or journeyman plumbers to certified trainees is correct; and
- (3) That each certified trainee is directly supervised by either a certified specialty plumber or a certified journeyman.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-140, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-300 What procedures does the department follow when issuing a notice of infraction?

(1) If a compliance inspector determines that an individual has violated plumber certification requirements, the department must issue a notice of infraction describing the reasons for the citation.

(2) The department may issue a notice of infraction to either:

- (a) An individual who is plumbing without a current plumber certificate; or
- (b) The employer of the individual who is plumbing without a current plumber certificate; or
- (c) The employer's authorizing agent or foreman that made the work assignment to the individual who is plumbing without a current plumber certificate.

(3) An individual may appeal a notice of infraction by complying with the appropriate provisions of RCW 18.106.220.

(4) If good cause is shown, an administrative law judge may waive, reduce or suspend any monetary penalties resulting from the citation.

(5) Any monetary penalties collected under this chapter, must be deposited in the plumbing certificate fund.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-300, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-400 What are the monetary penalties for violating certification requirements? (1) A person cited for an infraction under RCW 18.106.020 (3)(a), (b) or (c) must be assessed a monetary penalty based upon the following schedule:

First Infraction	\$250.00
Second Infraction	\$500.00
Third Infraction	\$750.00
Fourth Infraction	Not more than \$1,000.00

(2) Each day a person is in violation must be considered a separate infraction.

(3) Each job site at which a person is in violation must be considered a separate infraction.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-400, filed 5/20/97, effective 6/30/97.]

WAC 296-400A-425 What if I owe outstanding penalties related to a department issued plumber infraction? The department may deny renewal of your certificate of competency if you owe outstanding penalties. The department must notify you of their denial by registered mail, return receipt requested. This notice of denial will be mailed to the address on your application.

Upon receipt of the notice, you have twenty days to file a notice of appeal with the department. Your notice of appeal must be accompanied by a certified check for two hundred dollars. This amount will be returned to you if the department's decision is not upheld by the hearings officer. If the hearings officer upholds the department's decision, the two hundred dollars must be applied to the cost of the hearing.

The office of administrative hearings shall conduct the hearing under chapter 34.05 RCW.

[Statutory Authority: RCW 18.106.050, [18.106.]070, [18.106.]110, [18.106.]125, [18.106.]140 and [18.106.]270. 97-11-052, § 296-400A-425, filed 5/20/97, effective 6/30/97.]

**Chapter 296-401 WAC
CERTIFICATION OF COMPETENCY FOR
JOURNEYMAN ELECTRICIANS**

WAC	
296-401-060	Specialty certificates.
296-401-080	Eligibility for journeyman examination.
296-401-090	Status of person who has failed an examination for an electrician certificate of competency.
296-401-100	Computation of years of employment—Renewal of training certificates.
296-401-120	Electrical training certificates.
296-401-163	Continuing education classes.
296-401-165	Issuing and renewing an electrician certificate of competency.
296-401-170	Hearing or appeal procedure.
296-401-175	Journeyman, specialty and trainee certificate, and examination fees.

WAC 296-401-060 Specialty certificates. The department shall issue specialty electrician's certificates of competency in the following areas of electrical work:

(1) Residential (02). The holder of a residential certificate is limited to wiring one-family and two-family dwellings, or multifamily dwellings that do not exceed three floors above grade. All wiring shall be in nonmetallic sheathed cable, except service and feeder wiring. This specialty does not include wiring commercial occupancies such as motels, hotels, offices, or stores.

(2) Pump and irrigation (03). The holder is limited to the electrical connection of domestic and irrigation water pumps, circular irrigating systems, and related pumps and pump houses. The holder may also install the circuits, feeders, controls, and services necessary to supply electricity to the pumps.

(a) Domestic well specialty electrical technician (03A). The holder of this certificate is limited to the installation of materials, wires, and equipment providing electrical power, control, and operation of domestic water pumping systems and is further limited to:

The extension of a branch circuit, which is supplied and installed by others, to pump controllers; pressure switches; alarm sensors; and water pumps which do not exceed 7 and 1/2 horsepower at 230 volts AC single phase.

(b) Persons shall meet the eligibility requirements of WAC 296-401-085, Eligibility for specialty examination, to take this specialty examination if they:

(i) Provide notarized verification to the department of at least four years of prior experience installing domestic water systems, including pump installations, under the supervision of a firm carrying on the business of installing domestic water systems; or

(ii) Provide notarized verification of experience of two years of experience working under the direct supervision of a domestic well specialty technician, a pump and irrigation specialty electrician, or a journeyman electrician.

(c) Persons applying under (b)(i) of this subsection must do so prior to December 1, 1998. After December 1, 1998, all applicants must meet the requirements of (b)(ii) of this subsection.

(d) Certification of domestic well specialty electrical technicians shall be issued according to the provisions of WAC 296-401-165, Issuing and renewing an electrician certificate of competency.

(3) Signs (04). The holder is limited to; placing and connecting signs and outline lighting and their electrical supply, controls, and associated circuit extensions; and the installation of a maximum 60 ampere, 120/240 volt, single phase service to supply power to a remote sign only.

(4) Domestic appliances (05). The holder is limited to the electrical connection of domestic appliances and their wiring, such as hot water heaters, ranges, dishwashers, clothes dryers, oil and gas furnaces, and similar appliances. The holder may also install the circuits to domestic appliances but may not install service or feeder wires, or circuits to electric furnaces and heat pump equipment.

(5) Limited energy system (06). The holder is limited to installing signaling circuits, power limited circuits, and related equipment. Such equipment includes fire protection signaling systems, intrusion alarms, nonutility-owned communication systems, and similar low energy circuits and equipment.

(6) Nonresidential maintenance (07). The holder is limited to maintaining, repairing and replacing electrical equipment and conductors on industrial or commercial premises. This specialty certificate does not include maintenance activities in hotel, motel or dwelling units.

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-401-060, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-401-060, filed 8/29/86. Statutory Authority: RCW 19.28.120 and 19.28.510. 83-23-053 (Order 83-32), § 296-401-060, filed 11/14/83. Statutory Authority: RCW 18.37.130. 80-02-052 (Order 80-1), § 296-401-060, filed 1/16/80.]

WAC 296-401-080 Eligibility for journeyman examination. A person holding an electrical training certificate who has: (1) Been employed under the direct supervision of a journeyman electrician for four years, or (2) has completed a four year apprenticeship program in the electrical construction trade that is registered with the state

apprenticeship council or the Federal Bureau of Apprenticeship and Training, or (3) a person who has had two years of schooling under the conditions provided in RCW 19.28.530 in addition to two years of employment under the direct supervision of a journeyman electrician shall be eligible to take the examination for a journeyman certificate of competency.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-401-080, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060. 88-16-002 (Order 88-15), § 296-401-080, filed 7/21/88. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-401-080, filed 8/29/86. Statutory Authority: RCW 19.28.060. 81-06-037 (Order 81-5), § 296-401-080, filed 2/27/81, effective 4/1/81. Statutory Authority: RCW 18.37.130. 80-02-052 (Order 80-1), § 296-401-080, filed 1/16/80.]

WAC 296-401-090 Status of person who has failed an examination for an electrician certificate of competency. (1) A person who fails an examination for an electrician certificate of competency may take a training or refresher course that has been approved by the electrical board and may work in the electrical construction trade only if the person has a valid electrician training certificate or temporary permit.

(2) A person who has a training certificate and who is taking a refresher course shall work only under the supervision of a certificated electrician.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-401-090, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060. 88-16-002 (Order 88-15), § 296-401-090, filed 7/21/88. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-401-090, filed 8/29/86. Statutory Authority: RCW 18.37.130. 80-02-052 (Order 80-1), § 296-401-090, filed 1/16/80.]

WAC 296-401-100 Computation of years of employment—Renewal of training certificates. (1) For the purposes of RCW 19.28.530, 2000 hours of employment shall be considered one year of employment.

(2) At the time of renewal of an electrical training certificate, the holder shall provide the department with an accurate list of the holder's employers in the electrical industry for the previous year, the specialty the holder worked in and the number of hours worked for each employer in each specialty.

(3) The employer or apprenticeship program director shall upon request by the holder of the training certificate furnish an accurate list of the hours worked by the holder within twenty days of the request.

(4) A person who has completed a four year apprenticeship program in the electrical construction trade that is registered with the state apprenticeship council or the Federal Bureau of Apprenticeship and Training shall be considered to have completed 8000 hours (four years) of employment.

(5) Credit for experience for electrical work which is legally exempt from the certification requirements under RCW 19.28.610, Exemptions from RCW 19.28.510 through 19.28.620, requires verification by the employer or owner for whom the electrical work was performed that the hours worked meet the requirements of this chapter. Beginning January 1, 1998, all exempt individuals learning the electrical trade shall obtain an electrical training certificate,

renewed annually, from the department in order to be credited for hours worked in the trade from this date forward.

(6) AUDITS: An audit of an electrical contractor's or employer's records, who has verified the hours of experience for an electrical trainee, may be performed pursuant to the authority contained in RCW 19.28.515, Electrical trainee hours—Audit—Rules—Confidentiality, and may include but will not be limited to:

(a) An audit to determine whether the electrical trainee was employed by the contractor or employer during the period for which the hours were submitted, the actual number of hours worked, and the category of electrical work the trainee performed.

(b) An audit of the contractor's or employer's books and records for a specific period which may include an examination of the employer's reporting of a trainee's payroll hours required for industrial insurance, employment security, or prevailing wage purpose.

(c) An audit time period may be less than, but will not exceed five years from the date of submittal of each affidavit verifying the hours of experience for an electrical trainee.

(d) Every employer or contractor shall keep a record of employment of each trainee from which the information needed by the department may be obtained and such record shall be made available within seven business days for inspection of the department's auditors or agents upon request. The employer must maintain time cards or similar records to verify the number of hours worked by a supervised trainee and the type of work performed by the trainee. Information obtained from an electrical contractor or employer under the provisions of RCW 19.28.515 is confidential and is not open to public inspection under chapter 42.17 RCW.

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-401-100, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-401-100, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060. 88-16-002 (Order 88-15), § 296-401-100, filed 7/21/88. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-401-100, filed 8/29/86. Statutory Authority: RCW 19.28.060, 81-06-037 (Order 81-5), § 296-401-100, filed 2/27/81, effective 4/1/81. Statutory Authority: RCW 18.37.130. 80-02-052 (Order 80-1), § 296-401-100, filed 1/16/80.]

WAC 296-401-120 Electrical training certificates.

(1) The department upon proper application and verification shall issue separate electrical training certificates for the first, second, third, and fourth years of training. If a person has 2000 hours of employment or less in the electrical construction trade, the department shall issue the individual a first year certificate; if more than 2000 through 4000 hours, a second year certificate; if more than 4000 through 6000 hours, a third year certificate; and if more than 6000 hours a fourth year certificate.

(2) A holder of an electrical training certificate may apply for the next year's certificate whenever he or she has sufficient hours of employment.

(3) A holder of an electrical training certificate may apply for authorization to work without supervision if he or she has over 7000 hours of employment, and has successfully completed or is currently enrolled in an approved appren-

ticeship program or in a technical school program in the electrical construction trade in a school approved by the superintendent of public instruction.

(4) The department shall not issue an electrical training certificate to a person who is eligible for a temporary or reciprocal electrician certificate of competency.

[Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-401-120, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.060. 88-16-002 (Order 88-15), § 296-401-120, filed 7/21/88. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-401-120, filed 8/29/86. Statutory Authority: RCW 18.37.130. 80-02-052 (Order 80-1), § 296-401-120, filed 1/16/80.]

WAC 296-401-163 Continuing education classes.

(1) Each continuing education class, course, or seminar for renewal of an electrician's certificate of competency must be approved by a subcommittee of the electrical board. The subcommittee will consist of three board members with the chief electrical inspector as an ex-officio member. The action of the subcommittee will be reported and ratified at the next regularly scheduled board meeting. Class, course, or seminar hours completed prior to approval of the class, course, or seminar by the subcommittee will not be accepted.

(2) Each continuing education class, course, or seminar application submitted for subcommittee approval must:

(a) Be submitted on forms furnished by the department.

(b) The forms furnished by the department will require the following:

(i) Name of class, course, or seminar and a general description and course outline of the program, and list of all text and related materials, including hours to be earned and hours of classroom instruction.

(ii) Name and address of program sponsor including a contact person.

(iii) Names of instructors and qualifications.

(iv) Copy of completion certificate or copy of the continuing education form developed by the department which lists:

(A) Attendee's name, address, and Social Security number.

(B) Class number, location, and date of class.

(C) Instructor's name and signature or notarized signature of sponsor.

(c) Consist of not less than four classroom hours of instruction; be open to monitoring by a representative of the department and/or the electrical board at no charge.

(d) Award a certificate or continuing education form, to those completing the class, course, or seminar for submittal to the department accompanying the electrician's renewal application.

(e) In order to be considered for approval, course offerings must be based upon:

(i) Currently adopted edition of the National Electrical Code; and/or

(ii) Currently adopted WAC rules, chapters 296-46 and 296-401 WAC; or

(iii) Materials and methods as they pertain to electrical construction, building management systems, and electrical maintenance.

(3) Application for approval of continuing education classes, courses, or seminars must be received by the department not less than forty-five days prior to the proposed first offering of the class, course, or seminar.

(4) Approval of classes, courses, or seminars will be for a period not to exceed three years and when code related must be resubmitted for approval upon adoption of a new National Electrical Code edition.

(5) All class, course, or seminar approval considered will be reviewed without testimony and will be considered on submitted information only. The applicant will be notified within five days of the review of acceptance or with specific written explanation as to why, the applicant's submittal has been rejected.

(6) Applicants wishing to appeal a decision by the subcommittee must do so not less than forty-five days prior to a regularly scheduled electrical board meeting and must furnish any additional information, for submittal to the electrical board not less than thirty days prior to the electrical board meeting scheduled to hear the appeal.

(7) Acceptable evidence of completion of a continuing education class, course, or seminar shall be a copy of the completion certificate required in subsection (2)(d) of this section. The department will not keep the submitted copies of the completion certificate on file after renewal of an applicant's certificate. The department will not accept, nor be responsible for, the original of any completion certificate issued under this section. Approved course sponsors must submit a copy of the original sign-in sheet containing the signatures of all class participants, following completion of each approved continuing education course offered. Sponsors offering approved correspondence courses, must submit a roster of all class participants who successfully complete the course.

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-401-163, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.065 and 19.28.550. 94-01-005, § 296-401-163, filed 12/1/93, effective 1/1/94.]

WAC 296-401-165 Issuing and renewing an electrician certificate of competency. (1) The department shall issue an electrician certificate of competency to journeyman or specialty electricians who meet the qualifications in RCW 19.28.530 and who have successfully passed a certification examination in accordance with RCW 19.28.540.

(2) The electrician certificate of competency shall expire on the holder's birthdate at least one year and not more than three years from the date of original issue. All subsequent certificates shall be issued for a three-year period. The department shall prorate the original electrician certification fee according to the number of months or major part of a month in a certificate period.

(3) Certificate renewal requirements.

(a) Beginning April 30, 1997, to renew an electrician certificate of competency the holder must, prior to the expiration date of the certificate, remit the appropriate fee identified in WAC 296-401-175 and provide to the department evidence of the completion of approved continuing education course(s) of at least eight classroom hours duration per year of the prior certification period. Any portion of a year is equal to one year for continuing education require-

ments. The holder of a certificate for renewal cannot receive credit for the same continuing education course taken more than once in a three-year prior certification period.

(b) An electrician certificate will be renewed within ninety days after the expiration date without reexamination, if the applicant furnishes to the department evidence of completion of approved continuing education course(s) of at least eight classroom hours duration per year of the prior certification, by payment of double the fee identified in WAC 296-401-175. All applications for renewal received more than ninety days after the expiration date of the certificate will require passage of the examination provided by RCW 19.28.540 for recertification.

(c) An electrician certificate will be renewed but will be placed in an inactive status if the renewal process concerning the remittance of application and proper fees complies with (a) or (b) of this subsection but the applicant has not completed the required hours of continuing education course(s). Persons holding a certificate placed in an inactive status will not be permitted to engage in the electrical construction trade. Certificates placed in an inactive status will be returned to active status upon presentation to the department of evidence that all classroom hours of continuing education that were required for renewal have been completed.

(d) Each application for renewal of a prior certification that covered a period of two years or more must include evidence of attendance at an approved continuing education class, of at least eight classroom hours duration, on the current National Electrical Code changes.

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-401-165, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-401-165, filed 5/28/97, effective 6/30/97. Statutory Authority: RCW 19.28.550. 94-01-005, § 296-401-165, filed 12/1/93, effective 1/1/94. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-401-165, filed 8/29/86. Statutory Authority: RCW 19.28.120 and 19.28.510. 83-23-053 (Order 83-32), § 296-401-165, filed 11/14/83.]

WAC 296-401-170 Hearing or appeal procedure.

(1) An employer or employee to whom a citation or cease and desist order is directed; a person who is aggrieved by the department's suspension or revocation of a trainee, journeyman, or specialty certificate; or the denying an application to take an examination for a certificate; or a person who has had his or her hours reduced pursuant to WAC 296-401-150; may request a formal or informal hearing before the electrical board within twenty days from receipt of the citation, cease and desist order, the suspension or revocation of a certificate, denial of an application, or the reduction of hours.

(2) The formal appeal shall be made in writing to the department chief electrical inspector and shall state the action by the department that is being appealed and the relief that is desired and shall be accompanied by a certified check in the amount of two hundred dollars made payable to the department. The deposit shall be returned to the aggrieved party if the decision of the department is not sustained or upheld. If the decision of the department is sustained or upheld, the deposit shall be used to pay the expenses of holding the hearing and any balance remaining after payment

of the hearing expenses shall be paid into the electrical license fund. The formal appeal shall be assigned to an administrative law judge and shall be held in conformance with the requirements of the Administrative Procedure Act, chapter 34.04 RCW. Findings of fact, conclusions of law, and a decision are given as a result of a formal appeal.

(3) The electrical board will hear informal appeals from persons who desire to contest a decision of the department. Informal appeals will be heard by the board at a regular or special board meeting. An informal appeal shall be made in writing to the department chief electrical inspector and shall state the action by the department that is being appealed and the relief that is desired. An informal decision is given as a result of an informal appeal.

(4) See chapter 296-13 WAC for additional information on appeals before the electrical board.

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-401-170, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060. 88-16-002 (Order 88-15), § 296-401-170, filed 7/21/88. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-401-170, filed 8/29/86. Statutory Authority: RCW 18.37.130. 80-02-052 (Order 80-1), § 296-401-170, filed 1/16/80.]

WAC 296-401-175 Journeyman, specialty and trainee certificate, and examination fees.

(1) Journeyman or specialty electrician certificate renewal (per 36-month period) -	\$ 62
(2) Late renewal of journeyman or specialty electrician certificate (per 36-month period) -	\$125
(3) Journeyman or specialty electrician examination application (nonrefundable) -	\$ 26
(4) Journeyman or specialty electrician original certificate (submitted with application) -	\$ 41
(5) Trainee certificate (expires one year after purchase) -	\$ 20
(6) Trainee certificate renewal or update of hours -	\$ 20
(7) Journeyman or specialty electrician test or retest fee -	\$ 47
(8) Reciprocal journeyman or specialty certificate -	\$ 67
(9) Reinstatement of journeyman or specialty certificate -	\$ 20
(10) Continuing education course approval -	\$ 40
(11) Continuing education course renewal -	\$ 20

[Statutory Authority: Chapter 19.28 RCW. 97-24-033, § 296-401-175, filed 11/25/97, effective 12/29/97. Statutory Authority: RCW 19.28.060, [19.28.]210(6), [19.28.]350 and [19.28.]600. 97-12-016, § 296-401-175, filed 5/28/97, effective 6/30/97. Statutory Authority: Chapter 19.28 RCW (RCW 19.28.060, [19.28.]550, [19.28.]600). 95-15-034, § 296-401-175, filed 7/12/95, effective 8/14/95. Statutory Authority: RCW 19.28.060, 19.28.010(1), 19.28.600, 19.28.510(2), 19.28.540(2) and 19.28.550. 92-09-010, § 296-401-175, filed 4/2/92, effective 5/3/92. Statutory Authority: RCW 19.28.060, 19.28.600, 19.28.510(2), 19.28.540(2) and 19.28.550. 90-17-041, § 296-401-175, filed 8/10/90, effective 9/10/90. Statutory Authority: RCW 19.28.060, 19.28.600 and chapter 19.28 RCW. 86-18-041 (Order 86-23), § 296-401-175, filed 8/29/86. Statutory Authority: RCW 19.28.060 and 19.28.210. 85-20-065 (Order 85-16), § 296-401-175, filed 9/27/85. Statutory Authority: RCW 19.28.120 and 19.28.510. 83-23-053 (Order 83-32), § 296-401-175, filed 11/14/83.]

Title 308 WAC LICENSING, DEPARTMENT OF

(Formerly: Motor Vehicles, Dept. of and
Licenses, Dept. of)

Chapters

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308-12	Architects.
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308-58	Reporting destroyed vehicles.
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Chapter 308-10 WAC PUBLIC RECORDS DISCLOSURE

WAC

308-10-050 Exemptions.

WAC 308-10-050 Exemptions. (1) The department may determine that a public record requested is exempt under the provisions of RCW 42.17.310 or other law.

(2) Under RCW 42.17.260, the department may delete identifying details when it makes available or publishes any public record, in any cases when there is reason to believe