



RULE-MAKING ORDER
(RCW 34.05.360)

CR-103 (7/22/01)

Agency: **State Building Code Council**

- Permanent Rule
- Emergency Rule
- Expedited Rule Making

(1) **Date of adoption:** **November 9, 2001**

(2) **Purpose:** To adopt, with state amendments, the 2000 Edition of the Uniform Plumbing Code published by the International Association of Plumbing and Mechanical Officials.

(3) **Citation of existing rules affected by this order:**

Repealed: **WAC 51-46, 51-47**
 Amended: **WAC 51-56, 51-57**
 Suspended:

(4) **Statutory authority for adoption:** RCW 19.27.031, 19.27.074
Other Authority:

PERMANENT RULE ONLY (Including Expedited Rule Making)

Adopted under notice filed as WSR 01-16-122 on July 31, 2001 (date).
Describe any changes other than editing from proposed to adopted version:

1. UPC Chapter 15, Firestop Protection for DWV and Stormwater Applications, filed as WAC 51-56-201300 (Appendix M), is not adopted.
2. UPC Chapter 11, Storm Drainage, filed as WAC 51-56-1500 (Chapter 15), is moved and adopted as an appendix chapter, WAC 51-56-201300 (Appendix M).
3. Reference to Underwriters Laboratories standards in Chapter 14 were updated as applicable.

EMERGENCY RULE ONLY

Under RCW 34.05.350 the agency for good cause finds:

- (a) That immediate adoption, amendment, or repeal of a rule is necessary for the preservation of the public health, safety, or general welfare, and that observing the time requirements of notice and opportunity to comment upon adoption of a permanent rule would be contrary to the public interest.
- (b) That state or federal law or federal rule or a federal deadline for state receipt of federal funds requires immediate adoption of a rule.

(5.3) **Any other findings required by other provisions of law as precondition to adoption or effectiveness of rule?:**

Yes No If Yes, explain:

(6) **Effective date of rule:**

Permanent Rules

- 31 days after filing
- Other (specify) 7-01-02*

Emergency Rules

- Immediately
- Later (specify) _____

*(If less than 31 days after filing, specific finding in 5.3 under RCW 34.05.380(3) is required)

CODE REVISER USE ONLY

Name (Type or Print)

Jim Lewis

Signature

Jim Lewis for Jim Lewis

Title: **Council Chair** Date: **December 18, 2001**

CODE REVISER USE ONLY

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STATE OF WASHINGTON

348

02-01-114

(COMPLETE REVERSE SIDE)

**Note: If any category is left blank, it will be calculated as zero.
No descriptive text.**

Count by whole WAC sections only, from the WAC number through the history note.
A section may be counted in more than one category.

The number of sections adopted in order to comply with:

Federal statute:	New	_____	Amended	_____	Repealed	_____
Federal rules or standards:	New	_____	Amended	_____	Repealed	_____
Recently enacted state statutes:	New	<u>2</u>	Amended	_____	Repealed	_____

The number of sections adopted at the request of a nongovernmental entity:

New	<u>5</u>	Amended	_____	Repealed	_____
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The number of sections adopted in the agency's own initiative:

New	<u>10</u>	Amended	_____	Repealed	<u>90</u>
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The number of sections adopted in order to clarify, streamline, or reform agency procedures:

New	_____	Amended	_____	Repealed	_____
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The number of sections adopted using:

Negotiated rule making:	New	_____	Amended	_____	Repealed	_____
Pilot rule making:	New	_____	Amended	_____	Repealed	_____
Other alternative rule making:	New	<u>24</u>	Amended	_____	Repealed	<u>90</u>

Chapter 51-56 WAC

STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE 2000 EDITION OF
THE UNIFORM PLUMBING CODE

NEW SECTION

WAC 51-56-001 Authority. These rules are adopted under the authority of chapter 19.27 RCW.

NEW SECTION

WAC 51-56-002 Purpose. The purpose of these rules is to implement the provisions of chapter 19.27 RCW, which provides that the state building code council shall maintain the State Building Code in a status which is consistent with the purpose as set forth in RCW 19.27.020. In maintaining the codes, the council shall regularly review updated versions of the codes adopted under the act, and other pertinent information, and shall amend the codes as deemed appropriate by the council.

NEW SECTION

WAC 51-56-003 Uniform plumbing code. The 2000 edition of the Uniform Plumbing Code, published by the International Association of Plumbing and Mechanical Officials, is hereby adopted by reference with the following additions, deletions and exceptions: Provided that Chapters 11, 12 and 15 of this code are not adopted. Provided further, that those requirements of the Uniform Plumbing Code relating to venting and combustion air of fuel fired appliances as found in Chapter 5 and those portions of the code addressing building sewers are not adopted.

NEW SECTION

WAC 51-56-007 Exceptions. The exceptions and amendments to the uniform codes contained in the provisions of chapter 19.27 RCW shall apply in cases of conflict with any of the provisions of these rules.

NEW SECTION

WAC 51-56-008 Implementation. The Uniform Plumbing Code adopted by chapter 51-56 WAC shall become effective in all counties and cities of this state on July 1, 2002, unless local government residential amendments have been approved by the state building code council.

NEW SECTION

WAC 51-56-0100 Chapter 1--Administration.

101.4.1.4 Conflict Between Codes. Delete paragraph.

102.4 Appeals. All persons shall have the right to appeal a decision of the administrative authority. The jurisdiction shall have a board of appeals to hear and rule on Plumbing Code appeals. Members of the board shall be appointed by the jurisdiction. Decisions by the board shall be reported to the jurisdiction and administered by the administrative authority.

103.1.3 Certification. State rules and regulations concerning certification shall apply.

NEW SECTION

WAC 51-56-0200 Chapter 2--Definitions.

205.0 Certified Backflow Assembly Tester - A person certified by the Washington state department of health under chapter 246-292 WAC to inspect (for correct installation and approval status) and test (for proper operation) approved backflow assemblies.

208.0 Flammable Vapor or Fumes is the concentration of flammable constituents in air that exceeds 10 percent of its lower

flammability limit (LFL).

218.0 Plumbing System - Includes all potable water building supply and distribution pipes, all plumbing fixtures and traps, all drainage and vent pipe(s), and all building drains including their respective joints and connection, devices, receptors, and appurtenances within the property lines of the premises and shall include potable water piping, potable water treating or using equipment, medical gas and medical vacuum systems, and water heaters: Provided, That no certification shall be required for the installation of a plumbing system within the property lines and outside a building.

NEW SECTION

WAC 51-56-0300 Chapter 3--General regulations.

301.1.1 Approvals. Unless otherwise provided for in this code, all materials, fixtures or devices used or entering into the construction of plumbing systems, or parts thereof, shall be submitted to the administrative authority for approval and shall conform to approved nationally recognized standards, and shall be free from defects. All pipe, fittings, traps, fixtures, material and devices used in a plumbing system shall be listed or labeled by a listing agency or shall be approved by the administrative authority.

301.1.3 Standards. Standards listed or referred to in this chapter and Table 14-1 cover materials that conform to the requirements of this code, when used in accordance with the limitations imposed in this or other chapters thereof and their listing. Where a standard covers materials of various grades, weights, quality, or configurations, there may be only a portion of the listed standard which is applicable. Design and materials for special conditions or materials not provided for herein are allowed to be used only by special permission of the administrative authority after the administrative authority has been satisfied as to their adequacy in accordance with Section 301.2.

311.4 Except as hereinafter provided in Sections 908.0, 909.0, 910.0, and Appendix L, Section L 6.0, no vent pipe shall be used as a soil or waste pipe, nor shall any soil or waste pipe be used as a vent.

313.6 No water, soil, or waste pipe shall be installed or permitted outside of a building or in an exterior wall unless, where necessary, adequate provision is made to protect such pipe from freezing. All hot and cold water pipes installed outside the conditioned space shall be insulated to a minimum R-3.

313.7 All pipe penetrating floor/ceiling assemblies and fire-

resistance rated walls or partitions shall be protected in accordance with the requirements of the building code.

316.1.6 Solvent Cement Plastic Pipe Joints. Plastic pipe and fittings designed to be joined by solvent cementing shall comply with this code and the manufacturer's installation instructions.

ABS pipe and fittings shall be cleaned and then joined with listed solvent cement(s).

CPVC and PVC pipe and fittings shall be cleaned and joined with listed primer(s) and solvent cement(s).

NEW SECTION

WAC 51-56-0400 Chapter 4--Plumbing fixtures and fixture fittings.

402.0 Water-Conserving Fixtures and Fittings.

402.1 The purpose of this section shall be to implement water conservation performance standards in accordance with RCW 19.27.170.

402.2 Application. This section shall apply to all new construction and all remodeling involving replacement of plumbing fixtures and fittings in all residential, hotel, motel, school, industrial, commercial use, or other occupancies determined by the council to use significant quantities of water. Plumbing fixtures, fittings and appurtenances shall conform to the standards specified in this section and shall be provided with an adequate supply of potable water to flush and keep the fixtures in a clean and sanitary condition without danger of backflow or cross-connection.

402.3 Water Efficiency Standards.

402.3.1 Standards for Vitreous China Plumbing Fixtures.

402.3.1.1 The following standards shall be adopted as plumbing materials, performance standards, and labeling standards for water closets and urinals. Water closets and urinals shall meet either the ANSI/ASME standards or the CSA standard.

ANSI/ASME A112.19.2M-1998	Vitreous China Plumbing Fixtures
ANSI/ASME A112.19.6- 1995	Hydraulic Requirements for Water Closets and Urinals
CSA B45	CSA Standards on Plumbing Fixtures

402.3.1.2 The maximum water use allowed in gallons per flush (gpf) or liters per flush (lpf) for any of the following water closets shall be the following:

Tank-type toilets	1.6 gpf/6.0 lpf
Flushometer-valve toilets	1.6 gpf/6.0 lpf
Flushometer-tank toilets	1.6 gpf/6.0 lpf
Electromechanical hydraulic toilets	1.6 gpf/6.0 lpf

EXCEPTIONS: 1. Water closets located in day care centers, intended for use by young children may have a maximum water use of 3.5 gallons per flush or 13.25 liters per flush.
 2. Water closets with bed pan washers may have a maximum water use of 3.5 gallons per flush or 13.25 liters per flush.
 3. Blow out bowls, as defined in ANSI/ASME A112.19.2M, Section 5.1.2.3 may have a maximum water use of 3.5 gallons per flush or 13.25 liters per flush.

402.3.1.3 The maximum water use allowed for any urinal shall be 1.0 gallons per flush or 3.78 liters per flush.

402.3.1.4 No urinal or water closet that operates on a continuous flow or continuous flush basis shall be permitted.

402.3.1.5 This section does not apply to fixtures installed before the effective date of this Section, that are removed and relocated to another room or area of the same building after the effective date of this Section.

402.3.2 Standards for Plumbing Fixture Fittings.

402.3.2.1 The following standards are adopted as plumbing material, performance requirements, and labeling standards for plumbing fixture fittings. Faucets, aerators, and shower heads shall meet either the ANSI/ASME standard or the CSA standard.

ANSI/ASME A112.18.1M-1996	Plumbing Fixture Fittings
CSA B125	Plumbing Fittings

402.3.2.2 The maximum water use allowed for any shower head is 2.5 gallons per minute or 9.5 liters per minute.

EXCEPTION: Emergency use showers shall be exempt from the maximum water usage rates.

402.3.2.3 The maximum water use allowed in gallons per minute (gpm) or liters per minute (lpm) for any of the following faucets and replacement aerators is the following:

Lavatory faucets	2.5 gpm/9.5 lpm
Kitchen faucets	2.5 gpm/9.5 lpm
Replacement aerators	2.5 gpm/9.5 lpm
Public lavatory faucets other than metering	0.5 gpm/1.9 lpm

402.4 Metering Valves. Lavatory faucets located in restrooms intended for use by the general public shall be equipped with a metering valve designed to close by spring or water pressure when left unattended (self-closing).

EXCEPTIONS: 1. Where designed and installed for use by persons with a disability.
 2. Where installed in day care centers, for use primarily by children under 6 years of age.

402.5 Implementation.

402.5.1 The standards for water efficiency and labeling contained within Section 402.3 shall be in effect as of July 1, 1993, as provided in RCW 19.27.170 and amended July 1, 1998.

402.5.2 No individual, public or private corporation, firm, political subdivision, government agency, or other legal entity, may, for purposes of use in the state of Washington, distribute, sell, offer for sale, import, install, or approve for installation any plumbing fixtures or fittings unless the fixtures or fittings meet the standards as provided for in this Section.

Sections 402.6 through 402.9 are not adopted.

412.2 Location of Floor Drains. Floor drains shall be installed in the following areas:

412.2.1 Toilet rooms containing two (2) or more water closets or a combination of one (1) water closet and one (1) urinal, except in a dwelling unit. The floor shall slope toward the floor drains.

412.2.2 Laundry rooms in commercial buildings and common laundry facilities in multi-family dwelling buildings.

413.0 Minimum Number of Required Fixtures. For minimum number of plumbing fixtures required, see Building Code Chapter 29 and Table 29-A.

Sections 413.1 through 413.7 and Table 4-1 are not adopted.

NEW SECTION

WAC 51-56-0500 Chapter 5--Water heaters.

501.0 General. The regulations of this chapter shall govern the construction, location, and installation of fuel burning and other water heaters heating potable water. The minimum capacity for water heaters shall be in accordance with the first hour rating listed in Table 5-1. See the Mechanical Code for combustion air and installation of all vents and their connectors. All design, construction, and workmanship shall be in conformity with accepted engineering practices, manufacturer's installation instructions, and applicable standards and shall be of such character as to secure the results sought to be obtained by this Code. No water heater shall be hereinafter installed which does not comply in all respects with the type and model of each size thereof approved by the administrative authority. A list of accepted gas equipment standards is included in Table 14-1.

Water heaters used for space heating only are prohibited.

TABLE 5-1^{1,3}

Number of Bathrooms	1 to 1.5			2 to 2.5				3 to 3.5			
	1	2	3	2	3	4	5	3	4	5	6
Number of Bedrooms											
First Hour Rating ² , Gallons	42	54	54	54	67	67	80	67	80	80	80

Notes:

¹The first hour rating is found on the "Energy Guide" label.

²Nonstorage and solar water heaters shall be sized to meet the appropriate first hour rating as shown in the table.

³For replacement water heaters, see Section 101.4.1.1.1.

502.1 Chimney - Delete definition.

502.2 Chimney Connector - Delete definition.

502.5 Direct Vent Appliance - Delete definition.

502.7 Unusually Tight Construction - Delete definition.

502.8 Vent - Delete definition.

502.9 Vent Collar - Delete definition

502.10 Vent Connector - Delete definition.

502.11 Venting System - Delete definition.

502.12 Venting Systems-Types - Delete definition.

504.1 Inspection of Chimneys or Vents. Delete paragraph.

505.0 Gas-Fired Water Heater Approval Requirements.

505.1 Gas fired water heaters shall conform to approved recognized applicable standards or to other standards acceptable to the administrative authority. Each such water heater shall bear the label of an approved testing agency, certifying and attesting that such equipment has been tested and inspected and meets the requirements of applicable standards.

505.2 Except when reconditioned by the manufacturer or the manufacturer's approved agent in accordance with its original approval requirements and reinstalled at its original location, each reconditioned water heater shall be tested for safety and conformity to approved standards, and shall bear the label of an approved testing agency certifying and attesting that such equipment has been tested and inspected and meets the requirements of applicable standards. Such label shall also state clearly that the water heater has been reconditioned, and shall give the name and address of the reconditioner. Every person applying for a permit to install a used or reconditioned water heater shall clearly state on the application for permit that such equipment is used or reconditioned.

505.3 Gas storage-type water heaters shall be provided with, in addition to the primary temperature controls, an over-temperature safety protection device constructed, listed, and installed in accordance with nationally recognized applicable standards for such devices and a combination temperature and pressure relief valve.

506.2 All storage-type water heaters deriving heat from fuels or types of energy other than gas, shall be provided with, in addition to the primary temperature controls, an over-temperature safety protection device constructed, listed, and installed in accordance with nationally recognized applicable standards for such devices and a combination temperature and pressure relief valve.

507.0 Combustion Air. For issues relating to combustion air, see the Mechanical Code.

Sections 507.1 through 507.5 are not adopted.

509.0 Prohibited Locations. Water heaters which depend on the combustion of fuel for heat shall not be installed in a room used or designed to be used for sleeping purposes, bathroom, clothes closets or in a closet or other confined space opening into a bath or bedroom.

- EXCEPTIONS:
1. Direct vent water heaters.
 2. Water heaters installed in a closet that has a weather-stripped solid door with an approved door closing device, and designed exclusively for the water heater and where all air for combustion and ventilation is supplied from the outdoors.
 3. Water heaters of the automatic storage type installed as a replacement in a bathroom, when specifically approved, properly vented and supplied with adequate combustion air.

Where not prohibited by other regulations, water heaters may be located under a stairway or landing.

512.0 Venting of Water Heaters Delete entire section.

513.0 Limitations. Delete entire section.

514.0 Vent Connectors. Delete entire section.

515.0 Location and Support of Venting System. Delete entire section.

516.0 Length Pitch and Clearance. Delete entire section.

517.0 Vent Termination. Delete entire section.

518.0 Area of Venting System. Delete entire section.

519.0 Multiple Appliance Venting. Delete entire section.

520.0 Existing Venting System. Delete entire section.

521.0 Draft Hoods. Delete entire section.

522.0 Gas Venting into Existing Masonry Chimneys. Delete entire section.

523.0 Chimney Connectors. Delete entire section.

524.0 Mechanical Draft Systems. Delete entire section.

525.0 Venting Through Ventilating Hoods and Exhaust Systems. Delete entire section.

NEW SECTION

WAC 51-56-0600 Chapter 6--Water supply and distribution.

603.0 Cross-Connection Control. Cross-connection control shall be provided in accordance with the provisions of this chapter. Devices or assemblies for protection of the public water system must be models approved by the department of health under WAC 246-

290-490. The administrative authority shall coordinate with the local water purveyor where applicable in all matters concerning cross-connection control within the property lines of the premises.

No person shall install any water operated equipment or mechanism, or use any water treating chemical or substance, if it is found that such equipment, mechanism, chemical or substance may cause pollution or contamination of the domestic water supply. Such equipment or mechanism may be permitted only when equipped with an approved backflow prevention device or assembly.

603.3.3 For devices and assemblies other than those regulated by the Washington department of health in conjunction with the local water purveyor for the protection of public water systems, the administrative authority shall ensure that the premise owner or responsible person shall have the backflow prevention assembly tested by a Washington state department of health certified backflow assembly tester:

- (1) At the time of installation, repair or relocation; and
- (2) At least on an annual schedule thereafter, unless more frequent testing is required by the administrative authority.

603.4.6.1 Potable water supplies to systems having no pumps or connections for pumping equipment, and no chemical injection or provisions for chemical injection, shall be protected from backflow by one of the following devices:

- (1) Atmospheric vacuum breaker.
- (2) Pressure vacuum breaker.
- (3) Reduced pressure backflow preventer.
- (4) A double check valve may be allowed when approved by the water purveyor and the administrative authority.
- (5) A spill proof pressure vacuum breaker may be allowed when approved by the water purveyor and the administrative authority.

603.4.13 Potable Water Supply to Carbonators shall be protected by a listed reduced pressure principle backflow preventer as approved by the administrative authority for the specific use.

603.4.18.1 Except as provided under Sections 603.4.18.2 and 603.4.18.3, potable water supplies to fire protection systems that are normally under pressure, including but not limited to standpipes and automatic sprinkler systems, except in one or two family residential flow-through or combination sprinkler systems piped in materials approved for potable water distribution systems, shall be protected from back-pressure and back-siphonage by one of the following testable devices:

1. Double check valve assembly.
2. Double check detector assembly.
3. Reduced pressure backflow preventer.
4. Reduced pressure detector assembly.

Potable water supplies to fire protection systems that are not normally under pressure shall be protected from backflow and shall meet the requirements of the appropriate standard(s) referenced in Table 14-1.

604.1 Water distribution pipe, building supply water pipe and fittings shall be of brass, copper, cast iron, galvanized malleable iron, galvanized wrought iron, galvanized steel or other approved materials. Except as provided in Section 604.13, asbestos-cement, CPVC, PE, PVC, or PEX water pipe materials manufactured to recognized standards may be used for cold water distribution systems outside a building. CPVC, PEX water pipe, tubing, and fittings, manufactured to recognized standards may be used for hot and cold water distribution systems within a building. Other products not listed in this section are acceptable for their intended use, provided that such materials or distribution systems are listed and approved in accordance with nationally recognized standards. All materials used in the water supply system, except valves and similar devices shall be of like material, except where otherwise approved by the administrative authority.

604.13 Plastic water service piping may terminate within a building, provided the connection to the potable water distribution system shall be made as near as is practical to the point of entry and shall be accessible. Barbed insert fittings with hose clamps are prohibited as a transition fitting within the building.

608.5 Relief valves located inside a building shall be provided with a drain, not smaller than the relief valve outlet, of galvanized steel, hard drawn copper piping and fittings, CPVC, or listed relief valve drain tube with fittings which will not reduce the internal bore of the pipe or tubing (straight lengths as opposed to coils) and shall extend from the valve to the outside of the building with the end of the pipe not more than two (2) feet (610 mm) nor less than six (6) inches (152 mm) above the ground or the flood level of the area receiving the discharge and pointing downward. Such drains may terminate at other approved locations. No part of such drain pipe shall be trapped or subject to freezing. The terminal end of the drain pipe shall not be threaded.

EXCEPTION: Replacement water heating equipment shall only be required to provide a drain pointing downward from the relief valve to extend between two feet (610 mm) and six inches (152 mm) from the floor. No additional floor drain need be provided.

610.4 Systems within the range of Table 6-5 may be sized from that table or by the method set forth in Section 610.5.

Listed parallel water distribution systems shall be installed in accordance with their listing.

NEW SECTION

WAC 51-56-0700 Chapter 7--Sanitary drainage.

701.1.2 ABS and PVC DWV piping installations shall be installed in accordance with IS 5, IS 9, and Appendix M "Firestop Protection for DWV and Stormwater Application." Except for individual single family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of not more than 25 and a smoke

developed index of not more than 50, when tested in accordance with the Test for Surface-Burning Characteristics of the Building Materials (See the Building Code standards based on ASTM E-84 and ANSI/UL 723).

704.3 Delete entire section.

710.3 The minimum size of any pump or any discharge pipe from a sump having a water closet connected thereto shall be not less than two (2) inches (52 mm).

Sections 710.3.1 through 710.3.3 are not adopted.

CHAPTER 7, PART II--BUILDING SEWERS

Part II Building Sewers. Delete all of Part II (Sections 713 through 723, and Tables 7-7 and 7-8).

NEW SECTION

WAC 51-56-0800 Chapter 8--Indirect wastes.

810.4 Strainers. Every indirect waste interceptor receiving discharge containing particles that would clog the receptor drain shall have a readily removable dome strainer.

NEW SECTION

WAC 51-56-0900 Chapter 9--Vents.

903.1.2 ABS and PVC DWV piping installations shall be installed in accordance with IS 5, IS 9, and Appendix M "Firestop Protection for DWV and Stormwater Application." Except for individual single family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of not more than 25 and a smoke developed index of not more than 50, when tested in accordance with the Test for Surface-Burning Characteristics of the Building Materials (see the Building Code standards based on ASTM E-84 and ANSI/UL 723).

NEW SECTION

WAC 51-56-1300 Chapter 13--Health care facilities and medical gas and vacuum systems.

1302 Medical Gas and Vacuum Piping Systems.

The installation of medical gas and vacuum piping systems shall be in accordance with the requirements of this chapter and/or the appropriate standards adopted by the administrative authority, for additional standards see Table 14-1. The administrative authority shall require evidence of the competency of the installers.

Part II Medical Gas and Vacuum Systems

1309.0 Scope.

1309.1 The provisions herein shall apply to the design, installation, testing, and verification of medical gas, medical vacuum systems, and related permanent equipment for safe use in patient care hospitals, clinics, and other health care facilities.

1309.2 The purpose of this chapter is to provide minimum requirements for the design, installation and verification of medical gas, medical vacuum systems, and related permanent equipment

1310.0 Definitions.

1310.1 Building Supply - The pipe from the source of supply to a building or structure.

1310.2 Critical Care Area - An area in a medical facility where special care is provided, including intensive care units, coronary care units, recovery rooms, and respiratory care units.

1310.3 Installer Performance Testing - Testing conducted by the installer or representative prior to system verification using oil-free, dry nitrogen as stated in Chapter 14.

1310.4 Manifold - A device for connecting outlets of one or more gas cylinders to the central piping system for that specific gas.

1310.5 Medical Air - Compressed air used in a medical facility.

1310.6 Medical Gas - Gases used in a medical facility, including oxygen, nitrous oxide, nitrogen, carbon dioxide, helium, medical air, and mixtures of these gases. Standards of purity apply.

1310.7 Medical Gas System - A system consisting of a central supply system (manifold, bulk, or compressors), including control equipment and piping extending to station outlets in the facility where medical gases may be required.

1310.8 Medical Vacuum System - A system consisting of central vacuum-producing equipment with vacuum switches and operating controls, shutoff valves, alarm warning systems, gauges, and a network of piping extending to and terminating with station inlets at locations where patient suction may be required. Includes

surgical vacuum systems, waste anesthesia gas disposal (as scavenging systems), and bedside suction systems.

1310.9 Purge, Flow - The removal of oxygen from a system by oil-free dry nitrogen during brazing.

1310.10 Purge, System - The removal of nitrogen from a system with the medical gas required for that system.

1310.11 SCFM - Standard cubic feet per minute, the unit measure for a volume of gas at standard conditions (68 degrees F (20 degrees C) and 1 atmosphere of pressure).

1310.12 Special Hazard Area - An area, such as a kitchen or electrical switch gear room.

1310.13 Station Inlet - An inlet in a vacuum piping system at which the user makes connections and disconnections.

1310.14 Station Outlet - An outlet point in a medical gas piping system at which the user makes connections and disconnections.

1310.15 System Verification - Testing conducted by a qualified party other than the installer or material vendor after the installer performance testing and prior to the medical gas system being put into service.

1310.16 Use Point - A room or area within a room, where medical gases are dispensed to a patient for medical purposes.

1310.17 User Outlet - See station outlet.

1310.18 Valve, Isolation - A valve which isolates one piece of equipment from another.

1310.19 Valve, Riser - A valve at the base of a vertical riser, which isolates that riser.

1310.20 Valve, Service - A valve serving horizontal piping extending from a riser to a station outlet or inlet.

1310.21 Valve, Source - A single valve at the source which controls a number of units that make up the total source.

1310.22 Valve, Zone - A valve which controls the gas or vacuum to a particular area.

1311.3 The administrative authority shall require evidence of the competency of the installers.

1311.4 Delete paragraph.

1313.0 System Installation and Installer Performance Testing.

1313.1 Medical gas and medical vacuum systems shall be designed and installed in accordance with the requirements of this chapter and the installation requirements of this code, specifically Chapter 14 of this code.

1313.2 A report of completion of the installer performance testing which includes the specific items in Chapter 14 shall be furnished

to the administrative authority prior to system verification.

1314.0 System Verification.

1314.1 Prior to any medical gas system being placed in service, each and every system shall be verified as described in Chapter 14. This verification shall be accomplished by an independent third party verification agency which is approved by the administrative authority.

1314.2 A report which includes at least the specific items in Chapter 14 shall be furnished to the administrative authority prior to final acceptance of the system.

Sections 1315 through 1331 are not adopted.

NEW SECTION

WAC 51-56-1400 Chapter 14--Referenced standards.

**TABLE 14-1
Standards for Materials, Equipment, Joints and Connections**

Where more than one standard has been listed for the same material or method, the relevant portions of all such standards shall apply.

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
AHAM DW-1-92	Household Electric Dishwashers	Appliances	
AHAM DW-2PR-86	Plumbing Requirements for Household Dishwashers	Appliances	
AHAM FWD-1-83	Food Waste Disposers	Appliances	
AHAM HLW-2 PR-86	Plumbing Requirements for Home Laundry Equipment Appliances		
ANSI A13.1-81(R93)	Scheme for the Identification of Piping Systems Piping		
ANSI A21.10-93	Ductile-Iron and Gray-Iron Fittings, 3 in. Through 48 in. (75 mm Through 1200 mm), for Water and Other Liquids (same as AWWA C110)	Piping, Ferrous	
ANSI A21.11-90	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings (same as AWWA C111)	Piping, Ferrous	
ANSI A21.51-91	Ductile-Iron Pipe, Centrifugally Cast, for Water (same as AWWA C151)	Piping, Ferrous	
ANSI A21.53-88	Ductile-Iron Compact Fittings, 3 in. Through 24 in. (76 mm Through 610 mm) and 54 in. Through 64 in. (1,400 mm Through 1,600 mm), for Water Service (same as AWWA C153)	Piping, Ferrous	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ANSI A40.3-93	Stainless steel	Piping, Ferrous	
ANSI A106.6-70	Vitrified Clay Pipe (now CSA A60.1M1976(C1992))	Piping, Nonmetallic	
ANSI A106.6-77	Silver brazing joints for wrought and cast bronze solder joint fittings	Joints	
ANSI A112.14.1-75 (R90)	Backwater Valves	Valves	
ANSI A112.19.5-79	Trim for Water-Closet Bowls, Tanks and Urinals	Fixtures	
ANSI A112.21.2M-83	Roof Drains	DWV Components	
ANSI A118.10-93	Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installations	Fixtures	
ANSI B2.1-90	Pipe Threads (Except Dryseal) (replaced by ASME B1.20.1-98)	Joints	
ANSI B125.1-84	Steel pipe (galvanized)	Piping, Ferrous	
ANSI B125.2-72	Steel pipe (galvanized)	Piping, Ferrous	
ANSI Z21.10.1a-94	Gas Water Heaters - Volume I - Storage Water Heaters with Input Ratings of 75,000 BTU per Hour or Less (22 kW)	Appliances	
ANSI Z21.10.1b-92	Gas Water Heaters - Volume I - Storage Water Heaters with Input Ratings of 75,000 BTU per Hour or Less (22 kW)	Appliances	
ANSI Z21.10.3-90	Gas Water Heaters - Volume III - Storage, with Input Ratings Above 75,000 Btu per Hour, Circulating and Instantaneous Water Heaters	Appliances	
ANSI Z21.10.3a-94	"	Appliances	
ANSI Z21.10.3b-92	"	Appliances	
ANSI Z21.12-90	Draft Hoods	Appliances	
ANSI Z21.13-91	Gas-Fired Low-Pressure Steam and Hot Water Boilers and Addenda	Appliances	
ANSI Z21.15-92	Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves	Valves	
ANSI Z21.22a-90	Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems	Valves	
ANSI Z21.24-93	Metal Connectors for Gas Appliances	Appliances	
ANSI Z21.41-89	Quick-Disconnect Devices for Use with Gas Fuel	Joints	
ANSI Z21.56-98	Gas Fired Pool Heaters	Swimming Pools and Spas	
ANSI Z21.69-1997 • CSA 6.16-M97	Connectors for Moveable Gas Appliances	Appliances	
ANSI Z21.70-81	Earthquake Actuated Automatic Gas Shutoff Systems (withdrawn from ANSI June, 1992)	Valves	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ANSI Z21.80-1997●CSA 6.22-M97	Line Pressure Regulators	Fuel Gas	
ANSI Z21.81-1997●CSA 6.25-M97	Cylinder Connection Devices	Fuel Gas	
ANSI Z21.86●CSA 2.32-M98	Vented Gas-Fired Space Heating Appliances	Appliances	
ANSI Z34.1-93	Certification - Third Party Certification Programs for Products, Processes, and Services	Certification	
ANSI Z124.1-95	Plastic Bathtub Units	Fixtures	
ANSI Z124.2-95	Plastic Shower Receptors and Shower Stalls	Fixtures	
ANSI Z124.3-95	Plastic Lavatories	Fixtures	
ANSI Z124.4-96	Plastic Water Closet Bowls and Tanks	Fixtures	
ANSI Z124.5-97	Plastic Toilet (Water Closet) Seats	Fixtures	
ANSI Z124.6-97	Plastic Sinks	Fixtures	
ANSI Z124.7-97	Prefabricated Plastic Spa Shells	Fixtures	
ANSI Z124.8-90	Plastic Bathtub Liners	Fixtures	
ANSI Z124.9-94	Plastic Urinal Fixtures (Note 1)	Fixtures	
ANSI Z223.1-99	National Fuel Gas Code	Fuel Gas	
ARI 1010-84	Drinking-Fountains and Self-Contained, Mechanically-Refrigerated Drinking Water Coolers	Appliances	
ASHRAE 90.1-89	Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings	Miscellaneous	
ASME A112.1.2-96	Air Gaps in Plumbing Systems	Piping	
ASME A112.3.1-93	Stainless Steel Drainage Systems for Sanitary Storm and Chemical Application, Above and Below Ground (Note 1)	Piping, Ferrous	X
ASME A112.4.1-93	Water Heater Relief Valve Drain Tubes	Appliances	
ASME A112.6.1M-97	Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use	Fixtures	
ASME A112.18.1M-96	Plumbing Fixture Fittings	Valves	
ASME A112.18.6-99	Flexible Water Connectors	Piping	
ASME A112.18.3-96	Performance Requirements for Backflow Protection Devices and Systems in Plumbing Fixture Fittings (Note 8)	Valves	
ASME A112.19.1M-94	Enameled Cast Iron Plumbing Fixtures (Supplement 1-1998)	Fixtures	
ASME A112.19.2M-98	Vitreous China Plumbing Fixtures	Fixtures	
ASME A112.19.3M-87	Stainless Steel Plumbing Fixtures (Designed for Residential Use)	Fixtures	
ASME A112.19.4M-94	Porcelain Enameled Formed Steel Plumbing Fixtures (Supplement 1-1998)	Fixtures	
ASME A112.19.6-95	Hydraulic Performance Requirements for Water Closets and Urinals	Fixtures	
ASME A112.19.7M-95	Whirlpool Bathtub Appliances	Fixtures	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ASME A112.19.8M-87	Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Whirlpool Bathtub Appliances	Swimming Pools and Spas	
ASME A112.19.9M-91	Nonvitreous Ceramic Plumbing Fixtures	Fixtures	
ASME A112.21.1M-91	Floor Drains (Note 1)	DWV	
ASME A112.21.3M-85	Hydrants for Utility and Maintenance Use (Note 1)	Components Valves	
ASME A112.26.1M-84	Water Hammer Arresters	Piping	
ASME A112.36.2M-91	Cleanouts (Note 1)	DWV Components	
ASME B1.20.1-83 (R1992)	Pipe Threads, General Purpose (Inch)	Joints	
ASME B1.20.3-76 (R82/91/98)	Dryseal Pipe Threads, Inch	Joints	
ASME B16.1-89	Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800	Piping, Ferrous	
ASME B16.3-92	Malleable-Iron Threaded Fittings	Piping, Ferrous	
ASME B16.4-92	Gray Iron Threaded Fittings (includes Revision Services)	Piping, Ferrous	
ASME B16.5-88	Pipe Flanges and Flanged Fittings	Joints	
ASME B16.12-91	Iron Threaded Drainage Fittings (Note 1)	Piping, Ferrous	
ASME B16.15-85 (R1994)	Cast Bronze Threaded Fittings, Classes 125 and 250	Piping, Copper Alloy	
ASME B16.18-84	Cast Copper Alloy Solder Joint Pressure Fittings (Note 1)	Piping, Copper Alloy	
ASME B16.21-92	Nonmetallic Flat Gaskets for Pipe Flanges	Joints	
ASME B16.22-95	Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings Alloy	Piping, Copper	
ASME B16.23-92	Cast Copper Alloy Solder Joint Drainage Fittings - DWV Alloy	Piping, Copper	
ASME B16.24-91	Cast Copper Alloy Pipe Flanges and Flanged Fittings Alloy	Piping, Copper	
ASME B16.26-88	Cast copper alloy fittings for flared copper tubes Alloy	Piping, Copper	
ASME B16.29-86	Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings-DWV Alloy (Note 1)	Piping, Copper	
ASME B16.32-92	Cast Copper Alloy Solder Joint Fittings for Solvent Drainage Systems Alloy	Piping, Copper	
ASME B16.33-90	Manually Operated Metallic Gas Valves for Use in Gas Piping Systems up to 125 psig.	Valves	
ASME B16.34-88	Valves – Flanged, Threaded and Welding End	Valves	
ASME B16.38-85	Large Metallic Valves for Gas Distribution (Manually Operated, NPS 2-1/2 to 12, 125 psig Maximum)	Valves	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ASME B16.39-86	Pipe Unions, Malleable Iron Threaded (Includes Revision (R1994) Services)	Piping, Ferrous	
ASME B16.47-90	Large Diameter Steel Flanges	Piping, Ferrous	
ASME B36.10M-85	Welded and Seamless Wrought Steel Pipe	Piping, Ferrous	
ASME Section IX	Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators	Certification	
ASSE 1001-90	Pipe Applied Atmospheric-Type Vacuum Breakers	Backflow Protection	
ASSE 1002-86	Water Closet Flush Tank Ballcocks	Backflow Protection	
ASSE 1003-95	Water Pressure Reducing Valves for Domestic Water Supply Systems	Valves	
ASSE 1004-90	Backflow Prevention Requirements for Commercial Dishwashing Machines	Backflow Protection	
ASSE 1006-89	Residential Use Dishwashers	Appliances	
ASSE 1007-92	Home Laundry Equipment	Appliances	
ASSE 1008-89	Household Food Waste Disposer Units	Appliances	
ASSE 1009-90	Commercial Food Waste Grinder Units	Appliances	
ASSE 1010-98	Performance Requirements for Water Hammer Arrestors	Piping	
ASSE 1011-95	Hose-Connection Vacuum Breakers	Backflow Protection	
ASSE 1013-93	Reduced Pressure Principle Backflow Preventers	Backflow Protection	
ASSE 1014-90	Hand-Held Showers	Fixtures	
ASSE 1015-93	Double Check Backflow Prevention Assembly	Backflow Protection	
ASSE 1016-96	Individual, Thermostatic Pressure Balancing and Thermostatic Control Valves for Individual Fixtures	Valves	
ASSE 1017-86	Thermostatic Mixing Valves, Self Actuated for Primary Domestic Use	Valves	
ASSE 1018-86	Trap Seal Primer Valves (water supply fed)	Valves	
ASSE 1019-95	Performance Requirements for Vacuum Breaker Wall Hydrant, Freeze Resistant Automatic Draining Type	Backflow Protection	
ASSE 1020-90	Pressure Vacuum Breaker Assembly	Backflow Protection	
ASSE 1021-77	Dishwasher Air Gaps for Domestic Dishwasher Applications	Backflow Protection	
ASSE 1023-79	Hot Water Dispensers Household Storage Type Electrical	Appliances	
ASSE 1025-78	Diverters for Plumbing Faucets with Hose Spray, Anti-Siphon Type, Residential Applications	Valves	
ASSE 1028-81	Automatic Flow Controllers	Valves	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ASSE 1032-80	Dual Check Valve Type Backflow Preventers for Carbonated Beverage Dispensers - Post Mix Types	Backflow Protection	X
ASSE 1034-81	Fixed Flow Restrictors	Piping	
ASSE 1035-95	Laboratory Faucet Backflow Preventer	Backflow Protection	
ASSE 1037-90	Pressurized Flushing Devices (Flushometers) for Plumbing Fixtures	Backflow Protection	
ASSE 1052-94	Hose Connection Backflow Preventers	Backflow Protection	
ASSE 1055-97	Chemical Dispensing Systems	Backflow Protection	
ASSE 1056-95	Back Siphonage Backflow Vacuum Breakers	Backflow Protection	
ASSE 1062-97	Temperature Actuated, Flow Reduction Valves for Individual Fixture Fittings	Valves	
ASSE 1066-97	Individual Pressure Balancing In-Line Valves for Individual Fixture Fittings (Note 9)	Valves	
ASSE 6000-98	Medical Gas Systems Installers, Inspectors and Verifiers	Certification	
ASTM A 47-90 (R95)	Ferritic Malleable Iron Castings	Piping, Ferrous	
ASTM A 53-96 (97)	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded, and Seamless	Piping, Ferrous	
ASTM A 74-98	Cast Iron Soil Pipe and Fittings (Note 1)	Piping, Ferrous	
ASTM A 120-84 [D]	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, (Galvanized) Welded, and Seamless for Ordinary Uses (replaced by A 53)	Piping, Ferrous	
ASTM A 126-95	Gray Iron Castings for Valves, Flanges, and Pipe Fittings	Piping, Ferrous	
ASTM A 197-87 (R-92)	Cupola Malleable Iron [Metric]	Piping, Ferrous	
ASTM A 312-93	Seamless and Welded Austenitic Stainless Steel Pipes	Piping, Ferrous	
ASTM A 377-95	Ductile-Iron Pressure Pipe	Piping, Ferrous	
ASTM A 518-92 ^{e1}	Corrosion-Resistant High-Silicon Iron Castings [Metric]	Piping, Ferrous	
ASTM A 536-84(R-93)	Ductile Iron Castings	Piping, Ferrous	
ASTM A 653-96	Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process	Piping, Ferrous	
ASTM A 733-93	Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples	Piping, Ferrous	
ASTM A 861-94 ^{e1}	High-Silicon Iron Pipe and Fittings (Note 1)	Piping, Ferrous	
ASTM B 29-92	Pig Lead	Joints	
ASTM B 32-96	Solder Metal (Note 4)	Joints	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ASTM B 42-96	Seamless Copper Pipe, Standards Sizes	Piping, Copper Alloy	
ASTM B 43-96	Seamless Red Brass Pipe, Standards Sizes	Piping, Copper Alloy	
ASTM B 75-95a	Seamless Copper Tube	Piping, Copper Alloy	
ASTM B 88-96	Seamless Copper Water Tube	Piping, Copper Alloy	
ASTM B 135-96	Seamless Brass Tube	Piping, Copper Alloy	
ASTM B 152-97	Copper Sheet, Strip, Plate, and Rolled Bar	Miscellaneous	
ASTM B 251-97	General Requirements for Wrought Seamless Copper-Copper Alloy Tube	Piping, Copper Alloy	
ASTM B 280-95a	Seamless Copper Tube for Air Conditioning and Refrigeration Field Service	Piping, Copper Alloy	
ASTM B 302-97	Threadless Copper Pipe	Piping, Copper Alloy	
ASTM B 306-96	Copper Drainage Tube (DWV)	Piping, Copper Alloy	
ASTM B 370-92 ^{el}	Copper Sheet and Strip for Building Construction	Miscellaneous	
ASTM B 447-97	Welded Copper Tube	Piping, Copper Alloy	
ASTM B 584-96	Copper Alloy Sand Casting for General Applications (Note 5)	Piping, Copper Alloy	
ASTM B 587-96	Welded Brass Tube	Piping, Copper Alloy	
ASTM B 641-93	Seamless and Welded Copper Distribution Tube (Type D)	Piping, Copper Alloy	
ASTM B 642-88 [D]	Welded Copper Alloy UNS C21000 Water Tube (discontinued 1994)	Piping, Copper Alloy	
ASTM B 687-96	Brass, Copper, and Chromium-Plated Pipe Nipples	Piping, Copper Alloy	
ASTM B 716-93 [D]	Welded Copper Water Tube (discontinued 1994)	Piping, Copper Alloy	
ASTM B 813-93	Liquid and Paste Fluxes for Soldering Applications of Copper and Copper Alloy Tube	Joints	
ASTM B 819-95	Seamless Copper Tube for Medical Gas Systems	Piping, Copper Alloy	
ASTM B 828-92 ^{el}	Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings	Joints	
ASTM C 14-95	Concrete Sewer, Storm Drain and Culvert Pipe	Piping, Nonmetallic	
ASTM C 296-93	Asbestos-Cement Pressure Pipe	Piping, Nonmetallic	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ASTM C 412-94	Concrete Drain Tile	Piping, Nonmetallic	
ASTM C 425-96	Compression Joints for Vitrified Clay Pipe and Fittings	Joints	
ASTM C 428-92	Asbestos-Cement Nonpressure Sewer Pipe (Notes 6 & 7)	Piping, Nonmetallic	
ASTM C 443-94	Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets	Joints	
ASTM C 478-96	Precast Reinforced Concrete Manholes Sections	Miscellaneous	
ASTM C 564-95a	Rubber Gaskets for Cast Iron Soil Pipe and Fittings (Note 1)	Joints	
ASTM C 700-96	Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated	Piping, Nonmetallic	
ASTM C 1053-90 (R95)	Borosilicate Glass Pipe and Fittings for Drain, Waste and Vent (DWV) Applications (Note 1)	Piping, Nonmetallic	
ASTM C 1173-95	Flexible Transition Couplings for Underground Piping Systems	Joints	
ASTM C 1277-94	Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings	Piping, Ferrous	
ASTM D 396-97	Specification for Fuel Oil	Miscellaneous	
ASTM D 1527-96a	Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe Sch. 40 and 80	Piping, Plastic	
ASTM D 1785-96a ¹	Poly (Vinyl Chloride) (PVC) Plastic Pipe Sch. 40, 80 and 120	Piping, Plastic	
ASTM D 1869-95	Rubber O-rings for Asbestos-Cement Pipe	Joints	
ASTM D 2104-95	Polyethylene (PE) Plastic Pipe, Sch. 40	Piping, Plastic	
ASTM D 2146-82 [D]	Polypropylene Plastic Molding and Extrusion Materials (replaced by ASTM D 4101)	Piping, Plastic	
ASTM D 2235-96a	Solvent cement for Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe and fittings	Joints	
ASTM D 2239-96a	Polyethylene (PE) Plastic Pipe, (SDR-PR) Based on Controlled Inside Diameter	Piping, Plastic	
ASTM D 2241-96a	Poly(Vinyl Chloride) (PVC) Pressure-Rated pipe (SDR Series)	Piping, Plastic	
ASTM D 2282-96a	Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (SDR-PR)	Piping, Plastic	
ASTM D 2321-89 (R95)	Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications	Piping, Plastic	
ASTM D 2447-95	Polyethylene (PE) Plastic Pipe, Sch. 40 and 80 Based on Controlled Outside Diameter	Piping, Plastic	
ASTM D 2464-96a	Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Sch. 80 (Note 1)	Piping, Plastic	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ASTM D 2465-73[D]	Threaded Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe Fittings, Schedule 80 (discontinued 1986)	Piping, Plastic	
ASTM D 2466-96a	Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Sch. 40 (Note 1)	Piping, Plastic	
ASTM D 2467-96a	Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Sch, 80 (Note 1)	Piping, Plastic	
ASTM D 2468-96a	Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe Fittings (Sch. 40)	Piping, Plastic	
ASTM D 2469-76[D]	Socket-Type Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe Fittings, Schedule 80 (discontinued 1986)	Piping, Plastic	
ASTM D 2513-96a	Thermoplastic Gas Pressure Pipe Tubing, and Fittings (Note 1)	Piping, Plastic	
ASTM D 2564-96a	Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems	Joints	
ASTM D 2609-96a	Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe (Note 1)	Piping, Plastic	
ASTM D 2657-96	Practice for Heating Fusion Joining of Polyolefin Pipe and Fittings	Joints	
ASTM D 2661-96	Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 Plastic Drain, Waste and Vent Pipe and Fittings (Note 1)	Piping, Plastic	
ASTM D 2665-97a	Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste and Vent Pipe and Fittings	Piping, Plastic	
ASTM D 2672-96a	Joints for IPS PVC Pipe Using Solvent Cement	Joints	
ASTM D 2680-95a	Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Composite Sewer Piping	Piping, Plastic	
ASTM D 2729-96	Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings (Note 1)	Piping, Plastic	
ASTM D 2737-96a	Polyethylene (PE) Plastic Tubing	Piping, Plastic	
ASTM D 2740-89 e1 [D]	Poly (Vinyl Chloride) (PVC) Plastic Tubing (discontinued 1991)	Piping, Plastic	
ASTM D 2751-96	Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings (Note 1)	Piping, Plastic	
ASTM D 2846-96a	Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems	Piping, Plastic	
ASTM D 2855-96	Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings	Joints	
ASTM D 2996-95	Filament-Wound Fiberglass (Glass-Fiber-Reinforced Thermosetting Resin) pipe	Piping, Plastic	
ASTM D 3033-85 [D]	Type PSP Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings (discontinued 1989)	Piping, Plastic	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ASTM D 3034-96	Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings	Piping, Plastic	
ASTM D 3036-73[D]	Poly (Vinyl Chloride) (PVC) Plastic Line Couplings (discontinued 1986)	Piping, Plastic	
ASTM D 3065-94	Rigid Acrylonitrile-Butadiene-Styrene (ABS) Materials for Pipe and Fittings	Piping, Plastic	
ASTM D 3122-95	Solvent Cements for Styrene-Rubber (SR) Plastic Pipe and Fittings	Joints	
ASTM D 3139-96a	Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals	Joints	
ASTM D 3140-90	Flaring Polyolefin Pipe and Tubing	Joints	
ASTM D 3212-96a	Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals	Joints	
ASTM D 3298-81 [D]	Perforated Styrene-Rubber (SR) Plastic Drain Pipe (discontinued 1989)	Piping, Plastic	
ASTM D 3311-94	Drain, Waste, and Vent (DWV) Plastic Fittings Patterns (Note 1)	Piping, Plastic	
ASTM D 3965-94	Rigid Acrylonitrile-Butadiene-Styrene (ABS) Compounds for Pipe and Fittings	Piping, Plastic	
ASTM D 4068-96 e1	Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-Containment Membrane	Fixtures	
ASTM D 4101-96a	Propylene Plastic Injection and Extrusion Materials	Miscellaneous	
ASTM D 4551-96	Poly(Vinyl Chloride) (PVC) Plastic Flexible Concealed Water-Containment Membrane	Fixtures	
ASTM E 84-97a	Standard Test Method for Surface Burning Characteristics of Building Materials	Miscellaneous	
ASTM E 119-97	Standard Test Method for Fire Tests of Building Construction and Materials	Miscellaneous	
ASTM E 814-94b	Standard Test Method for Fire Tests of Through-Penetration Fire Stops	Miscellaneous	
ASTM F 402-93	Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings	Joints	
ASTM F 405-96	Corrugated polyethylene (PE) Tubing and Fittings	Piping, Plastic	
ASTM F 409-96a	Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings (Note 1)	Piping, Plastic	
ASTM F 437-96a	Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Sch. 80	Piping, Plastic	
ASTM F 438-96a	Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Sch. 40	Piping, Plastic	
ASTM F 439-96b	Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Sch. 80	Piping, Plastic	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ASTM F 441-96b	Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Sch. 40 and 80	Piping, Plastic	
ASTM F 442-96b	Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR)	Piping, Plastic	
ASTM F 443-77 e1 [D]	Bell-End Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe, Schedule 40 (discontinued 1987)	Piping, Plastic	
ASTM F 480-95	Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR) Schedule 40 and Schedule 80	Piping, Plastic	
ASTM F 493-97	Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe and Fittings	Joints	
ASTM F 628-96	Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 Plastic Drain, Waste and Vent Pipe with a Foam Core (Notes 1 & 3)	Piping, Plastic	
ASTM F 656-96a	Primers for Use in Solvent Cement Joints of Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings	Joints	
ASTM F 667-95	Large Diameter Corrugated Polyethylene Tubing and Fittings	Piping, Plastic	
ASTM F 789-95a	Type PS-46 and type PS-115 Poly(Vinyl Chloride) (PVC) Plastic Gravity Flow Sewer Pipe and Fittings (Note 1)	Piping, Plastic	
ASTM F 794-95a	Poly(Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter	Piping, Plastic	
ASTM F 810-93	Smoothwall Polyethylene (PE) Pipe for Use in Drainage and Waste Disposal Absorption Fields	Piping, Plastic	
ASTM F 845-95	Plastic Insert Fittings For Polybutylene (PB) Tubing	Piping, Plastic	X
ASTM F 876-97	Crosslinked Polyethylene (PEX) Tubing	Piping, Plastic	
ASTM F 877-96a	Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems	Piping, Plastic	
ASTM F 891-96	Coextruded Poly(Vinyl Chloride) (PVC) Plastic Pipe with a Cellular Core	Piping, Plastic	
ASTM F 949-96a	Poly(Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings	Piping, Plastic	
ASTM F 1216-93	Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube	Piping, Plastic	
ASTM F 1281-98	Crosslinked Polyethylene/ Aluminum/ Crosslinked Polyethylene (PEX-Al-PEX) Pressure Pipe	Piping, Plastic	X
ASTM F 1282-98	Polyethylene/ Aluminum/ Polyethylene (PE-Al-PE) Composite Pressure Pipe	Piping, Plastic	X

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
ASTM F 1412-96	Polyolefin Pipe and Fittings for Corrosive Waste Drainage Systems	Piping, Plastic	
ASTM F 1673-95	Polyvinylidene Fluoride (PVDF) Corrosive Waste Drainage Systems	Piping, Plastic	
ASTM F 1743-96	Rehabilitation of Existing Pipelines and Conduits by Pulled-In-Place Installation of Cured-In-Place Thermosetting Resin Pipe (CIPP)	Piping, Plastic	
ASTM F 1807-97	Metal Insert Fittings w/ Copper Crimp Ring for SDR 9 Crosslinked Polyethylene (PEX) tubing	Piping, Plastic	
ASTM F 1866-98	Poly (Vinyl Chloride) PVC Schedule 40 Drainage and DWV Fabricated Fittings	Piping, Plastic	
ASTM F 1960-99	Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) Tubing	Piping, Plastic	
ASTM F 1961-99	Metal Cold Flare Compression Fittings with Disk Springs for Cross Linked Polyethylene (PEX) Tubing	Piping, Plastic	
ASTM F 1974-99	Metal Insert Fittings for Polyethylene/Aluminum/Polyethylene and Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene Composite Pressure Pipe	Piping, Plastic	
AWS A5.8-92	Filler Metals for Brazing and Braze Welding Joints AWS B2.2-91 Brazing Procedure and Performance Qualification	Certification	
AWS B2.2-91	Brazing Procedure and Performance Qualification	Certification	
AWWA C110	Ductile-Iron and Gray-Iron Fittings, 3 in. Through 48 in. (75 mm Through 1200 mm), for Water and Other Liquids (same as ANSI A21.10-93)	Piping, Ferrous	
AWWA C111	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings (same as ANSI A21.11-90)	Piping, Ferrous	
AWWA C151	Ductile-Iron Pipe, Centrifugally Cast, for Water (same as ANSI A21.51-91)	Piping, Ferrous	
AWWA C153	Ductile-Iron Compact Fittings, 3 in. Through 24 in. (76 mm Through 610 mm) and 54 in. Through 64 in. (1,400 mm Through 1,600 mm), for Water Service (same as ANSI A21.53-88)	Piping, Ferrous	
AWWA C203-91	Coal-Tar Protective Coatings and Linings for Steel Water Pipelines - Enameled and Tape - Hot Applied Piping AWWA C213-96 Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines	Piping, Ferrous	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
AWWA C213-96	Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines	Piping, Ferrous	
AWWA C215-94	Extruded Polyolefin Coatings for the Exterior of Steel Water Pipelines	Piping, Ferrous	
AWWA C400-93	Asbestos-Cement Distribution Pipe, 4 in. Through 16 in. (100 mm Through 400 mm) for Water Distribution Systems	Piping, Nonmetallic	
AWWA C500-93	Metal-Seated Gate Valves for Water Supply Service	Valves	
AWWA C504-88	Rubber-Seated Butterfly Valves	Valves	
AWWA C507-91	Ball Valves, 6 in. Through 48 in. (152 mm Through 1200 mm)	Valves	
AWWA C510-92	Double Check Valve Backflow-Prevention Assembly	Backflow Protection	
AWWA C511-92	Reduced-Pressure Principle Backflow-Prevention Assemblies	Backflow Protection	
AWWA C606-87	Grooved and Shouldered Joints	Joints	
AWWA C900-89	Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. Through 12 in., for Water Distribution	Piping, Plastic	
AWWA C901-88	Polyethylene (PE) Pressure Pipe and Tubing, 1/2 in. (13 mm) Through 3 in. (76 mm), for Water	Piping, Plastic	
AWWA C902-88	Polybutylene (PB) Pipe, Tubing, and Fittings, 1/2 in. Through 3 in., for Water	Piping, Plastic	X
CABO A117.1-92	Specifications to Make Buildings and Facilities Accessible and Usable	Miscellaneous	
CISPI 301-97	Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications (Note 1)	Piping, Ferrous	
CISPI HSN-85	Neoprene Rubber Gaskets for Hub and Spigot Cast Iron Soil Pipe and Fittings	Joints	
CISPI 310-97	Couplings for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications	Joints	
FS A-A-51145C	Flux, Soldering, Nonelectronic, Paste and Liquid	Joints	
FS K65.59-71	Acrylonitrile-Butadiene-Styrene (ABS) sewer pipe and fittings	Piping, Plastic	
FS M265-811	Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	Piping, Plastic	
FS O-F-499D-85	Flux brazing	Joints	
FS O-F-506C-72 (D)	Flux, soldering	Joints	
FS OO-L-201 f-70	Shower pans-sheet lead, grade B, 4 lb. min.	Miscellaneous	
FS QQ-R-571C-69 [D]	Copper and nickel alloys (rods)	Miscellaneous	
FS TT-S-1732-71	Seal compound pipe joint and thread	Joints	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
FS WW-P 325B-76	Lead pipe and bends	Piping	
FS WW-P-521F-77	Copper alloy (bronze) unions	Piping, Copper Alloy	
FS WW-P-541-E-Gen.1980	Plumbing fixtures, general specification	Fixtures	
FS WW-U-516A-74(b)	Copper alloy (bronze) unions	Piping, Copper Alloy	
FS WW-V-54d	Valve, Gate, Bronze (125, 150 and 200 Pound, Screwed Flange, Solder-End, for Land Use)	Valves	
FS WW-V 58b	Valves, Gate, Cast Iron; 125 and 250-Pound, Screwed and Flanged (for Land Use)	Valves	
IAPMO IS 1-91 e1	Nonmetallic Building Sewers	Piping, Nonmetallic	
IAPMO IS 2-90	Tile-Lined Roman Bathtubs	Fixtures	
IAPMO IS 3-93 e1	Copper Plumbing Tube, Pipe and Fittings	Piping, Copper Alloy	
IAPMO IS 4-96	Tile-Lined Shower Receptors (and Replacements)	Fixtures	
IAPMO IS 5-92 e1	ABS Building Drain, Waste, and Vent Pipe and Fittings	Piping, Plastic	
IAPMO IS 6-95	Hubless Cast Iron Sanitary and Rainwater Systems	Piping, Ferrous	
IAPMO IS 7-90 e1	Polyethylene (PE) cold Water Building Supply	Piping, Plastic	
IAPMO IS 8-95 e1	PVC Cold Water Building Supply and Yard Piping	Piping, Plastic	
IAPMO IS 9-95 e1	PVC Building Drain, Waste and Vent Pipe Fittings	Piping, Plastic	
IAPMO IS 11-87 e1	ABS Sewer Pipe and Fittings	Piping, Plastic	
IAPMO IS 12-93 e1	Polyethylene (PE) for Gas Yard Piping	Piping, Plastic	
IAPMO IS 13-91 e1	Protectively Coated	Pipe Piping	
IAPMO IS 15-82	Asbestos Cement Pressure Pipe for Water Service and Yard Piping	Piping, Nonmetallic	
IAPMO IS 16-84	Low Pressure Air Test for Building Sewers	Piping	
IAPMO IS 18-85 e1	Extra Strength Vitrified Clay Pipe in Building Drains	Piping, Nonmetallic	
IAPMO IS 20-98	CPVC Solvent Cemented Hot and Cold Water Distribution Systems	Piping, Plastic	
IAPMO IS 21-89 e1	Welded Copper and Copper Alloy Water Tube	Piping, Copper Alloy	
IAPMO IS 26-99	Trenchless Polyethylene (PE) Pipe for Sewer Laterals	Piping, Plastic	
IAPMO PS 1-99	Prefabricated Septic Tanks	DWV Components	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
IAPMO PS 2-89	Cast Brass and Tubing P-Traps	Piping, Copper Alloy	
IAPMO PS 4-99	Drains for Prefabricated and Precast Showers	Fixtures	
IAPMO PS 7-84	Tubing Trap Wall Adapters	DWV Components	
IAPMO PS 9-84	Diversion Tees and Twin Waste Elbows	DWV Components	
IAPMO PS 13-89	Testing and Rating Procedure for Grease Traps (Note 2)	DWV Components	
IAPMO PS 14-99	Flexible Metallic Water Connectors	Piping	
IAPMO PS 16-97	Subdrains for Built-Up Shower Pans	Fixtures	
IAPMO PS 23-89	Dishwasher Drain Airgaps	Backflow Protection	
IAPMO PS 25-84	Fittings for Joining Polyethylene Pipe for Water Service and Yard Piping	Joints	
IAPMO PS 31-95	Backflow Prevention Assemblies	Backflow Protection	
IAPMO PS 34-96	Polyethylene Encasement Sleeve for Potable Water Pipe and Tubing	Piping	
IAPMO PS 36-90	Lead-Free Sealing Compounds for Threaded Joints	Joints	
IAPMO PS 37-90	Black Plastic PVC or PE Pressure-Sensitive Corrosion Preventive Tape	Piping	
IAPMO PS 38-99	ABS and PVC Backwater Valves	DWV Components	
IAPMO PS 39-91	Testing Mechanical Fittings Composed of Multiple Components For Various Fitting Configuration For Use With Thermoplastic Gas Pressure Pipe	Fuel Gas	
IAPMO PS 40-91	Anodeless Transition Riser for Use with Polyethylene and PVC Gas Yard Piping	Fuel Gas	
IAPMO PS 41-99	Copper and Other Metallic Roof/Deck/Balcony Drains	DWV Components	
IAPMO PS 42-96	Pipe Alignment and Secondary Support Systems	Piping	
IAPMO PS 43-91	Cushioned Bathtubs And Whirlpool Bathtub Appliances	Fixtures	
IAPMO PS 44-92	Shielded Transition Couplings for Use with Dissimilar DWV Pipe and Fittings Above Ground	Joints	
IAPMO PS 45-91	Bathtub Three-Way Diverter Valves with Backflow Protection	Valves	
IAPMO PS 47-99	Plastic Roof Drains	DWV Components	
IAPMO PS 48-92	Material Safety Data Verification For Plumbing Products	Miscellaneous	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
IAPMO PS 49-92	Backflow Prevention Requirements for Fixture Fittings with Hose Connected Singular Moveable Outlets	Backflow Protection	
IAPMO PS 50-92	Dual Flush Devices For Water Closets	Fixtures	
IAPMO PS 51-98	Plastic and Metallic Expansion Joints	Joints	
IAPMO PS 52-99	Sumps and Sewage Ejector Tanks	DWV Components	
IAPMO PS 53-92	Grooved Mechanical Pipe Couplings and Grooved End Fittings	Joints	
IAPMO PS 54-99	Metallic and Plastic Utility Boxes	Miscellaneous	
IAPMO PS 55-92	Bathwaste Strainer Drains	Fixtures	
IAPMO PS 57-92	PVC Hydraulically Actuated Diaphragm Type Water Control Valves	Valves	
IAPMO PS 58-92	Supports for Off-the-Floor Plumbing Fixtures With or Without Concealed Tanks	Fixtures	
IAPMO PS 59-92	Septic Effluent and Waste Water Diverter Valves	DWV Components	
IAPMO PS 60-96	Sewage Holding Tank Containing Sewage Ejector Pump for Direct Mounted Water Closet	DWV Components	
IAPMO PS 61-92	Fabricated Stainless Steel Security Water Closets	Fixtures	
IAPMO PS 62-93	Enameled Cast Iron Sanitary Floor Sinks	Fixtures	
IAPMO PS 63-99	Plastic Leaching Chambers	DWV Components	
IAPMO PS 64-98	Pipe Flashings	Piping	
IAPMO PS 65-93	Airgap Units for Water Conditioning Equipment Installation	Backflow Protection	
IAPMO PS 66-93	Dielectric Waterway Fittings	Piping	
IAPMO PS 67-93	Early-Closure Replacement Flappers or Early-Closure Replacement Flapper With Mechanical Assemblies	Fixtures	
IAPMO PS 69-98	Plastic Bathwaste and Overflow Assemblies	Piping, Plastic	
IAPMO PS 70-93	Bathtub/Whirlpool Bathtubs with Pressure Sealed Doors	Fixtures	
IAPMO PS 71-93	Electronic Controlled Showers	Fixtures	
IAPMO PS 72-93	Valves with Atmospheric Vacuum Breakers	Valves	
IAPMO PS 73-93	Dental Vacuum Pumps	Miscellaneous	
IAPMO PS 74-99	Reinforced Flexible Water Connectors	Piping	
IAPMO PS 76-95	Ballcock or Flushometer Valve Tailpiece Trap Primers and Trap Primer Receptors/Adapters	DWV Components	
IAPMO PS 77-99	Electrohydraulic Water Closets	Fixtures	
IAPMO PS 78-95	Dual Flush for Electrohydraulic and Gravity 6 Liter (1.6 Gallons) Water Closet	Fixtures	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
IAPMO PS 79-95	Multiport Electronic Trap Primer	DWV Components	
IAPMO PS 80-95	Grease Interceptors and Clarifiers	DWV Components	
IAPMO PS 81-95	Precast Concrete Seepage Pit Liners and Covers	DWV Components	
IAPMO PS 82-95	Fiberglass (Glass Fiber Reinforced Thermosetting Resin) Fittings	Piping, Plastic	
IAPMO PS 83-95	Epoxy Coated Cast Iron Sanitary Floor Sinks	Fixtures	
IAPMO PS 84-95	PVC Plastic Sanitary Floor Sinks	Fixtures	
IAPMO PS 85-95	Tools for Mechanically Formed Tee Connections in Copper Tubing	Piping	
IAPMO PS 86-95	Rainwater Diverter Valve for Nonroofed Area Slabs	DWV Components	
IAPMO PS 87-95	Diverter and Shut-Off Valves for Pool/Spas	Valves	
IAPMO PS 88-95	Pre-Pressurized Potable Water Tanks	Miscellaneous	
IAPMO PS 89-95	Soaking and Hydrotherapy (Whirlpool) Bathtubs with Hydraulic Seatlift	Fixtures	
IAPMO PS 90-95	Elastomeric Test Caps/Cleanout Caps	DWV Components	
IAPMO PS 91-95	Plastic Stabilizers for Use with Plastic Closet Bends	Piping, Plastic	
IAPMO PS 92-95	Heat Exchangers	Miscellaneous	
IAPMO PS 93-99	Water Closet Seats with Spray	Fixtures	
IAPMO PS 94-96	P-Trap, Supply Stop and Riser Insulated Protector	Miscellaneous	
IAPMO PS 95-98	Drain, Waste, and Vent Hangers and Plastic Pipe Support Hooks	Piping	
IAPMO PS 96-96	Passive Direct Solar Water Heaters	Miscellaneous	
IAPMO PS 97-97	Mechanical Cast Iron Closet Flanges	Piping, Ferrous	
IAPMO PS 98-96	Prefabricated Fiberglass Church Baptistries	Fixtures	
IAPMO PS 99-96	Terrazzo Plumbing Fixtures	Fixtures	
IAPMO PS 100-96	Porous Filter Protector for Sub-Drain Weep Holes	DWV Components	
IAPMO PS 101-97	Suction Relief Valves	Valves	
IAPMO PS 102-97	Short Pattern Fixture Trap	DWV Components	
IAPMO PS 103-97	Water Heater Stands With or Without Pans	Appliances	
IAPMO PS 104-97	Pressure Relief Connection for Dispensing Equipment	Valves	
IAPMO PS 105-97	Polyethylene Distribution Boxes	DWV Components	
IAPMO PS 106-98	Pre-Fabricated, Tileable Shower Receptors	Fixtures	
IAPMO PS 107-98	Aramid Reinforced Rubber Hose for Use in Nonpotable Water Radiant Heating and Snowmelting	Piping, Plastic	X

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
IAPMO PS 108-98	Grease Fire Suppression Systems	Appliances	
IAPMO PS 109-96	Rigid Unshielded Mechanical Couplings for Use with Plain End Drain, Waste, and Vent (DWV) Pipe and Plain End Sewer Pipe	Joints	
IAPMO PS 110-99	PVC Cold Water Compression Fittings	Fittings	
IAPMO PS 111-99	PVC Cold Water Gripper Fittings	Fittings	
IAPMO PS 112-99	PVC Plastic Valves for Cold Water Distribution Systems Outside a Building and CPVC Plastic Valves for Hot and Cold Water Distribution Systems	Valves	
IAPMO PS 113-99	Hydraulically Powered Household Food Waster Grinders	Appliances	
IAPMO PS 114-99	Remote, Floor Box Industrial Water Supply, Air Supply, Drainage	Miscellaneous	
IAPMO PS 115-99	Hot Water Demand or Automatic Activated Hot Water Pumping Systems	Miscellaneous	
IAPMO PS 116-99	Hot Water Circulating Devices Which Do Not Use a Pump	Miscellaneous	
IAPMO SPS 3-93	Skimmers (Spas, Hot Tubs and Swimming Pools)	Swimming Pools and Spas	
IAPMO SPS 4-89	Special Use Suction Fittings for Swimming Pools, Spas and Hot Tubs (For Suction Side Automatic Swimming Pool Cleaners)	Swimming Pools and Spas	
IAS LC 1-97	Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST) (same as CSA 6.26-M97)	Fuel Gas	X
MIL-F-1183 H-83 [D]	Fittings, Pipe, Cast Bronze, Silver-Brazing	Piping, Copper Alloy	
MIL-F-18180C1	Flanges and Flanged Fittings, Pipe, Steel (150, 300, 400, 600, 900, 1500, and 2500 pounds)	Piping, Ferrous	
MIL-P-17552	Pumps, Centrifugal, Water, Horizontal, General Service; and Pumps, Centrifugal Water, Horizontal, Boiler-Feed; Electric Motor or Steam Driven	Pumps	
MIL-P-21214B-92 SSPMA-85	Vertical sump pumps	Pumps	
MIL-P-21251C	Plumping Units, Sewage, Duplex, Automatic, Wet-Pit-Type	Pumps	
MIL-P-22561-82(D)	Glass (standard cancelled per Department of Defense)	Miscellaneous	
MIL-V-29193-80(D)	Pressurized flushing devices	Fixtures	
MIL-P-52407	Pump, Centrifugal: Electric-Motor-Driven, Shallow (A)-1976 (D) Well (for Water)	Pumps	
MIL-P-62156	Submersible, axial flow, electric motor driven	Pumps	
MIL-P-B-81 (D)	(1)-1983 (D)		

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
SSPMA-85	Sewage pumps	Pumps	
MSS SP-25-93	Standard Marking System for Valves, Fittings, Flanges and Unions	Piping	
MSS SP-42-90 (R95)	Class 150 Corrosion Resistant Gate, Globe, Angle and Check Valves with Flanged and Butt Weld Ends	Piping, Ferrous	
MSS SP-44-91	Steel Pipeline Flanges	Piping, Ferrous	
MSS SP-58-93	Pipe Hangers And Supports – Materials, Design and Manufacture	Piping	
MSS SP-67-90	Butterfly Valves	Valves	
MSS SP-70-90	Cast Iron Gate Valves, Flanged and Threaded Ends	Valves	
MSS SP-71-90	Cast Iron Swing Check Valves, Flanged and Threaded Ends	Valves	
MSS SP-72-92	Ball Valves with Flanged or Butt-Welding Ends for General Service	Valves	
MSS SP-73-91	Braze Joints for Wrought and Cast Copper Alloy Solder Joint Pressure Fittings	Joints	
MSS SP-78-87 (R92)	Cast Iron Plug Valves, Flanged and Threaded Ends	Valves	
MSS SP-80-87	Bronze Gate, Globe, Angle and Check Valves	Valves	
MSS SP-83-87	Steel Pipe Unions Socket-Welding and Threaded	Piping, Ferrous	
MSS SP-84 [D]	Steel Valves – Socket-Welding Ends and Threaded Ends (discontinued)	Valves	
NFPA 13R-1996	Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height	Miscellaneous	
NFPA 13D-1996	Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes	Miscellaneous	
NFPA 31-97	Installation of Oil-Burning Equipment	Miscellaneous	
NFPA 54-96	National Fuel Gas Code	Fuel Gas	
NFPA 58-98	Storage and Handling of Liquified Petroleum Gases	Fuel Gas	
NFPA 99-99 (Ch. 2 &4)	Medical Gas Systems	Piping	
NFPA 99-99 (Ch. 2 &4)	Gas and Vacuum Systems	Piping	
NFPA 211-96	Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances	Miscellaneous	
NFPA 8501-97	Single Burner Boiler Operation	Appliances	
NSF 3-96	Commercial Spray-Type Dishwashing and Glasswashing Machines	Appliances	
NSF 12-93	Automatic Ice Making Equipment	Appliances	
NSF 14-98	Plastic Piping Components and Related Materials	Piping, Plastic	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
NSF 18-96	Manual Food and Beverage Dispensing Equipment	Appliances	
NSF 24-96	Plumbing System Components for Manufactured Homes and Recreational Vehicles	Miscellaneous	
NSF 29-93	Chemical Feeders for Commercial Dishwashers	Appliances	
NSF 40-99	Residential Wastewater Treatment Systems	DWV Components	
NSF 41-98	Nonliquid Saturated Treatment Systems	DWV Components	
NSF 42-98	Drinking Water Treatment Units -Aesthetic Effects	Appliances	
NSF 44-98	Cation Exchange Water Softeners	Appliances	
NSF 46-97	Evaluation of Components and Devices Used in Wastewater Treatment Systems	DWV Components	
NSF 53-98	Drinking Water Treatment Units - Health Effects	Appliances	
NSF 58-98	Reverse Osmosis Drinking Water Treatment Systems	Appliances	
NSF 61-98	Drinking Water System Components - Health Effects	Miscellaneous	
NSF 62-97	Water Distillation Systems	Appliances	
NSPI 1-1991	Public Swimming Pools	Swimming Pools and Spas	
PDI G-101-85	Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation Data	DWV Components	
PDI-WH 201-92	Water Hammer Arresters	Piping	
SAE J1670-93	Type "F" Clamps for Plumbing Applications	Joints	
SAMA LF6a	Medical Care Facility Brassware	Miscellaneous	
UL 80-96	Steel Inside Tanks for Oil-Burner Fuel	Miscellaneous	
UL 103-95	Factory-Built Chimneys for Residential Type and Building Heating Appliances	Miscellaneous	
UL 125-97	Valves for Anhydrous Ammonia and LP-Gas (Other than Safety Relief)	Valves	
UL 132-97	Safety Relief Valves for Anhydrous Ammonia and LP-Gas	Valves	
UL 144-99	LP Gas Regulators	Valves	
UL 174-96	Household Electric Storage Tank Water Heaters	Appliances	
UL 343-97	Pumps for Oil-Burning Appliances	Pumps	
UL 352-97	Constant-Level Oil Valves	Valves	
UL 378-93	Draft Equipment	Miscellaneous	
UL 399-93	Drinking-Water Coolers	Appliances	
UL 430-94	Waste Disposers	Appliances	

Standard Number	Standard Title	Application	Indicate if Not Approved in the UPC
UL 441-96	Gas Vents	Miscellaneous	
UL 443-95	Steel Auxiliary Tanks for Oil-Burner Fuel	Miscellaneous	
UL 499-97	Electrical Heating Appliances	Appliances	
UL 563-95	Ice Makers	Appliances	
UL 569-95	Pigtails and Flexible Hose Connectors for LP-Gas	Fuel Gas	
UL 723-96	Test for Surface Burning Characteristics of Building Materials	Miscellaneous	
UL 726-95	Oil-Fired Boiler Assemblies	Appliances	
UL 732-95	Oil-Fired Storage Tank Water Heaters	Appliances	
UL 749-97	Household Dishwashers	Appliances	
UL 778-96	Motor-Operated Water Pumps	Pumps	
UL 834-95	Heating, Water Supply, and Power Boilers - Electric	Appliances	
UL 921-96	Commercial Electric Dishwashers	Appliances	
UL 1453-95	Electric Booster and Commercial Storage Tank Water Heaters	Appliances	
WAC 246-290-490	Washington State Department of Health Cross Connection Control Requirements	Backflow Protection	
WQA S-100-95	Household, Commercial and Portable Exchange Water Softeners (replaced by NSF 44-98)	Appliances	
WQA S-200-93	Household and Commercial Water Filters	Appliances	
WQA S-300-91	Point-of-Use Low Pressure Reverse Osmosis Drinking Water Systems	Appliances	
3-GP-28	Fuel Oil, Canadian Government Specification Board	Miscellaneous	

- Footnotes:
1. Although this standard is referenced in Table 14-1, some of the pipe, tubing, fittings, valves, or fixtures included in the standard are not acceptable for use under the provisions of the Uniform Plumbing Code.
 2. PDI Standard G101 by reference.
 3. Additional Requirements for Inner and Outer Layers.
 4. See Section 316.1.3 for restriction.
 5. Alloy C85200 for cleanout plugs.
 6. Limited to domestic sewage.
 7. Type II only.
 8. Fixture fittings with hose connected singular moveable outlets shall have two check valves and an atmospheric vacuum breaker.
 9. ASSE 1066 is not intended to limit the maximum outlet temperature at point of use.
 10. See section 315.0 for Trenching, Excavation, and Backfilling requirements when installing building drains and sewers. Engineers may wish to consult ASTM D2321 when preparing plans and specifications for sewer mains or specific projects.

NEW SECTION

WAC 51-56-201300 Appendix M--Storm drainage.

M 1.0 General.

M 1.1 Where Required. All roofs, paved areas, yards, courts, and courtyards shall be drained into a separate storm sewer system, or into a combined sewer system where a separate storm sewer system is not available, or to some other place of disposal satisfactory to the administrative authority. In the case of one- and two-family dwellings, storm water may be discharged on flat areas such as streets or lawns so long as the storm water shall flow away from the building and away from adjoining property, and shall not create a nuisance.

M 1.2 Storm Water Drainage to Sanitary Sewer Prohibited. Storm water shall not be drained into sewers intended for sanitary drainage only.

M 1.3 Material Uses. Rainwater piping placed within the interior of a building or run within a vent or shaft shall be of cast iron, galvanized steel, wrought iron, brass, copper, lead, Schedule 40 ABS DWV, Schedule 40 PVC DWV, or other approved materials, and changes in direction shall conform to the requirements of Section 706.0.

M 1.4 Expansion Joints Required. Expansion joints or sleeves shall be provided where warranted by temperature variations or physical conditions.

M 1.5 Subsoil Drains.

M 1.5.1 Subsoil drains shall be provided around the perimeter of buildings having basements, cellars, or crawl spaces or floors below grade. Such subsoil drains may be positioned inside or outside of the footing, shall be of perforated, or open-jointed approved drain tile or pipe not less than three (3) inches (76 mm) in diameter, and shall be laid in gravel, slag, crushed rock, approved three-quarter (3/4) inch (19.1 mm) crushed recycled glass aggregate, or other approved porous material with a minimum of four (4) inches (102 mm) surrounding the pipe on all sides. Filter media shall be provided for exterior subsoil piping.

M 1.5.2 Subsoil drains shall be piped to a storm drain, to an approved water course, to the front street curb or gutter, or to an alley; or the discharge from the subsoil drains shall be conveyed to the alley by a concrete gutter. Where a continuously flowing spring or groundwater is encountered, subsoil drains shall be piped to a storm drain or an approved water course.

M 1.5.3 Where it is not possible to convey the drainage by gravity, subsoil drains shall discharge to an accessible sump pit provided with an approved automatic electric pump. A sump pit shall be at least fifteen (15) inches (381 mm) in diameter, eighteen (18) inches (457 mm) in depth, and provided with a fitted cover. The

sump pump shall have an adequate capacity to discharge all water coming into the sump as it accumulates to the required discharge point, and the capacity of the pump shall not be less than fifteen (15) gpm (1.0 L/s). The discharge piping from the sump pump shall be a minimum of one and one-half (1-1/2) inches (38 mm) in diameter and have a union to make the pump accessible for servicing.

M 1.5.4 For separate dwellings not serving continuously flowing springs or ground water, the sump discharge pipe may discharge onto a concrete splash block with a minimum length of twenty-four (24) inches (610 mm). This pipe shall be within four (4) inches (102 mm) of the splash block and positioned to direct the flow parallel to the recessed line of the splash block.

M 1.5.5 Subsoil drains subject to backflow when discharging into a storm drain shall be provided with a backwater valve in the drain line so located as to be accessible for inspection and maintenance.

M 1.5.6 Nothing in Section 1501.5 shall prevent drains that serve either subsoil drains or areaways of a detached building from discharging to a properly graded open area, provided that:

(1) They do not serve continuously flowing springs or ground water;

(2) The point of discharge is at least ten (10) feet (3048 mm) from any property line; and

(3) It is impracticable to discharge such drains to a storm drain, to an approved water course, to the front street curb or gutter, or to an alley.

M 1.6 Building Subdrains. Building subdrains located below the public sewer level shall discharge into a sump or receiving tank, the contents of which shall be automatically lifted and discharged into the drainage system as required for building sumps.

M 1.7 Areaway Drains. All open subsurface space adjacent to a building, serving as an entrance to the basement or cellar of a building, shall be provided with a drain or drains. Such areaway drains shall be two (2) inches (51 mm) minimum diameter for areaways not exceeding one hundred (100) square feet (9.3 m²) in area, and shall be discharged in the manner provided for subsoil drains not serving continuously flowing springs or ground water (see Section 1501.5.2). Areaways in excess of one hundred (100) square feet (9.3 m²) shall not drain into subsoil. Areaway drains for areaways exceeding one hundred (100) square feet (9.3 m²) shall be sized according to Table M-2.

M 1.8 Window Areaway Drains. Window areaways not exceeding ten (10) square feet (0.9 m²) in area may discharge to the subsoil drains through a two (2) inch (51 mm) pipe. However, window areaways exceeding ten (10) square feet (0.9 m²) in area shall be handled in the manner provided for entrance areaways (see Section 1501.7).

M 1.9 Filling Stations and Motor Vehicle Washing Establishments. Public filling stations and motor vehicle washing establishments

shall have the paved area sloped toward sumps or gratings within the property lines. Curbs not less than six (6) inches (152 mm) high shall be placed where required to direct water to gratings or sumps.

M 1.10 Paved Areas. Where the occupant creates surface water drainage, the sumps, gratings or floor drains shall be piped to a storm drain or an approved water course.

M 1.11 Roof Drainage.

M 1.11.1 Primary Roof Drainage. Roof areas of a building shall be drained by roof drains or gutters. The location and sizing of drains and gutters shall be coordinated with the structural design and pitch of the roof. Unless otherwise required by the administrative authority, roof drains, gutters, vertical conductors or leaders, and horizontal storm drains for primary drainage shall be sized based on a storm of sixty (60) minutes duration and 100-year return period (see Appendix D).

M 1.11.2 Secondary Roof Drainage.

M 1.11.2.1 Where parapet walls or other construction extend above the roof and create areas where storm water would become trapped if the primary roof drainage system failed to provide sufficient drainage, an independent secondary roof drainage system consisting of scuppers, standpipes, or roof drains shall be provided. Secondary roof drainage systems shall be sized in accordance with Section 1501.11.1 of this code. Overflow drains shall be the same size as the roof drains with the inlet flow line two (2) inches (51 mm) above the low point of the roof and shall be installed independent from the roof drains.

M 1.11.2.2 Where secondary roof drainage is provided by means of roof drains or standpipes, the secondary system shall be separate from the primary system and shall discharge independently at grade or other approved point of discharge.

M 1.11.2.3 Where secondary roof drainage is provided, the overflow level(s) into the secondary system shall be determined by the structural design of the roof, including roof deflection, at a level not less than two (2) inches (51 mm) above the level of the primary drain. An allowance shall be made to account for the required overflow head of water above the secondary inlets. The elevation of the secondary inlet plus the required overflow head shall not exceed the maximum allowable water level on the roof.

M 1.11.2.4 Scuppers shall be sized as rectangular weirs, using hydraulic principles to determine the required length and resulting overflow head (see Appendix D). Secondary roof drains and standpipes shall be sized according to Table M-1. Where standpipes are used, the head allowance required under Section 1501.11.2.3 shall be not less than one and one-half (1-1/2) inches (38 mm).

M 1.11.3 Equivalent Systems. When approved by the administrative authority, the requirements of Sections 1501.11.1 and 1501.11.2

shall not preclude the installation of an engineered roof drainage system that has sufficient capacity to prevent water from ponding on the roof in excess of that allowed in the roof structural design with a rainfall rate of at least twice that for a 100-year, 60-minute storm and with a blockage in any single point in the storm drainage system.

M 1.12 Cleanouts.

M 1.12.1 Cleanouts for building storm drains shall comply with the requirements of this section. Rain leaders and conductors connected to a building storm sewer shall have a cleanout installed at the base of the outside leader or outside conductor before it connects to the horizontal drain. Cleanouts shall be placed inside the building near the connection between the building drain and the building sewer or installed outside the building at the lower end of the building drain and extended to grade.

M 1.12.2 Each cleanout shall be installed so that it opens to allow cleaning in the direction of flow of the soil or waste or at right angles thereto, and except in the case of wye branch and end-of-line cleanouts, shall be installed vertically above the flow line of the pipe.

M 1.12.3 Cleanouts installed under concrete or asphalt paving shall be made accessible by yard boxes, or extending flush with paving with approved materials and be adequately protected.

M 1.12.4 Approved manholes may be installed in lieu of cleanouts when first approved by the administrative authority. The maximum distance between manholes shall not exceed three hundred (300) feet (91.4 m).

The inlet and outlet connections shall be made by the use of a flexible compression joint no closer than twelve (12) inches (305 mm) to, and not farther than three (3) feet (914 mm) from the manhole. No flexible compression joints shall be embedded in the manhole base.

M 1.13 All rainwater sumps serving "public use" occupancy buildings shall be provided with dual pumps arranged to function alternately in case of overload or mechanical failure.

M 2.0 Materials.

M 2.1 Conductors.

M 2.1.1 Conductors installed aboveground in buildings shall be constructed of materials specified in Table 14-1.

M 2.1.2 The inside of conductors installed above ground level shall be of seamless copper water tube, Type K, L or M; Schedule 40 copper pipe or Schedule 40 copper alloy pipe; Type DWV copper drainage tube; service weight cast iron soil pipe or hubless cast iron soil pipe; standard weight galvanized steel pipe; or Schedule 40 ABS or Schedule 40 PVC plastic pipe.

M 2.2 Leaders.

- M 2.2.1** Leaders shall be constructed of materials specified in Table 14-1.
- M 2.2.2** Leaders shall be of seamless copper water tube, Type K, L or M; Schedule 40 copper pipe; Schedule 40 copper alloy pipe; type DWV copper drainage tube; service weight cast iron soil pipe or hubless cast iron soil pipe; galvanized steel sheet metal or copper sheet metal; standard weight galvanized steel pipe; Class DL or XL lead pipe; or Schedule 40 ABS or Schedule 40 PVC plastic pipe.
- M 2.3 Underground Building Storm Drains.** All underground building storm drains shall be constructed of materials specified in Table 14-1.
- M 2.4 Building Storm Sewers.** Building storm sewers shall be constructed of materials specified in Table 14-1.
- M 2.5 Subsoil Drains.**
- M 2.5.1** Subsoil drains shall be constructed of materials specified in Table 14-1.
- M 2.5.2** Subsoil drains shall be open-jointed or of perforated pipe, vitrified clay, plastic, cast iron, or porous concrete.
- M 3.0 Traps on Storm Drains and Leaders.**
- M 3.1 Where Required.** Leaders and storm drains, when connected to a combined sewer, shall be trapped. Floor and area drains connected to a storm drain shall be trapped.
- EXCEPTION: Traps shall not be required where roof drains, rain leaders and other inlets are at locations allowed under Section 906.0, Vent Terminals.
- M 3.2 Where Not Required.** No trap shall be required for a leader(s) or conductor(s) which is connected to a sewer carrying storm water exclusively.
- M 3.3 Trap Size.** Traps, when installed for individual conductors, shall be the same size as the horizontal drain to which they are connected.
- M 3.4 Method of Installation of Combined Sewer.** Individual storm-water traps shall be installed on the storm-water drain branch serving each storm-water inlet, or a single trap shall be installed in the main storm drain just before its connection with the combined building sewer. Such traps shall be provided with an accessible cleanout on the outlet side of the trap.
- M 4.0 Leaders, Conductors, and Connections.**
- M 4.1 Improper Use.** Leaders or conductors shall not be used as soil, waste, or vent pipes, nor shall soil, waste, or vent pipes be used as leaders or conductors.
- M 4.2 Protection of Leaders.** Leaders installed along alleyways, driveways, or other locations where they may be exposed to damage shall be protected by metal guards, recessed into the wall, or constructed from ferrous pipe.

M 4.3 Combining Storm with Sanitary Drainage. The sanitary and storm drainage system of a building shall be entirely separate, except where a combined sewer is used, in which case the building storm drain shall be connected in the same horizontal plane through single wye fittings to the combined building sewer at least ten (10) feet (3048 mm) downstream from any soil stack.

M 5.0 Roof Drains.

M 5.1 Material.

M 5.1.1 Roof drains shall be constructed of materials specified in Table 14-1.

M 5.1.2 Roof drains shall be of cast iron, copper or copper alloy, lead or plastic.

M 5.2 Dome or Strainer for General Use. All roof drains and overflow drains, except those draining to hanging gutters, shall be equipped with strainers extending not less than four (4) inches (102 mm) above the surface of the roof immediately adjacent to the drain. Strainers shall have a minimum inlet area above the roof level of not less than one and one-half (1-1/2) times the area of the conductor or leader to which the drain is connected.

M 5.3 Strainers for Flat Decks. Roof drain strainers for use on sun decks, parking decks, and similar areas which are normally serviced and maintained may be of the flat surface-type. Such roof drain strainers shall be level with the deck and shall have an available inlet area of no less than two (2) times the area of the conductor or leader to which the drain is connected.

M 5.4 Roof Drain Flashings. Connection between the roof and roof drains which pass through the roof and into the interior of the building shall be made watertight by the use of proper flashing material.

M 5.4.1 Where lead flashing material is used, it shall be a minimum of four (4) pounds per square foot (19.5 kg/m²).

M 5.4.2 Where copper flashing material is used, it shall be a minimum of twelve (12) ounces per square foot (3.7 kg/m²).

M 6.0 Size of Leaders, Conductors, and Storm Drains.

M 6.1 Vertical Conductors and Leaders. Vertical conductors and leaders shall be sized on the basis of the maximum projected roof area and Table M-1.

M 6.2 Size of Horizontal Storm Drains and Sewers. The size of building storm drains or building storm sewers or any of their horizontal branches shall be based upon the maximum projected roof or paved area to be handled and Table M-2.

M 6.3 Size of Roof Gutters. The size of semicircular gutters shall be based on the maximum projected roof area and Table M-3.

M 6.4 Side Walls Draining onto a Roof. Where vertical walls

project above a roof so as to permit storm water to drain to the roof area below the adjacent roof area may be computed from Table M-1 as follows:

1. For one (1) wall - add fifty (50) percent of the wall area to the roof area figures.
2. For two (2) adjacent walls - add thirty-five (35) percent of the total wall areas.
3. Two (2) walls opposite of same height - add no additional area.
4. Two (2) walls opposite of differing heights - add fifty (50) percent of wall area above top of lower wall.
5. Walls on three (3) sides - add fifty (50) percent of area of the inner wall below the top of the lowest wall, plus allowance for the area of wall above top of lowest wall, per (2) and (4) above.
6. Walls on four (4) sides - no allowance for wall areas below top of lowest wall - add for areas above the top of the lowest wall per (1), (2), (4) and (5) above.

M 7.0 Values for Continuous Flow.

Where there is a continuous or semi-continuous discharge into the building storm drain or building storm sewer, as from a pump, ejector, air-conditioning plant, or similar device, one (1) gpm (3.8 L/min.) of such discharge shall be computed as being equivalent to twenty-four (24) square feet (2.2 m²) of roof area, based upon a rate of rainfall of four (4) inches (102 mm) per hour.

M 8.0 Testing.

M 8.1 Testing Required. New building storm drainage systems and parts of existing systems that have been altered, extended or repaired shall be tested as described in Section 1508.2.1 to disclose leaks and defects.

M 8.2 Methods of Testing Storm Drainage Systems. Except for outside leaders and perforated or open jointed drain tile, the piping of storm drain systems shall be tested upon completion of the rough piping installation by water or air, and proved tight. The administrative authority may require the removal of any cleanout plugs to ascertain if the pressure has reached all parts of the system. Either of the following test methods shall be used:

M 8.2.1 Water Test. After piping has been installed, the water test shall be applied to the drainage system, either in its entirety or in sections. If applied to the entire system, all openings in the piping shall be tightly closed except for the highest opening, and the system shall be filled with water to the point of overflow. If the system is tested in sections, each opening shall be tightly plugged except for the highest opening of the section under test, and each section shall be filled with water, but no section shall be tested with less than a ten (10) foot (3048 mm) head of water. In testing successive sections, at least the upper ten (10) foot (3048 mm) of the next preceding section shall be tested so that no joint of pipe in the building (except the uppermost ten (10) foot (3048 mm) of a roof drainage

system, which shall be filled with water to the flood level of the uppermost roof drain) shall have been submitted to a test of less than a ten (10) foot (3048 mm) head of water. The water shall be kept in the system or in the portion under test for at least fifteen (15) minutes before inspection starts; the system shall then be tight at all points.

M 8.2.2 Air Test. The air test shall be made by attaching an air compressor testing apparatus to any suitable opening after closing all other inlets and outlets to the system, forcing air into the system until there is a uniform gage pressure of five (5) psi (34.5 kPa) or sufficient to balance a column of mercury ten (10) inches (254 mm) in height. This pressure shall be held without introduction of additional air for a period of at least fifteen (15) minutes.

M 8.2.3 Exceptions. When circumstances exist that make air and water tests, described in Sections 1508.2.1 and 1508.2.2 above, impractical, and for minor maintenance, repairs and installations, the administrative authority may perform the inspection as considered advisable by said authority to assure that the work has been in accordance with provisions of this code.

**TABLE M-1
Sizing Roof Drains, Leaders, and Vertical Rainwater Piping**

Size of Drain, Leader or Pipe, Inches	Flow, gpm	Maximum Allowable Horizontal Projected Roof Areas Square feet at Various Rainfall Rates					
		1"/Hr	2"/Hr	3"/Hr	4"/Hr	5"/Hr	6"/Hr
2	23	2176	1088	725	544	435	363
3	67	6440	3220	2147	1610	1288	1073
4	144	13,840	6920	4613	3460	2768	2307
5	261	25,120	12,560	8373	6280	5024	4187
6	424	40,800	20,400	13,600	10,200	8160	6800
8	913	88,000	44,000	29,333	22,000	17,600	14,667

**TABLE M-1 (Metric)
Sizing Roof Drains, Leaders, and Vertical Rainwater Piping**

Size of Drain, Leader or Pipe, mm	Flow, L/s	Maximum Allowable Horizontal Projected Roof Areas Square meters at Various Rainfall Rates					
		25mm/Hr	50mm/Hr	75mm/Hr	100mm/Hr	125mm/Hr	150mm/Hr
50	1.5	202	101	67	51	40	34
75	4.2	600	300	200	150	120	100
100	9.1	1286	643	429	321	257	214
125	16.5	2334	1117	778	583	467	389
150	26.8	3790	1895	1263	948	758	632
200	57.6	8175	4088	2725	2044	1635	1363

Notes:

1. The sizing data for vertical conductors, leaders, and drains is based on the pipes flowing 7/24 full.
2. For rainfall rates other than those listed, determine the allowable roof area by dividing the area given in the 1

inch/hour (25 mm/hr) column by the desired rainfall rate.

3. Vertical piping may be round, square, or rectangular. Square pipe shall be sized to enclose its equivalent round pipe. Rectangular pipe shall have at least the same cross-sectional area as its equivalent round pipe, except that the ratio of its side dimensions shall not exceed 3 to 1.

TABLE M-2
Sizing of Horizontal Rainwater Piping

Size of Pipe, inches	Flow at 1/8"/ft slope, gpm	Maximum Allowable Horizontal Projected Roof Areas Square Feet at Various Rainfall Rates					
		1"/Hr	2"/Hr	3"/Hr	4"/Hr	5"/Hr	6"/Hr
3	34	3288	1644	1096	822	657	548
4	78	7520	3760	2506	1880	1504	1253
5	139	13,360	6680	4453	3340	2672	2227
6	222	21,400	10,700	7133	5350	4280	3566
8	478	46,000	23,000	15,330	11,500	9200	7670
10	860	82,800	41,400	27,600	20,700	16,580	13,800
12	1384	133,200	66,600	44,400	33,300	26,650	22,200
15	2473	238,000	119,000	79,333	59,500	47,600	39,650

Size of Pipe, inches	Flow at 1/4"/ft slope, gpm	Maximum Allowable Horizontal Projected Roof Areas Square Feet at Various Rainfall Rates					
		1"/Hr	2"/Hr	3"/Hr	4"/Hr	5"/Hr	6"/Hr
3	48	4640	2320	1546	1160	928	773
4	110	10,600	5300	3533	2650	2120	1766
5	196	18,880	9440	6293	4720	3776	3146
6	314	30,200	15,100	10,066	7550	6040	5033
8	677	65,200	32,600	21,733	16,300	13,040	10,866
10	1214	116,800	58,400	38,950	29,200	23,350	19,450
12	1953	188,000	94,000	62,600	47,000	37,600	31,350
15	3491	336,000	168,000	112,000	84,000	67,250	56,000

Size of Pipe, inches	Flow at 1/2"/ft slope, gpm	Maximum Allowable Horizontal Projected Roof Areas Square Feet at Various Rainfall Rates					
		1"/Hr	2"/Hr	3"/Hr	4"/Hr	5"/Hr	6"/Hr
3	68	6576	3288	2192	1644	1310	1096
4	156	15,040	7520	5010	3760	3010	2500
5	278	26,720	13,360	8900	6680	5320	4450
6	445	42,800	21,400	14,267	10,700	8580	7140
8	956	92,000	46,000	30,650	23,000	18,400	15,320
10	1721	165,600	82,800	55,200	41,400	33,150	27,600
12	2768	266,400	133,200	88,800	66,600	53,200	44,400
15	4946	476,000	238,000	158,700	119,000	95,200	79,300

Notes:

1. The sizing data for horizontal piping is based on the pipes flowing full.
2. For rainfall rates other than those listed, determine the allowable roof area by dividing the area given in the 1 inch/hr (25mm/hr) column by the desired rainfall rate.

TABLE M-2 (Metric)
Sizing of Horizontal Rainwater Piping

Size of Pipe, mm	Flow at 10mm/m slope, L/s	Maximum Allowable Horizontal Projected Roof Areas Square Meters at Various Rainfall Rates					
		25mm/Hr	50mm/Hr	75mm/Hr	100mm/Hr	125mm/Hr	150mm/Hr
75	2.1	305	153	102	76	61	51
100	4.9	700	350	233	175	140	116
125	8.8	1241	621	414	310	248	207
150	14.0	1988	994	663	497	398	331
200	30.2	4273	2137	1424	1068	855	713
250	54.3	7692	3846	2564	1923	1540	1282
300	87.3	12,375	6187	4125	3094	2476	2062
375	156.0	22,110	11,055	7370	5528	4422	3683

Size of Pipe, mm	Flow at 20mm/m slope, L/s	Maximum Allowable Horizontal Projected Roof Areas Square Meters at Various Rainfall Rates					
		25mm/Hr	50mm/Hr	75mm/Hr	100mm/Hr	125mm/Hr	150 mm/Hr
75	3.0	431	216	144	108	86	72
100	6.9	985	492	328	246	197	164
125	12.4	1754	877	585	438	351	292
150	19.8	2806	1403	935	701	561	468
200	42.7	6057	3029	2019	1514	1211	1009
250	76.6	10,851	5425	3618	2713	2169	1807
300	123.2	17,465	8733	5816	4366	3493	2912
375	220.2	31,214	15,607	10,405	7804	6248	5202

Size of Pipe, mm	Flow at 40mm/m slope, L/s	Maximum Allowable Horizontal Projected Roof Areas Square Meters at Various Rainfall Rates					
		25mm/Hr	50mm/Hr	75mm/Hr	100mm/Hr	125mm/Hr	150mm/Hr
75	4.3	611	305	204	153	122	102
100	9.8	1400	700	465	350	280	232
125	17.5	2482	1241	827	621	494	413
150	28.1	3976	1988	1325	994	797	663
200	60.3	8547	4273	2847	2137	1709	1423
250	108.6	15,390	7695	5128	3846	3080	2564
300	174.6	24,749	12,374	8250	6187	4942	4125
375	312.0	44,220	22,110	14,753	11,055	8853	7367

Notes:

1. The sizing data for horizontal piping is based on the pipes flowing full.
2. For rainfall rates other than those listed, determine the allowable roof area by dividing the area given in the 1 inch/hr (25mm/hr) column by the desired rainfall rate.

TABLE M-3
Size of Gutters

Diameter of Gutter in Inches	Maximum Rainfall in Inches per Hour				
	2	3	4	5	6
1/16" per ft slope					
3	340	226	170	136	113
4	720	480	360	288	240
5	1250	834	625	500	416
6	1920	1280	960	768	640
7	2760	1840	1380	1100	918
8	3980	2655	1990	1590	1325
10	7200	4800	3600	2880	2400

Diameter of Gutter in Inches	Maximum Rainfall in Inches per Hour				
	2	3	4	5	6
1/8" per ft slope					
3	480	320	240	192	160
4	1020	681	510	408	340
5	1760	1172	880	704	587
6	2720	1815	1360	1085	905
7	3900	2600	1950	1560	1300
8	5600	3740	2800	2240	1870
10	10200	6800	5100	4080	3400

Diameter of Gutter in Inches	Maximum Rainfall in Inches per Hour				
	2	3	4	5	6
1/4" per ft slope					
3	680	454	340	272	226
4	1440	960	720	576	480
5	2500	1668	1250	1000	834
6	3840	2560	1920	1536	1280
7	5520	3680	2760	2205	1840
8	7960	5310	3980	3180	2655
10	14,400	9600	7200	5750	4800

Diameter of Gutter in Inches	Maximum Rainfall in Inches per Hour				
	2	3	4	5	6
1/2" per ft slope					
3	960	640	480	384	320
4	2040	1360	1020	816	680
5	3540	2360	1770	1415	1180
6	5540	3695	2770	2220	1850
7	7800	5200	3900	3120	2600
8	11,200	7460	5600	4480	3730
10	20,000	13,300	10,000	8000	6660

TABLE M-3 (Metric)

Size of Gutters

Diameter of Gutter in mm	Maximum Rainfall in Millimeters per Hour				
5.2mm/m slope	50.8	76.2	101.6	127.0	152.4
76.2	31.6	21.0	15.8	12.6	10.5
101.6	66.9	44.6	33.4	26.8	22.3
127.0	116.1	77.5	58.1	46.5	38.7
152.4	178.4	119.1	89.2	71.4	59.5
177.8	256.4	170.9	128.2	102.2	85.3
203.2	369.7	246.7	184.9	147.7	123.1
254.0	668.9	445.9	334.4	267.6	223.0

Diameter of Gutter in mm	Maximum Rainfall in Millimeters per Hour				
10.4mm/m slope	50.8	76.2	101.6	127.0	152.4
76.2	44.6	29.7	22.3	17.8	14.9
101.6	94.8	63.3	47.4	37.9	31.6
127.0	163.5	108.9	81.8	65.4	54.5
152.4	252.7	168.6	126.3	100.8	84.1
177.8	362.3	241.5	181.2	144.9	120.8
203.2	520.2	347.5	260.1	208.1	173.7
254.0	947.6	631.7	473.8	379.0	315.9

Diameter of Gutter in mm	Maximum Rainfall in Millimeters per Hour				
20.9mm/m slope	50.8	76.2	101.6	127.0	152.4
76.2	63.2	42.2	31.6	25.3	21.0
101.6	133.8	89.2	66.9	53.5	44.6
127.0	232.3	155.0	116.1	92.9	77.5
152.4	356.7	237.8	178.4	142.7	118.9
177.8	512.8	341.9	256.4	204.9	170.9
203.2	739.5	493.3	369.7	295.4	246.7
254.0	1338.0	891.8	668.9	534.2	445.9

Diameter of Gutter in mm	Maximum Rainfall in Millimeters per Hour				
41.7mm/m slope	50.8	76.2	101.6	127.0	152.4
76.2	89.2	59.5	44.6	35.7	29.7
101.6	189.5	126.3	94.8	75.8	63.2
127.0	328.9	219.2	164.4	131.5	109.6
152.4	514.7	343.3	257.3	206.2	171.9
177.8	724.6	483.1	362.3	289.9	241.4
203.2	1040.5	693.0	520.2	416.2	346.5
254.0	1858.0	1238.4	929.0	743.2	618.7

Chapter 51-57 WAC

STATE BUILDING CODE ADOPTION AND AMENDMENT OF APPENDIX A AND
APPENDIX I OF THE 2000 EDITION OF THE UNIFORM PLUMBING CODE

NEW SECTION

WAC 51-57-001 Authority. These rules are adopted under the authority of chapter 19.27 RCW.

NEW SECTION

WAC 51-57-002 Purpose. The purpose of these rules is to implement the provisions of chapter 19.27 RCW, which provides that the state building code council shall maintain the State Building Code in a status which is consistent with the purpose as set forth in RCW 19.27.020. In maintaining the codes, the council shall regularly review updated versions of the codes adopted under the act, and other pertinent information, and shall amend the codes as deemed appropriate by the council.

NEW SECTION

WAC 51-57-003 Uniform Plumbing Code standards. The 2000 edition of the Uniform Plumbing Code Standards (Appendixes A and I), published by the International Association of Plumbing and Mechanical Officials are hereby adopted by reference.

NEW SECTION

WAC 51-57-007 Exceptions. The exceptions and amendments to the Uniform Codes contained in the provisions of chapter 19.27 RCW shall apply in cases of conflict with any of the provisions of these rules.

NEW SECTION

WAC 51-57-008 Implementation. The Uniform Plumbing Code Standards adopted by chapter 19.27 RCW shall become effective in all counties and cities of this state on July 1, 2002, unless local government residential amendments have been approved by the state building code council.

NEW SECTION

WAC 51-57-790000 Installation Standard 7-90--Polyethylene cold water building supply and yard piping.

604.1 Location. Polyethylene piping may terminate within a building or structure. The connection to the potable water distribution system shall be accessible, except that it may be buried underground outside of the building or structure in an accessible location. Barbed insert fittings with hose clamps are prohibited within a building.

NEW SECTION

WAC 51-57-895000 Installation Standard 8-95--PVC cold water building supply and yard piping.

604.1 Location. PVC piping may terminate within a building or structure. The connection to the potable water distribution system shall be accessible, except that it may be buried underground outside of the building or structure in an accessible location.

REPEALER

The following chapter of the Washington Administrative Code is repealed:

WAC 51-46-001	Authority.
WAC 51-46-002	Purpose.
WAC 51-46-003	Uniform Plumbing Code.
WAC 51-46-007	Exceptions.
WAC 51-46-008	Implementation.
WAC 51-46-0100	Chapter 1--Administration.
WAC 51-46-0101	Section 101 Title, scope and general.
WAC 51-46-0102	Organization and enforcement.
WAC 51-46-0103	Section 103 Permits and inspections.
WAC 51-46-0200	Chapter 2--Definitions.
WAC 51-46-0205	Section 205.0 - C.
WAC 51-46-0215	Section 215.0 - M.
WAC 51-46-0218	Section 218.0 - P.
WAC 51-46-0300	Chapter 3--General regulations.
WAC 51-46-0301	Materials--Standards and alterations.
WAC 51-46-0310	Workmanship.
WAC 51-46-0311	Prohibited fittings and practices.
WAC 51-46-0313	Protection of piping, materials, and structures.
WAC 51-46-0314	Hangers and supports.
WAC 51-46-0316	Joints and connections.
WAC 51-46-0392	Table 3-2 Hangers and supports.
WAC 51-46-0400	Chapter 4--Plumbing fixtures and fixture fittings.
WAC 51-46-0402	Water-conserving fixtures and fittings.
WAC 51-46-0412	Floor drains and shower stalls.
WAC 51-46-0413	Minimum number of required fixtures.
WAC 51-46-0500	Chapter 5--Water heaters.
WAC 51-46-0501	General.
WAC 51-46-0502	Definitions.
WAC 51-46-0505	Gas-fired water heater approval requirements.
WAC 51-46-0507	Combustion air.
WAC 51-46-0509	Prohibited locations.
WAC 51-46-0512	Venting of water heaters.
WAC 51-46-0513	Limitations.
WAC 51-46-0514	Vent connectors.
WAC 51-46-0515	Location and support of venting

WAC 51-46-0516	system.
WAC 51-46-0517	Length pitch and clearance.
WAC 51-46-0518	Vent termination.
WAC 51-46-0519	Area of venting system.
WAC 51-46-0520	Multiple appliance venting.
WAC 51-46-0521	Existing venting system.
WAC 51-46-0522	Draft hoods.
	Gas venting into existing masonry chimneys.
WAC 51-46-0523	Installation.
WAC 51-46-0524	Mechanical draft systems.
WAC 51-46-0525	Venting through ventilating hoods and exhaust systems.
WAC 51-46-0600	Water supply and distribution.
WAC 51-46-0603	Cross-connection control.
WAC 51-46-0604	Materials.
WAC 51-46-0608	Water pressure, pressure regulators, pressure relief valves, and vacuum relief valves.
WAC 51-46-0609	Installation, testing, unions, and location.
WAC 51-46-0610	Size of potable water piping.
WAC 51-46-0700	Sanitary drainage.
WAC 51-46-0701	Materials.
WAC 51-46-0704	Fixture connections (drainage).
WAC 51-46-0710	Drainage of fixtures located below the next upstream manhole or below the main sewer level.
WAC 51-46-0713	Building sewers.
WAC 51-46-0793	Table 7-3 Drainage fixture unit values.
WAC 51-46-0800	Indirect wastes.
WAC 51-46-0810	Steam and hot water drainage condensers and sumps.
WAC 51-46-0814	Refrigeration wastes.
WAC 51-46-0815	Air-conditioning equipment.
WAC 51-46-0900	Vents.
WAC 51-46-0903	Materials.
WAC 51-46-1000	Traps and interceptors.
WAC 51-46-1003	Traps--Described.
WAC 51-46-1012	Laundries.
WAC 51-46-1300	Medical gas systems.
WAC 51-46-1301	Scope.
WAC 51-46-1302	Definitions.
WAC 51-46-1303	Plan review.
WAC 51-46-1304	System installation and performance testing.
WAC 51-46-1305	System verification.
WAC 51-46-1400	Referenced standards.
WAC 51-46-1401	Referenced standards.
WAC 51-46-1491	Table 14-1 Standards for materials, equipment, joints and connections.

WAC 51-46-97	Appendix M--Storm Drainage.
WAC 51-46-97121	General.
WAC 51-46-97122	Materials.
WAC 51-46-97123	Traps on storm drains and leaders.
WAC 51-46-97124	Leaders, conductors, and connections.
WAC 51-46-97125	Roof drains.
WAC 51-46-97126	Size of leaders, conductors, and storm drains.
WAC 51-46-97127	Values for continuous flow.
WAC 51-46-97128	Testing.
WAC 51-46-97129	Tables M-1 through M-3.

REPEALER

The following chapter of the Washington Administrative Code is repealed:

WAC 51-47-001	Authority.
WAC 51-47-002	Purpose.
WAC 51-47-003	Uniform Plumbing Code Standards.
WAC 51-47-007	Exceptions.
WAC 51-47-008	Implementation.