WSR 22-10-065
EXPEDITED RULES
DEPARTMENT OF
LABOR AND INDUSTRIES
[Filed May 3, 2022, 8:58 a.m.]

Title of Rule and Other Identifying Information: Reference corrections regarding fall protection. Reference corrections are being made to WAC 296-155-54800 Design of platforms and suspension systems, 296-155-655 General protection requirements, 296-155-688 Vertical slip forms, and 296-305-05502 Training and member development.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: On October 1, 2020, chapter 296-155 WAC, Part C-1, Fall protection requirements for construction, was repealed and chapter 296-880 WAC, Unified safety standards for fall protection, became effective (WSR 20-12-091). Since October 1, 2020, the department has become aware that these references were not changed in the original rule-making activity. In order to create clarity and provide accuracy, the references below must be corrected.

AMENDED SECTIONS:

WAC 296-155-54800 Design of platforms and suspension systems. In subsection (7) removed "Part C-1 of this chapter" and replaced with "chapter 296-880 WAC."

WAC 296-155-655 General protection requirements. In subsection (7)(a) removed "C-1" and added "chapter 296-880 WAC."

WAC 296-155-688 Vertical slip forms. In subsection (9) removed "296-155 WAC, Part C-1" and replaced with "296-880 WAC."

WAC 296-305-05502 Training and member development. In subsection (5) removed 296-155 WAC, ["]Part C-1" and replaced with "296-880 WAC."

Reasons Supporting Proposal: The proposed rule making is needed to aid employers and the public to [find] accurate and updated references in WAC.

Statutory Authority for Adoption: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060.

Statute Being Implemented: Chapter 49.17 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Department of labor and industries (L&I), governmental.

Name of Agency Personnel Responsible for Drafting: Chris Miller, Tumwater, Washington, 360-902-5516; Implementation and Enforcement: Craig Blackwood, Tumwater, Washington, 360-902-5828.

This notice meets the following criteria to use the expedited adoption process for these rules:

Adopts or incorporates by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule.

Corrects typographical errors, make address or name changes, or clarify language of a rule without changing its effect.

Explanation of the Reason the Agency Believes the Expedited Rule-Making Process is Appropriate: This rule making is limited to correct-

ing reference errors and has no material change to federal or state statute.

NOTICE

THIS RULE IS BEING PROPOSED UNDER AN EXPEDITED RULE-MAKING PROCESS THAT WILL ELIMINATE THE NEED FOR THE AGENCY TO HOLD PUBLIC HEARINGS, PREPARE A SMALL BUSINESS ECONOMIC IMPACT STATEMENT, OR PROVIDE RESPONSES TO THE CRITERIA FOR A SIGNIFICANT LEGISLATIVE RULE. IF YOU OBJECT TO THIS USE OF THE EXPEDITED RULE-MAKING PROCESS, YOU MUST EXPRESS YOUR OBJECTIONS IN WRITING AND THEY MUST BE SENT TO Carmyn Shute, Administrative Regulations Analyst, L&I, Division of Occupational Safety and Health, P.O. Box 44620, Olympia, WA 98504-4620, phone 360-902-6081, fax 360-902-5619, email Carmyn.Shute@Lni.wa.gov, AND RECEIVED BY 5:00 p.m. on July 5, 2022.

May 3, 2022
Joel Sacks
Director

OTS-3718.1

AMENDATORY SECTION (Amending WSR 18-22-116, filed 11/6/18, effective 12/7/18)

WAC 296-305-05502 Training and member development. (1) The employer must provide training, education and ongoing development for all members commensurate with those duties and functions that members are expected to perform.

(a) Training and education must be provided to members before they perform emergency activities.

(b) Fire service leaders and training instructors must be provided with training and education which is more comprehensive than that provided to the general membership of the fire department.

(c) The fire department must develop an ongoing proficiency cycle with the goal of preventing skill degradation.

(2) Training on specific positions/duties deemed by the fire department critical to the safety of responders and the effectiveness of emergency operations (such as driver operators or support personnel) must be provided at least annually.

(3) Firefighters must be trained in the function, care, use/operation, inspection, maintenance and limitations of the equipment assigned to them or available for their use.

(4) Members who are expected to perform interior structural firefighting must be provided with an education session or training at least quarterly.

(5) When firefighters are engaged in training above the ((~~ten-foot~~)) 10-foot level, where use of lifelines or similar activities are to be undertaken, a safety net or other approved secondary means of fall protection recommended in chapter ((~~296-155 WAC, Part C-1, fall protection requirements for construction~~)) 296-880 WAC, Unified safety standards for fall protection, must be used.

(6) Continuing education live fire training.

(a) All members who engage in interior structural firefighting in IDLH conditions must be provided live fire training appropriate to their assigned duties and the functions they are expected to perform at least every three years. Firefighters who do not receive this training in a three-year period will not be eligible to return to an interior structural firefighting assignment until they do. Responding to a fire scene with a full alarm assignment, an ICS established and a post-incident analysis will meet this requirement, but for no more than two training evolutions.

(b) All live fire training must be conducted by fire department qualified fire service instructors. When conducting their own training, fire departments must meet the requirements set out in the 2007 edition of the NFPA 1403, Standard on Live Fire Training Evolutions.

(c) An incident safety officer must be appointed for all live fire training evolutions. The incident safety officer function must be filled by a person who is trained and qualified in the IMS/Incident safety officer duties and who is not responsible for any other function at the training evolution other than the role of incident safety officer.

(7) When using structures for live fire suppression training, activities must be conducted according to the 2007 edition of NFPA 1403, Standard on Live Fire Training Evolutions. When using structures for nonlive fire training, the following requirements must be met:

(a) All structures used for training must be surveyed for potential hazardous substances, such as asbestos, prior to the initiation of any training activities. The survey must comply with chapter 296-62 WAC Part I-1 and must be conducted by an AHERA accredited inspector and performed in accordance with 40 C.F.R. 763, Subpart E. If the hazardous substances or asbestos containing materials of > 1% asbestos are to be disturbed during any training activity they must be removed prior to beginning that activity. Removal of asbestos < or =1% is not required prior to live fire training.

In live fire training structures where < or = 1% asbestos has been disturbed, the fire department will provide written notice to the owner/agent that asbestos has been disrupted and remains on-site.

For structures built before 1978, you must assume that painted surfaces are likely to contain lead and inform workers of this presumption. Surveys for lead containing paints are not required. Lead containing paints are not required to be removed prior to training activities.

If the training activity will not disturb the hazardous substance, the material must be clearly marked and all participants must be shown the location of the substance and directed not to disturb the materials.

(b) Acquired or built structures used for fire service training that does not involve live fire must be surveyed for the following hazards and those hazards abated prior to the commencement of training activities:

(i) In preparation for training, an inspection of the training building must be made to determine that the floors, walls, stairs and other structure components are capable of withstanding the weight of contents, participants and accumulated water.

(ii) Hazardous materials and conditions within the structure must be removed or neutralized, except as exempted in (a) of this subsection.

(A) Closed containers and highly combustible materials must be removed.

(B) Oil tanks and similar closed vessels that cannot easily be removed must be vented sufficiently to eliminate an explosion or rupture.

(C) Any hazardous or combustible atmosphere within the tank or other vessel must be rendered inert.

(D) Floor openings, missing stair treads or railings, or other potential hazards must be repaired or made inaccessible.

(iii) If applicable, floors, railings and stairs must be made safe. Special attention must be given to potential chimney hazards.

(iv) Debris hindering the access or egress of firefighters must be removed before continuing further operations.

(v) Debris creating or contributing to unsafe conditions must be removed before continuing further operations.

(c) Asbestos training. Firefighters must be provided asbestos awareness training, including communication of the existence of asbestos-containing material (ACM) and presumed-asbestos-containing material (PACM). Training must be provided prior to initial assignment and annually thereafter, and must include:

(i) The physical characteristics of asbestos including types, fiber size, aerodynamic characteristics and physical appearance.

(ii) Examples of different types of asbestos and asbestos-containing materials to include flooring, wall systems, adhesives, joint compounds, exterior siding, fire-proofing, insulation, roofing, etc. Real asbestos must be used only for observation by trainees and must be enclosed in sealed unbreakable containers.

(iii) The health hazards of asbestos including the nature of asbestos related diseases, routes of exposure, dose-response relationships, synergism between cigarette smoking and asbestos exposure, latency period of diseases, hazards to immediate family, and the health basis for asbestos standards.

(iv) Instruction on how to recognize damaged, deteriorated, and delamination of asbestos-containing building materials.

(v) Decontamination and clean-up procedures.

(vi) Types of labels that are used within different industries to identify ACM or PACM that is present within structures. The labeling system the employer will use during training to identify asbestos and ACM/PACM during destructive drilling and training.

(vii) The location and types of ACM or PACM within any fire department owned or leased structures and the results of any "Good Faith Survey" done on fire department owned or leased structures.

(8) Asbestos exposure during destructive training activities. Fire department employees are exempt from the requirements of chapter 296-65 WAC and WAC 296-62-077, provided they comply with the following requirements:

(a) Fire departments must obtain a good faith asbestos inspection/survey from the property owner/agent prior to disturbing building materials. The good faith survey must comply with chapter 296-62 WAC Part I-1 and must be conducted by an AHERA accredited inspector and performed in accordance with 40 C.F.R. 763, Subpart E.

(b) Good faith surveys must be shared with all employers and employees prior to using any structure.

(c) Materials containing >1% asbestos must be marked by a system recognized by all members. ACM/PACM may not be disturbed prior to, or during training, or must be removed by a certified asbestos abatement contractor prior to training activities. The incident safety officer for the training must walk all participants through the structure and inform them of the location of all ACM/PACM and that this material is

not to be disturbed. If the structure is used for a black-out drill, the incident safety officer must instruct members that ACM/PACM is present and take precautions to ensure these materials are not disturbed during the training. A walk through is not required for black-out drills.

(d) Destructive drilling must not occur in a structure until the fire department has received a good faith asbestos survey from the owner/agent and ensured that any ACM or PACM has been abated from substrates upon which destructive drill tasks are planned to be performed. All suspect asbestos materials designated for destructive drill tasks will be identified, evaluated and tested by an accredited AHERA lab.

(e) Materials containing < or = 1% asbestos must be labeled by a system recognized by all members. Prior to initiating any destructive drilling on materials containing < or = 1% asbestos, the incident safety officer for the training must walk all participants through the structure and inform them of the location of asbestos.

(f) Firefighters must wear SCBA and turnouts whenever exposed to asbestos.

(g) Firefighters must be provided gross decontamination at the drill site by rinsing/brushing the firefighters turnouts and SCBA with water.

(h) Hand tools and other asbestos contaminated equipment will be rinsed off prior to being returned to the apparatus or service. Tools and equipment that cannot be decontaminated on site must be placed in sealed containers until they can be decontaminated. Care must be taken to not spread the asbestos.

(i) PPE that may have been contaminated with asbestos must be cleaned in a manner recommended by the manufacturer and that prevents the exposure of the employee cleaning the PPE. PPE that cannot be cleaned on-site must be placed in sealed containers until they can be decontaminated.

(j) In structures scheduled for demolition, or that will be turned over to another employer, where < or = 1% asbestos has been disturbed, the fire department will provide written notice to the owner/agent that asbestos has been disrupted and remains on-site. The fire department will inform the owner/agent, in writing, that access to the property must be limited to the demolition or asbestos contractor.

(k) The fire department will secure the structure after all drills and at the conclusion of the use of the structure. Securing the structure may include but not be limited to, locking or boarding up windows, doors, and wall and roof openings. The site of the structure may also require fencing. When asbestos material of < or = 1% has been disturbed by the fire department's drill activities, the site will be posted with warning signs. These signs will notify entrants onto the site that asbestos debris of < or = 1% has been left on the site. For fire department members who plan to enter the structure or the building footprint, the signs will state the necessity of full turn-outs and SCBA with decontamination procedures. The signs will also state that entry into the building or the building footprint is prohibited by any persons other than the fire department and the demolition/abatement contractor.

(9) Additional training. Training must be provided on topics according to the job duties and potential hazards as outlined in Table 2, Subject Specific Training.

Table 2 Subject Specific Training	
Topic	**Training requirements found in:**
HEALTH AND SAFETY	
Noise and hearing loss prevention	• Chapter 296-817 WAC, Hearing loss prevention (noise) • WAC 296-305-02004
Respiratory equipment	• Chapter 296-842 WAC, Respirators • WAC 296-305-04001
Employee right-to-know procedures	• WAC 296-901-14016 Employee information and training
Identification and handling of asbestos-containing materials likely to be encountered during a fire response	• WAC 296-62-07722(5) as appropriate to asbestos encountered during a fire response, or EPA awareness level asbestos two hour training course
FIRE SUPPRESSION	
Overhaul procedures and operations	• WAC 296-305-05000 and 296-305-05002
Live fire training in structures	• NFPA 1403, Standard on Live Fire Training Evolutions, 2007 Edition
Wildland fires	• WAC 296-305-07010 through 296-305-07018 • The National Wildfire Coordination Group (NWCG) firefighter II • All training for assigned wildland incident command positions must be completed prior to assignment by the IC
INCIDENT MANAGEMENT	
Incident management training	• National Incident Management System • NFPA 1561, Standard on Emergency Services Incident Management System, 2008 edition (available on-line)
EMERGENCY MEDICAL	
Emergency medical training	• WAC 296-305-02501
HAZARDOUS MATERIALS	
Hazardous materials training	• Chapter 296-824 WAC, Emergency response • Nonconflicting portions of NFPA 472, Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents, 2008 edition
TECHNICAL RESCUE	
Confined space entry and/or rescue	• Chapter 296-809 WAC, Confined spaces

Table 2 Subject Specific Training	
Topic	**Training requirements found in:**
	• WAC 296-305-05004 • Nonconflicting portions of NFPA 1670, Standard on Operations and Training for Technical Rescue Incidents, 2004 edition • Nonconflicting portions of NFPA 1006, Professional Qualifications for Technical Rescue, 2008 edition
Other technical rescue situations, such as rope, structural collapse, transportation/ machinery, trench, water, and wilderness rescue	• NFPA 1670, Standard on Operations and Training for Technical Rescue Incidents, 2004 edition • Nonconflicting portions of NFPA 1006, Professional Qualifications for Technical Rescue, 2008 edition
POSITION SPECIFIC DEVELOPMENT	
Aircraft	• NFPA 402, Guide for Aircraft Rescue and Firefighting Operations, 2008 edition
Driver training	• WAC 296-305-04505(8)

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 18-22-116, § 296-305-05502, filed 11/6/18, effective 12/7/18; WSR 17-02-066, § 296-305-05502, filed 1/3/17, effective 2/3/17. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060 and 29 C.F.R. 1910.156, Fire brigades. WSR 13-05-070, § 296-305-05502, filed 2/19/13, effective 1/1/14.]

OTS-3717.1

AMENDATORY SECTION (Amending WSR 20-12-091, filed 6/2/20, effective 10/1/20)

WAC 296-155-54800 Design of platforms and suspension systems. (1) Employers that manufacture personnel platforms and/or their suspension systems must be designed, constructed and tested according to ASME B30.23-2005, Personnel Lifting Systems. The design and manufacturer's specifications must be made by a registered professional engineer. Personnel platforms manufactured prior to the effective of this section must comply with ASME B30.23-1998.

(2) Only the crane/derrick manufacturer may approve the design and installation procedures for platform mounting attachment points on lattice type boom cranes and lattice type boom extensions. The design

and installation procedures, for platform mounting attachment points on other types of cranes/derricks must be approved by their manufacturer or an RPE. All approvals must be in writing.

(3) Platform mounting attachments on the crane/derrick must be designed to protect against disengagement during lifting operation.

(4) The system used to connect the personnel platform to the equipment must allow the platform to remain within 10 degrees of level, regardless of boom angle.

(5) The suspension system must be designed to minimize tipping of the platform due to movement of employees occupying the platform.

(6) The personnel platform itself (excluding the guardrail system and personal fall arrest system anchorages), must be capable of supporting, without failure, its own weight and at least 5 times the maximum intended load.

(7) The personnel platform must be equipped with a guardrail system which meets the requirements of ((~~Part C-1 of this~~)) chapter 296-880 WAC, and must be enclosed at least from the toeboard to midrail with either solid construction material or expanded metal having openings no greater than one-half inch (1.27 cm). Points to which personal fall arrest systems are attached must meet the anchorage requirements in chapter 296-880 WAC, Unified safety standards for fall protection.

(8) You must install a grab rail inside the entire perimeter of the personnel platform except for access gates/doors.

(9) **Access gates/doors.** If installed, access gates/doors of all types (including swinging, sliding, folding, or other types) must:

(a) Not swing outward. If due to the size of the personnel platform, such as a one-person platform, it is infeasible for the door to swing inward and allow safe entry for the platform occupant, then the access gate/door may swing outward.

(b) Be equipped with a device that prevents accidental opening.

(10) Headroom must be sufficient to allow employees to stand upright in the platform.

(11) In addition to the use of hard hats, employees must be protected by overhead protection on the personnel platform when employees are exposed to falling objects. The platform overhead protection must not obscure the view of the operator or platform occupants (such as wire mesh that has up to one-half inch openings), unless full protection is necessary.

(12) All edges exposed to employee contact must be smooth enough to prevent injury.

(13) An identification plate must be located on the platform. The location must protect against damage and allow easy viewing from both interior (while hoisted) and exterior (while not hoisted) of the platform.

(14) The inspection plate must display the following information:

(a) Manufacturer's name and address;

(b) Platform rating in terms of weight and personnel;

(c) Platform identification number;

(d) Suspension system description for suspended platforms, or the intended crane/derrick manufacturer and model for boom attached platforms;

(e) Weight of the empty platform and its suspension system;

(f) Date the platform was manufactured;

(g) Certification of compliance to the design, construction, and testing requirements of ASME B30.23-2005, Personnel Lifting Systems;

(h) Listing of any unique operational environments for which the platform has been designed.

(15) For suspended platforms, the suspension system must be sized by the platform manufacturer, and its installed sling angle established, so as not to cause damage to the platform. Suspension systems must comply with the following:

(a) Hooks and other detachable devices.

(i) Hooks used in the connection between the hoist line and the personnel platform (including hooks on overhaul ball assemblies, lower load blocks, bridle legs, or other attachment assemblies or components) must be:

(A) Of a type that can be closed and locked, eliminating the throat opening.

(B) Closed and locked when attached.

(ii) Shackles used in place of hooks must be of the alloy anchor type, with either:

(A) A bolt, nut and retaining pin, in place; or

(B) Of the screw type, with the screw pin secured from accidental removal.

(iii) Where other detachable devices are used, they must be of the type that can be closed and locked to the same extent as the devices addressed in subsection (a) of this section. You must close and lock devices when attached.

(b) When a rope bridle is used to suspend the personnel platform, each bridle leg must be connected to a master link or shackle (see (a) of this subsection) in a manner that ensures that the load is evenly divided among the bridle legs.

(c) Eyes in wire rope slings shall be fabricated with thimbles.

(d) Wire rope sling suspension systems with pored socket end connections, if used, must be designed in accordance with the manufacturer's or qualified person's application instructions.

(e) All sling suspension systems must utilize a master link for attachment to the crane/derrick hook or bolt type shackle with cotter pin.

(f) You must not use synthetic webbing or natural or synthetic fiber rope slings for suspension systems.

(g) Suspension system legs must be designed and sized according to ASME B30.23-2005.

(h) Wire rope sling suspension systems must have each leg of the system permanently marked with the rated load of the leg. The master link in the system must be permanently marked with the suspension system's rated load and identification as a personnel lifting platform suspension component.

(i) Rigging hardware (including wire rope, shackles, rings, master links, and other rigging hardware) and hooks must be capable of supporting, without failure, at least 5 times the maximum intended load applied or transmitted to that component. A sling made from rotation resistant rope is prohibited.

(j) You must use bridles and associated rigging for suspending the personnel platform only for the platform and the necessary employees, their tools and materials necessary to do their work, and you must not use it for any other purpose when not hoisting personnel.

(16) Overhead protection, when provided for a platform, must allow for a clear view of the crane/derrick components directly overhead, from any position in the platform. Any openings designed in the overhead protection must not allow a sphere of greater than 0.5 in (13 mm) to pass through.

(17) All welding of the personnel platform and its components must be performed by a certified welder familiar with the weld grades, types and material specified in the platform design.

(18) Bolted connections of load sustaining members or components of the platform must be in accordance with the AISC Specification for Structural Joints Using ASTM A 325 or A 490 Bolts.

(19) You must provide a weatherproof compartment suitable for storage of the operator's manual and assorted other documents, or a weatherproof placard displaying the operator's manual, and readable from the platform, when motion controls that are operational from the platform are installed.

(20) Motion controls, if installed on the platform, must:

(a) Be clearly identified as to their function;

(b) Be protected from inadvertent actuation;

(c) Be inside the platform and readily accessible to the operator;

(d) When possible be oriented and move in the approximate direction of the function that they control;

(e) Return to their neutral position and stop all motion when released.

(21) Boom motion controls, if provided, must additionally:

(a) Include a control that must be continuously activated for controls to be operational;

(b) Include an emergency stop control that does not require continuous actuation for a stop condition;

(c) Have motion controls, accessible at ground level, that can override platform controls.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 20-12-091, § 296-155-54800, filed 6/2/20, effective 10/1/20. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 16-09-085, § 296-155-54800, filed 4/19/16, effective 5/20/16. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.440, 49.17.060, and 29 C.F.R. 1926, Subpart CC. WSR 12-01-086, § 296-155-54800, filed 12/20/11, effective 2/1/12.]

AMENDATORY SECTION (Amending WSR 20-12-091, filed 6/2/20, effective 10/1/20)

WAC 296-155-655 General protection requirements. (1) **Surface encumbrances.** You must remove or support surface encumbrances that are located so as to create a hazard to employees, as necessary, to safeguard employees.

(2) **Underground installations.**

(a) You must locate utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, prior to opening an excavation.

(b) You must contact utility companies or owners within established or customary local response times, advised of the proposed work, and asked to locate the underground utility installation prior to the start of actual excavation.

(c) When excavation operations approach the location of underground installations, you must determine the exact location of the installations by safe and acceptable means.

(d) While the excavation is open, you must protect underground installations, supported, or removed as necessary to safeguard employees.

(3) **Access and egress.**

(a) Structural ramps.

(i) Structural ramps that are used solely by employees as a means of access or egress from excavations must be designed by a competent person. Structural ramps used for access or egress of equipment must be designed by a competent person qualified in structural design, and must be constructed in accordance with the design.

(ii) Ramps and runways constructed of two or more structural members must have the structural members connected together to prevent displacement.

(iii) Structural members used for ramps and runways must be of uniform thickness.

(iv) Cleats or other appropriate means used to connect runway structural members must be attached to the bottom of the runway or must be attached in a manner to prevent tripping.

(v) Structural ramps used in lieu of steps must be provided with cleats or other surface treatments on the top surface to prevent slipping.

(b) Means of egress from trench excavations. A stairway, ladder, ramp or other safe means of egress must be located in trench excavations that are 4 feet (1.22 m) or more in depth so as to require no more than 25 feet (7.62 m) of lateral travel for employees.

(4) **Exposure to vehicular traffic.** You must provide employees exposed to vehicular traffic with, and they must wear, high-visibility garments meeting the requirements of WAC 296-155-200, General requirements for personal protective equipment (PPE).

(5) **Exposure to falling loads.** You must not permit any employee underneath loads handled by lifting or digging equipment. You must require employees to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with WAC 296-155-610 (2)(g), to provide adequate protection for the operator during loading and unloading operations.

(6) **Warning system for mobile equipment.** When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, you must utilize a warning system such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

(7) **Hazardous atmospheres.**

(a) Testing and controls. In addition to the requirements set forth in parts B-1((~~, C, and C-1~~)) and C of this chapter (296-155 WAC) and chapter 296-880 WAC to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements apply:

(i) Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, you must test the atmospheres in the excavation before employees enter excavations greater than 4 feet (1.22 m) in depth.

(ii) You must take adequate precautions to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation in accordance with chapter 296-842 WAC.

(iii) You must take adequate precaution such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 10 percent of the lower flammable limit of the gas.

(iv) When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, you must conduct testing as often as necessary to ensure that the atmosphere remains safe.

(b) Emergency rescue equipment.

(i) Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, must be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment must be attended when in use.

(ii) Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, must wear a harness with a lifeline securely attached to it. The lifeline must be separate from any line used to handle materials, and must be individually attended at all times while the employee wearing the lifeline is in the excavation.

Note: See chapter 296-62 WAC, Part M for additional requirements applicable to confined space operations.

(8) **Protection from hazards associated with water accumulation.**

(a) Employees must not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.

(b) If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations must be monitored by a competent person to ensure proper operation.

(c) If excavation work interrupts the natural drainage of surface water (such as streams), you must use diversion ditches, dikes, or other suitable means to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person and compliance with subdivisions (a) and (b) of this subsection.

(9) **Stability of adjacent structures.**

(a) Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, you must provide support systems such as shoring, bracing, or underpinning to ensure the stability of such structures for the protection of employees.

(b) You must not permit excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees except when:

(i) A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or

(ii) The excavation is in stable rock; or

(iii) A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or

(iv) A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

(c) Sidewalks, pavements, and appurtenant structure must not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

(10) **Protection of employees from loose rock or soil.**

(a) You must provide adequate protection to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection must consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.

(b) You must protect employees from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection must be provided by placing and keeping such materials or equipment at least two feet (.61 m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

(11) **Inspections.**

(a) Daily inspections of excavations, the adjacent areas, and protective systems must be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection must be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections must also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

(b) Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, you must remove exposed employees from the hazardous area until the necessary precautions have been taken to ensure their safety.

(12) **Fall protection.**

(a) You must provide walkways where employees or equipment are required or permitted to cross over excavations. You must provide guardrails which comply with chapter 296-880 WAC, Unified safety standards for fall protection where walkways are 4 feet or more above lower levels.

(b) You must provide adequate barrier physical protection at all remotely located excavations. You must barricade or cover all wells, pits, shafts, etc. Upon completion of exploration and similar operations, you must backfill temporary wells, pits, shafts, etc.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 20-12-091, § 296-155-655, filed 6/2/20, effective 10/1/20. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 16-09-085, § 296-155-655, filed 4/19/16, effective 5/20/16. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060 and 29 C.F.R. 1926, Subpart M, Fall Protection. WSR 13-04-073, § 296-155-655, filed 2/4/13, effective 4/1/13. Statuto-

ry Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 05-20-055, § 296-155-655, filed 10/3/05, effective 12/1/05; WSR 05-03-093, § 296-155-655, filed 1/18/05, effective 3/1/05; WSR 04-24-089, § 296-155-655, filed 12/1/04, effective 1/1/05. Statutory Authority: RCW 49.17.010, [49.17].040 and [49.17].050. WSR 99-17-094, § 296-155-655, filed 8/17/99, effective 12/1/99; WSR 99-10-071, § 296-155-655, filed 5/4/99, effective 9/1/99. Statutory Authority: RCW 49.17.040, [49.17].050 and [49.17].060. WSR 96-24-051, § 296-155-655, filed 11/27/96, effective 2/1/97. Statutory Authority: Chapter 49.17 RCW. WSR 95-10-016, § 296-155-655, filed 4/25/95, effective 10/1/95. Statutory Authority: Chapter 49.17 RCW and RCW 49.17.040, [49.17].050 and [49.17].060. WSR 92-22-067 (Order 92-06), § 296-155-655, filed 10/30/92, effective 12/8/92. Statutory Authority: Chapter 49.17 RCW. WSR 91-03-044 (Order 90-18), § 296-155-655, filed 1/10/91, effective 2/12/91. Statutory Authority: RCW 49.17.040 and 49.17.050. WSR 86-03-074 (Order 86-14), § 296-155-655, filed 1/21/86. Statutory Authority: RCW 49.17.040, 49.17.050 and 49.17.240. WSR 81-13-053 (Order 81-9), § 296-155-655, filed 6/17/81; Order 76-29, § 296-155-655, filed 9/30/76; Order 74-26, § 296-155-655, filed 5/7/74, effective 6/6/74.]

AMENDATORY SECTION (Amending WSR 16-09-085, filed 4/19/16, effective 5/20/16)

WAC 296-155-688 Vertical slip forms. (1) Slip forms must be designed and constructed, and the form movement carried out, under the immediate supervision of a person or persons experienced in slip form design and operation. Drawings prepared by a qualified engineer, showing the jack layout, formwork, working decks, and scaffolding, must be available at the job site, and followed.

(2) The steel rods or pipe on which the jacks climb or by which the forms are lifted must be designed for this purpose. Such rods must be adequately braced where not encased in concrete.

(3) Forms must be designed to prevent excessive distortion of the structure during the jacking operation.

(4) Vertical slip forms must be provided with scaffolding or work platforms completely encircling the area of placement.

(5) Jacks and vertical supports must be positioned in such a manner that the loads do not exceed the rated capacity of the jacks.

(6) The jacks or other lifting devices must be provided with mechanical dogs or other automatic holding devices to support the slip forms whenever failure of the power supply or lifting mechanism occurs.

(7) The form structure must be maintained within all design tolerances specified for plumbness during the jacking operation.

(8) Lifting must proceed steadily and uniformly and must not exceed the predetermined safe rate of lift. A jacking system, which provides precise, simultaneous movement of the entire form in small preselected increments, is recommended for large structures.

(9) Workers placing reinforcing steel must comply with the requirements of chapter ((~~296-155 WAC, Part C-1~~)) 296-880 WAC when working above the scaffold level.

(10) The total allowable load on slip form platforms must be determined by the design engineer and enforced by the field supervisor.

(11) Lateral and diagonal bracing of the forms must be provided to prevent excessive distortion of the structure during the sliding operation.

(12) While the slide is in operation, the form structure must be maintained in line and plumb.

(13) A field supervisor experienced in slip form construction must be present on the deck at all times.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 16-09-085, § 296-155-688, filed 4/19/16, effective 5/20/16; WSR 98-05-046, § 296-155-688, filed 2/13/98, effective 4/15/98. Statutory Authority: Chapter 49.17 RCW. WSR 91-03-044 (Order 90-18), § 296-155-688, filed 1/10/91, effective 2/12/91; WSR 89-11-035 (Order 89-03), § 296-155-688, filed 5/15/89, effective 6/30/89.]