

**WASHINGTON STATE
BUILDING CODE**

CHAPTERS 51-56 WAC

UNIFORM PLUMBING CODE

2012 Edition



Washington State Building Code Council

Effective July 1, 2013

Copies of the State Building Codes may be obtained from:

Washington Association of Building Officials
Post Office Box 7310
Olympia, Washington 98507-7310
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**Fourth Edition Titled
Uniform Plumbing Code
Chapters 51-56 WAC
Effective July 1, 2013
Printed March 2013**

**First Edition based on
WSR 13-04-054**

Preface

Authority: The Uniform Plumbing Code (Chapter 51-56 WAC) is adopted by the Washington State Building Code Council pursuant to Chapters 19.27 and 70.92 RCW. This code was first adopted by reference by the Washington State Legislature in 1974. In 1985, the Legislature delegated the responsibility of adoption and amendment of these codes to the State Building Code Council.

Supersession of Previous Codes: Chapter 51-56 and WAC supersede Chapters 51-46 and 51-47 WAC.

Code Precedence: The State Building Code Act, Chapter 19.27 RCW, establishes the following order of precedence among the documents adopted as parts of the State Building Code:

International Building Code, Standards and amendments – WAC 51-50;
International Residential Code, Standards and amendments – WAC 51-51;
International Mechanical Code, Standards and amendments – WAC 51-52;
International Fire Code, Standards and amendments – WAC 51-54A;
Uniform Plumbing Code, Standards and amendments – WAC 51-56.

Where there is a conflict between codes, an earlier named code takes precedence over a later named code. In the case of conflict between the duct insulation requirements of the International Mechanical Code and the duct insulation requirements of the Energy Code, the Energy Code, or where applicable, a local jurisdiction's energy code, shall govern.

Where, in any specific case, different sections of this Code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.

Organization and Numbering: These rules are written to allow compatible use with the Uniform Plumbing Code. All sections which are amended, deleted, or added are referenced.

Enforcement: The State Building Code Act requires that each local jurisdiction enforce the State Building Code within its jurisdiction. Any jurisdiction can contract with another jurisdiction or an inspection agency to provide the mandated enforcement activities.

Amendments to the State Building Code:

The State Building Code Council has adopted review procedures and approval criteria for local amendments. These procedures and criteria are found in Chapter 51-04 WAC. The Council has exempted from its review any amendments to the administrative provisions of the various codes.

Forms for proposing statewide amendments to the State Building Code are available from the State Building Code Council staff.

A. **Amendments of Statewide Application:** On a yearly basis the State Building Code Council will consider proposals to amend the State Building Code. The Council is not scheduled to enter formal rulemaking until 2015 as part of its consideration of adoption of the 2015 series of codes.

Proposals to amend the State Building Code shall be made on forms provided by the Building Code Council.

Code Change Proposal Submittal Deadline: March 1st of each year.

B. **Local Amendments:** Any jurisdiction may amend the State Building Code provided the amendments do not reduce the minimum performance standards of the codes. There are two areas where local amendments are limited or prohibited:

Prohibited Amendments: Residential provisions of the State Energy Code (WAC 51-11R and WAC 51-11C); any provision of the International Building Code or International Residential Code affecting accessibility; and standards specifically adopted in Chapters 19.27 and 19.27A WAC cannot be amended by any local jurisdiction.

Residential Amendments: Amendments by local jurisdictions which affect the construction of single family and multi-family residential buildings must be reviewed and approved by the State Building Code Council before such amendments can be enforced. The State Building Code Act provides the following definition:

Multi-family residential building: means common wall residential buildings that consist of four or fewer units, that do not exceed two stories in height, that are less than 5,000 square feet in area, and that have a one-hour fire-resistive occupancy separation between units.

Application forms for Council review of local amendments are available from the State Building Code Council Staff.

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Printing Format: This version of the rules is published as a series of insert or replacement pages and is intended to be printed as a two-sided document. Each page provides instructions for installing them in the model code book. Amendments to the model code which are new or revised from the previous edition of this code are indicated by a line in the margin next to the revised portions.

Effective Date: These rules were adopted by the State Building Code Council on November 9, 2012. The rules are effective throughout the state on July 1, 2013. (This version of the code is based on WAC 51-51 as published in WSR 13-04-068. It is subject to review by the State Legislature during the 2013 session.)

Building Permit Fees: The activities of the State Building Code Council are supported by permit fees collected by each city and county. Section 19.27.085 of the State Building Code Act requires that a fee of \$4.50 be imposed on each building permit issued by each city and county. In addition, a fee of \$2.00 per unit shall be imposed for each dwelling unit after the first unit, on each building containing more than one residential unit. For the purpose of this fee, WAC 365-110-035 defines building permits as any permit to construct, enlarge, alter, repair, move, improve, remove, convert or demolish any building or structure regulated by the Building Code. Exempt from the fee are plumbing, electrical, mechanical permits, permits issued to install a mobile/manufactured home, commercial coach or factory built structure, or permits issued pursuant to the International Fire Code.

Each city and county shall remit moneys collected to the state treasury quarterly. No remittance is required until a minimum of \$50.00 has accumulated.

These permit fees are the amounts current in January 2013. Such fees may be changed by the State Legislature.

Opinions: Only at the request of local enforcement official, the State Building Code Council may issue interpretations/opinions of those provisions of the State Building Code created by the Council, or provisions of the model codes amended by the Council. Final interpretation authority for any specific permit resides with the local enforcement official.

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**CHAPTER 51-56 WAC
STATE BUILDING CODE ADOPTION AND AMENDMENT
OF THE 2012 EDITION OF THE UNIFORM PLUMBING CODE**

WAC 51-56-001 AUTHORITY.

These rules are adopted under the authority of Chapter 19.27 RCW.

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.

WAC 51-56-003 UNIFORM PLUMBING CODE.

The 2012 edition of the Uniform Plumbing Code, including Appendices A, B, and I, 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 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.

WAC 51-56-004 CONFLICTS BETWEEN APPENDIX I AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

Where a conflict exists between the provisions of Appendix I and the manufacturer's installation instructions, the conditions of the listing and the manufacturer's installation instructions shall apply.

WAC 51-56-007 EXCEPTIONS.

The exceptions and amendments to the model codes contained in the provisions of Chapter 19.27 RCW shall apply in cases of conflict with any of the provisions of these rules.

Codes referenced which are not adopted through RCW 19.27.031 or Chapter 19.27A RCW shall not apply unless specifically adopted by the authority having jurisdiction.

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, 2013, unless local government residential amendments have been approved by the State Building Code Council.

101.4 Conflicts Between Codes. Delete paragraph.

(Insert Facing Page 1)

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

(Insert Facing Page 3)

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.

(Insert Facing Page 10)

- (1) A trap that does not maintain a proper trap seal.
- (2) An opening in a drainage system, except where lawful, that is not provided with an approved liquid-sealed trap.
- (3) A plumbing fixture or other waste discharging receptor or device that is not supplied with water sufficient to flush and maintain the fixture or receptor in a clean condition, except as otherwise provided in this code.
- (4) A defective fixture, trap, pipe, or fitting.
- (5) A trap, except where in this code exempted, directly connected to a drainage system, the seal of which is not protected against siphonage and backpressure by a vent pipe.
- (6) A connection, cross-connection, construction, or condition, temporary or permanent, that would permit or make possible by any means whatsoever for an unapproved foreign matter to enter a water distribution system used for domestic purposes.
- (7) The foregoing enumeration of conditions to which the term "insanitary" shall apply, shall not preclude the application of that term to conditions that are, in fact, insanitary.

Hot Water – Water at a temperature exceeding or equal to 100°F.

211.0 Insanitary - A condition that is contrary to sanitary principles or is injurious to health.

Conditions to which "insanitary" shall apply include the following:

(Insert Facing Page 13)

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.

Plumbing System – Includes all potable water building supply and distribution pipes, all reclaimed water systems, all plumbing fixtures and traps, all drainage and vent pipe(s), and all building drains including their respective joints and connections, devices, receptors, and appurtenances within the property lines of the premises

(Insert Facing Page 15)

301.1.2 Standards. Standards listed or referred to in this chapter or other chapters cover materials which will 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, the portion of the listed standard that is applicable shall be used. Design and materials for special conditions or materials not provided for herein are allowed to be used by special permission of the Authority Having Jurisdiction after the Authority Having Jurisdiction has been satisfied as to their adequacy in accordance with Section 301.2.

310.4 Use of Vent and Waste Pipes. Except as hereinafter provided in Sections 908.0, 909.0, 910.0, and Appendix C, no vent pipe shall be used as a soil or waste pipe, nor shall any soil or waste pipe be used as a vent.

312.6 Freezing Protection. 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-4.

312.7 Fire-Resistant Construction. All pipes penetrating floor/ceiling assemblies and fire-resistance rated walls or partitions shall be protected in accordance with the requirements of the building code.

(Insert Facing Page 21)

402.5 Setting. Fixtures shall be set level and in proper alignment with reference to adjacent walls. No water closet or bidet shall be set closer than fifteen (15) inches (381 mm) from its center to any side wall or obstruction nor closer than thirty (30) inches (762 mm) center to center to any similar fixture. The clear space in front of any water closet

or bidet shall be not less than twenty-one (21) inches (533 mm). No urinal shall be set closer than twelve (12) inches (305 mm) from its center to any side wall or partition nor closer than twenty-four (24) inches (610 mm) center to center.

Exception: The installation of paper dispensers or accessibility grab bars shall not be considered obstructions.

403.0 Water-Conserving Fixtures and Fittings.

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

403.2 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.

403.3 Water Efficiency Standards.**403.3.1 Standards for Vitreous China Plumbing Fixtures.**

403.3.1.1 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 A112.19.2-2008/ CSA B45.1-2008 | Vitreous China Plumbing Fixtures |
| ANSI/ASME A112.19.6-1995 | Hydraulic Requirements for Water Closets and Urinals |

403.3.1.2 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.

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

403.3.1.3.1 Nonwater Urinals. Nonwater urinals shall be listed and comply with the applicable standards referenced in Table 1401.1. Nonwater urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Where nonwater urinals are installed, they shall have a water distribution line rough-in to the urinal location to allow for the installation of an approved backflow prevention device in the event of a retrofit.

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

403.3.1.5 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.

403.3.2 Standards for Plumbing Fixture Fittings.

403.3.2.1 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-2005 /

CSA B125.1-2008

Plumbing Fixture Fittings

403.3.2.2 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.

403.3.2.3 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 |

403.4 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.

403.5 Pre-Rinse Spray Valve. Commercial food service pre-rinse spray valves shall have a maximum flow rate of 1.6 gallons per minute (gpm) at 60 pounds-force per square inch (psi) (0.10 L/s at 414 kPa) in accordance with ASME A112.18.1/CSA B125.1 and shall be equipped with an integral automatic shutoff.

403.6 Implementation.

403.6.1 The standards for water efficiency and labeling contained within Section 403.3 shall be in effect as of July 1, 1993, as provided in RCW 19.27.170 and amended July 1, 1998.

403.6.2 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.

(Insert Facing Page 26)

408.4 Waste Outlet. Showers shall have a waste outlet and fixture tailpiece not less than 2 inches (50 mm) in diameter. Fixture tailpieces shall be constructed from the materials specified in Section 701.1 for drainage piping. Strainers serving shower drains shall have a waterway at least equivalent to the area of the tailpiece.

Exception: In a residential dwelling unit where a 2 inch waste is not readily available and approval of the AHJ has been granted, the waste outlet, fixture tailpiece, trap and trap arm may be 1-1/2 inch when an existing tub is being replaced by a shower sized per Section 408.6(2). This exception only applies where one shower head rated at 2.5 gpm is installed.

408.6 Shower Compartments. Shower compartments, regardless of shape, shall have a minimum finished interior of nine hundred (900) square inches (0.58 m²) and shall also be capable of encompassing a thirty inch (762 mm) circle. The minimum required area and dimensions shall be measured at a height equal to the top of the threshold and at a point tangent to its centerline. The area and dimensions shall be maintained to a point of not less than seventy (70) inches (1,778 mm) above the shower drain outlet with no protrusions other than the fixture valve or valves, shower head, soap dishes, shelves, and safety grab bars or rails. Fold-down seats in accessible shower stalls shall be permitted to protrude into the thirty (30) inch (762 mm) circle.

Exceptions:

- (1) Showers that are designed to comply with ICC/ANSI A117.1.
- (2) The minimum required area and dimensions shall not apply for a shower receptor having overall dimensions of not less than thirty (30) inches (762 mm) in width and sixty (60) inches (1,524 mm) in length.

414.3 Drainage Connection. Domestic dishwashing machines shall discharge indirectly through an air gap fitting in accordance with Section 807.4 into a waste receptor, a wye branch fitting on the tailpiece of a kitchen sink, or dishwasher connection of a food waste grinder. Commercial dishwashing machines shall discharge indirectly through an air gap.



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

- (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.
- (2) Laundry rooms in commercial buildings and common laundry facilities in multi-family dwelling buildings.

(Insert Facing Page 30)

422.0 Minimum Number of Required Fixtures. For minimum number of plumbing fixtures required, see Building Code Chapter 29 and Table 2902.1.

Sections 422.1 through 422.5 and Table 422.1 are not adopted.

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 501.1. 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 Authority Having Jurisdiction. A list of accepted gas appliance standards is included in Table 1401.1.

- (1) Fuel-burning water heaters may be installed in a closet located in the bedroom or bathroom provided the closet is equipped with a listed, gasketed door assembly and a listed self-closing device. The self-closing door assembly shall meet the requirements of Section 504.1.1. The door assembly shall be installed with a threshold and bottom door seal and shall meet the requirements of Section 504.1.2. All combustion air for such installations shall be obtained from the outdoors in accordance with the International Mechanical Code. The closet shall be for the exclusive use of the water heater.
- (2) Water heater shall be of the direct vent type.

504.1 Location. Water heater installation in bedrooms and bathrooms shall comply with one of the following:

TABLE 501.1^{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.

²Non-storage 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.

506.0 Air for Combustion and Ventilation. For issues relating to combustion and ventilation air, see the Mechanical Code.

Delete remainder of Section 506.

505.2 Safety Devices. 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.

(Insert Facing Page 38)

Sections 507.6 through 507.9 are not adopted.

507.13 Installation in Garages. Appliances in garages and in adjacent spaces that open to the garage and are not part of the living space of a dwelling unit shall be installed so that burners, burner-ignition devices and ignition sources are located not less than 18 inches above the floor unless listed as flammable vapor ignition resistant.

(Insert Facing Page 42)

507.16 Venting of Flue Gases. This section is not adopted.

Sections 507.18 through 507.22 are not adopted.

(Insert Facing Page 43)

509.0 Venting of Appliances. Delete entire section.

(Insert Facing Page 45)

510.0 Sizing of Category I Venting Systems. Delete entire section.

(Insert Facing Page 58)

511.0 Direct Vent Equipment. Delete entire Section.

(Insert Facing Page 62)

persons having control of such devices or assemblies. Such devices or assemblies shall be tested in accordance with Section 603.4.2 and WAC 246-290-490. If found to be defective or inoperative, the device or assembly shall be replaced or repaired. No device or assembly shall be removed from use or relocated or other device or assembly substituted, without the approval of the authority having jurisdiction.

Testing shall be performed by a Washington State Department of Health certified backflow assembly tester.

603.1 General. 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 Authority Having Jurisdiction 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.

603.2 Approval of Devices or Assemblies. Before any device or assembly is installed for the prevention of backflow, it shall have first been approved by the authority having jurisdiction. Devices or assemblies shall be tested for conformity with recognized standards or other standards acceptable to the authority having jurisdiction. Backflow prevention devices and assemblies shall comply with Table 603.2, except for specific applications and provisions as stated in Section 603.5.1 through 603.5.21.

All devices or assemblies installed in a potable water supply system for protection against backflow shall be maintained in good working condition by the person or

(Insert Facing Page 90)

**TABLE 603.2
BACKFLOW PREVENTION DEVICES, ASSEMBLIES AND METHODS**

| Device, Assembly, or Method | Applicable Standards | Pollution (Low Hazard) | | Contamination (High Hazard) | | Installation ^{2,3} |
|-----------------------------|----------------------|------------------------|---------------|-----------------------------|---------------|-----------------------------|
| | | Back-Siphonage | Back-Pressure | Back-Siphonage | Back-Pressure | |

Delete the following line from Table 6-2:

| | | | | | | |
|--|-----------|---|--|--|--|---|
| Backflow preventer for Carbonated Beverage Dispensers (two independent check valves with a vent to the atmosphere) | ASSE 1022 | X | | | | Installation includes carbonated beverage machines or dispensers. These devices operate under intermittent or continuous pressure conditions. |
|--|-----------|---|--|--|--|---|

603.4.2 Testing. For devices and assemblies other than those regulated by the Washington State Department of Health in conjunction with the local water purveyor for the protection of public water systems, the Authority Having Jurisdiction 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 Authority Having Jurisdiction.

(Insert Facing Page 92)

603.5.6 Protection from Lawn Sprinklers and Irrigation Systems. 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 (AVB).
- (2) Pressure vacuum breaker backflow prevention assembly (PVB).
- (3) Spill-resistant pressure vacuum breaker (SVB).
- (4) Reduced pressure principle backflow prevention assembly (RP).
- (5) A double check valve backflow prevention assembly (DC) may be allowed when approved by the water purveyor and the Authority Having Jurisdiction.

603.5.10 Steam or Hot Water Boilers. Potable water connections to steam or hot water boilers shall be protected by an air gap or reduced pressure principle backflow preventer.

(Insert Facing Page 94)

603.5.12 Beverage Dispensers. Potable water supply to carbonators shall be protected by a listed reduced pressure principle backflow preventer as approved by the Authority Having Jurisdiction for the specific use. The backflow preventer shall be located in accordance with Section 603.4.3. The piping downstream of the backflow preventer shall not be of copper, copper alloy, or other material that is affected by carbon dioxide.

603.5.13 Prohibited Location. Backflow preventers shall not be located in any area containing fumes or aerosols that are toxic, poisonous, infectious, or corrosive.

603.5.15 Protection from Fire Systems. Except as provided under Sections 603.5.15.1 and 603.5.15.2, 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 or townhouse 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 backflow prevention assembly (DC).
- (2) Double check detector fire protection backflow prevention assembly.
- (3) Reduced pressure principle backflow prevention assembly (RP).
- (4) Reduced pressure detector fire protection backflow prevention 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 1401.1.

604.14 Termination of Plastic Pipe. 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.

(Insert Facing Page 96)

608.5 Drains. 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.

(Insert Facing Page 102)

610.4 Parallel Distribution Systems. Systems within the range of Table 610.4 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.

(Insert Facing Page 104)

612.1 General. Where residential fire sprinkler systems are installed, they shall be installed in accordance with the International Building Code or International Residential Code.

613.0 Insulation of Potable Water Piping. Domestic water piping within commercial buildings shall be insulated in accordance with Section C403.2.8 and Table C403.2.8 or Section C404.6 of the Washington State Energy Code, as applicable.

(Insert Facing Page 108)

701.1 Drainage Piping. Materials for drainage piping shall be in accordance with one of the referenced standards in Table 701.1 except that:

- (1) No galvanized wrought-iron or galvanized steel pipe shall be used underground and shall be kept not less than 6 inches (152 mm) above ground.
- (2) ABS and PVC DWV piping installations shall be installed in accordance with applicable standards in
⇒ Table 1401.1. Except for individual single family dwelling units, materials exposed within ducts or plenums shall have a maximum flame-spread index of 25 and a maximum smoke-developed index of 50, when tested in accordance with ASTM E-84 and UL 723.
- (3) No vitrified clay pipe or fittings shall be used above ground or where pressurized by a pump or ejector. They shall be kept not less than 12 inches (305 mm) below ground.
- (4) Copper tube for drainage and vent piping shall have a weight of not less than that of copper drainage tube type DWV.
- (5) Stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than 6 inches (152 mm) above ground.
- (6) Cast-iron soil pipe and fittings shall be listed and tested in accordance with standards referenced in Table 1401.1. Such pipe and fittings shall be marked with country of origin and identification of the original manufacturer in addition to markings required by referenced standards.

704.3 Commercial Dishwashing Machines and Sinks.

Except where specifically required to be connected indirectly to the drainage system, or when first approved by the authority having jurisdiction, all plumbing fixtures, drains, appurtenances, and appliances shall be directly connected to the drainage system of the building or premises.

(Insert Facing Page 112)

Effective July 1, 2013

Notes for Table 703.2:

- 1 Excluding trap arm.
- 2 Except sinks, urinals, and dishwashers - Exceeding 1 fixture unit.
- 3 Except six-unit traps or water closets.
- 4 Only four water closets or six-unit traps allowed on a vertical pipe or stack; and not to exceed three water closets or six-unit traps on a horizontal branch or drain.
Exception: In a single family dwelling addition or alteration where a 4 inch horizontal waste is not readily available four water closets not to exceed 1.6 gpf each may be allowed on a 3 inch horizontal waste when approved by the AHJ.
- 5 Based on one-fourth inch per foot (20.8 mm/m) slope. For one-eighths of an inch per foot (10.4 mm/m) slope, multiply horizontal fixture units by a factor of 0.8.
- 6 The diameter of an individual vent shall be not less than one and one-fourth inches (32 mm) nor less than one-half the diameter of the drain to which it is connected. Fixture unit load values for drainage and vent piping shall be computed from Table 702.1 and Table 702.2(b). Not to exceed one-third of the total permitted length of a vent shall be permitted to be installed in a horizontal position. Where vents are increased one pipe size for their entire length, the maximum length limitations specified in this table do not apply. This table is in accordance with the requirements of Section 901.2.

705.4.2 Mechanical Joints. Mechanical joints for cast-iron pipe and fittings shall be of the compression or mechanical joint coupling type. Compression type joints with an elastomeric gasket for cast-iron hub and spigot pipe shall comply with ASTM C 564. Hub and spigot shall be clean and free of dirt, mud, sand, and foreign materials. Cut pipe shall be free from sharp edges. Fold and insert gasket into hub. Lubricate the joint following manufacturer's instructions. Insert spigot into hub until the spigot end of the pipe bottom out in the hub. Use the same procedure for the installation of fittings.

A mechanical joint shielded coupling type for hubless cast-iron pipe and fittings shall have a metallic shield and shall comply with ASTM A 1056, ASTM C 1277, ASTM C 1540, or CISPI 310. The elastomeric gasket shall comply with ASTM C 564. Hubless cast-iron pipe and fittings shall be clean and free of dirt, mud, sand, and foreign materials. Cut pipe shall be free from sharp edges. Gasket shall be placed on the end of the pipe or fitting and the stainless steel shield and clamp assembly on the end of the other pipe or fitting. Pipe or fittings shall be seated against the center stop inside the elastomeric sleeve. Slide the stainless steel shield and clamp assembly into position centered over the gasket and tighten. Bands shall be tightened using an approved calibrated torque wrench specifically set by the manufacturer of the couplings.

(Insert Facing Page 113)

710.3 Sewage Ejector and Pump. 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).

PART II — BUILDING SEWERS

Part II Building Sewers. Delete all of Part II, Sections 713 to 723, and Tables 717.1 and 721.1.

(Insert Facing Page 118)

903.1 Applicable Standards. Vent pipe and fittings shall comply with the applicable standards referenced in Table 701.1, except that:

- (1) No galvanized steel or 304 stainless steel pipe shall be installed underground and shall be not less than 6 inches (152 mm) above ground.
 - (2) ABS and PVC DWV piping installations shall be installed in accordance with applicable standards in Table 1401.1. Except for individual single family dwelling units, materials exposed within ducts or plenums shall have a maximum flame-spread index of 25 and a maximum smoke developed index of 50, when tested in accordance with ASTM E-84 and UL 723.
- ⇒

908.2 Horizontal Wet Venting for Bathroom Groups.

Water closets, bathtubs, showers, bidets, and floor drains within one or two bathroom groups located on the same floor level and for private use shall be permitted to be vented by a wet vent. The wet vent shall be considered the vent for the fixtures and shall extend from the connection of the dry vent along the direction of the flow in the drain pipe to the most downstream fixture drain or trap arm connection to the horizontal branch drain. Each wet-vented fixture drain or trap arm shall connect independently to the wet-vented horizontal branch drain. Each individual fixture drain or trap arm shall connect horizontally to the wet-vented horizontal branch drain or shall be provided with a dry vent. The trap to vent distance shall be in accordance with Table 1002.2. Only the fixtures within the bathroom groups shall connect to the wet-vented horizontal branch drain. The water closet fixture drain or trap arm connection to the wet vent shall be downstream of any fixture drain or trap arm connections. Any additional fixtures shall discharge downstream of the wet-vent system and be conventionally vented.

hydromechanical grease interceptor. Commercial food waste disposers shall be permitted to discharge directly into the building's drainage system. |

1014.1.3 Food Waste Disposal Units and Dishwashers.

Unless specifically required or permitted by the authority having jurisdiction, no food waste disposal unit or dishwasher shall be connected to or discharge into any

(Insert Facing Page 133)

1101.3 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.

ABS and PVC DWV piping installations shall be installed in accordance with IS 5 and IS 9. Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a maximum flame-spread index of 25 and a maximum smoke-developed index of 50, when tested in accordance with ASTM E-84 and UL 723.

1101.12 Cleanouts. Cleanouts for building storm drains shall comply with the requirements of this Section.

1101.12.1 Locations. 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.

1101.12.2 Cleaning. 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.

1101.12.3 Access. 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.

1101.12.4 Manholes. Approved manholes may be installed in lieu of cleanouts when first approved by the Authority Having Jurisdiction. 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.

(Insert Facing Page 138)

1108.0 Controlled-Flow Roof Drainage. This section is not adopted.

(Insert Facing Page 140)

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

1309.2 Purpose. The purpose of this chapter is to provide minimum requirements for the design, installation, testing and verification of medical gas, medical vacuum systems, and related permanent equipment, from the central supply system to the station outlets or inlets.

(Insert Facing Page 200)

1321.3 Minimum Station Outlets/Inlets. Station outlets and inlets for medical gas and medical vacuum systems for facilities licensed or certified by the Washington State Department of Health (DOH) or Washington State Department of Social and Health Services (DSHS) shall be provided as listed in Chapter 246-320 WAC as required by the applicable licensing rules as applied by DOH Construction Review Services. All other medical gas and medical vacuum systems shall be provided as listed in Table 1312.3.

1327.0 System Verification.

1327.1 Verification. Prior to any medical gas system being placed in service, each and every system shall be verified as described in Section 1328.2.

1327.1.1 Verification Tests. Verification tests shall be performed only after all tests required in Section 1326.0, Installer Performed Tests, have been completed.

Testing shall be conducted by a party technically competent and experienced in the field of medical gas and vacuum pipeline testing and meeting the requirements of ANSI/ASSE Standard 6030, Medical Gas Verifiers Professional Qualifications Standard.

Testing shall be performed by a party other than the installing contractor or material vendor.

When systems have been installed by in-house personnel, testing shall be permitted by personnel of that organization who meet the requirements of this section.

CHAPTER 14 REFERENCED STANDARDS

Table 1401.1

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.

(Remainder of page remains as printed)

Add the following standards to Table 1401.1:

| Standard Number | Standard Title | Application |
|------------------------|--|---------------------|
| WAC 246-290-490 | Washington State Department of Health Cross Connection Control Requirements | Backflow Protection |

1601.1.1 Allowable use of Alternative Water. Where approved or required by the authority having jurisdiction, alternate water sources (reclaimed (recycled) water, gray water and on-site treated nonpotable water) shall be permitted to be used in lieu of potable water for the applications identified in this chapter. Gray water shall not be used for irrigation except as permitted by the department of health rules.

1601.2 System Design. Alternate water source systems in accordance with this chapter shall be designed by a person registered or licensed to perform plumbing design work. Components, piping, and fittings used in an alternate water source system shall be listed.

⇒

1601.5.2 Maintenance Log. A maintenance log for gray water and on-site treated nonpotable water systems required to have a permit in accordance with Section 1601.3 shall be maintained by the property owner and be available for inspection. The property owner or designated appointee shall ensure that a record of testing, inspection and maintenance in accordance with Table 1601.5 is maintained in the log. The log will indicate the frequency of inspection and maintenance for each system.

1601.3 Permit. It shall be unlawful for a person to construct, install, alter, or cause to be constructed, installed, or altered an alternate water source system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.

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1601.10 Abandonment. Where alternate water source systems for nonpotable use are abandoned, the procedure for abandonment shall be as required by the Authority Having Jurisdiction. Components of the abandoned system including, but not limited to, pipe, tubing, fittings and valves shall not be used for potable water systems.

1602.0 Gray Water Systems, is not adopted. Gray water shall not be used for irrigation except as permitted by the department of health rules.

(Insert Facing Page 244)

1604.1 General. The provisions of this section shall apply to the installation, construction, alteration, and repair of on-site treated nonpotable water systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, and other uses approved by the authority having jurisdiction.



(Insert Facing Page 251)

1702.1 General. The installation, construction, alteration, and repair of rainwater catchments systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, irrigation, industrial processes, water features, cooling tower makeup and other uses shall be approved by the authority having jurisdiction.

Exception: Exterior irrigation piping.

1702.2 Permit. It shall be unlawful for a person to construct, install, alter, or cause to be constructed, installed, or altered a nonpotable rainwater catchment system in a building or on a premises without first obtaining a permit to do such work from the authority having jurisdiction.

Exceptions:

- (1) A permit is not required for exterior rainwater catchment systems used for outdoor drip and subsurface irrigation with a maximum storage capacity of 360 gallons (1363 L).
- (2) A plumbing permit is not required for rainwater catchment systems for single family dwellings where outlets, piping, and system components are located on the exterior of the building. This does not exempt the need for permits where required for electrical connections, tank supports, or enclosures.

1702.2.1 Plumbing Plan Submission. No permit for a rainwater catchment system shall be issued until complete plumbing plans, with data satisfactory to the Authority Having Jurisdiction, have been submitted and approved.

1702.12 Abandonment. Where nonpotable rainwater catchment systems are abandoned, the procedure for abandonment shall be as required by the Authority Having Jurisdiction. Components of the abandoned system including, but not limited to, pipe, tubing, fittings and valves shall not be used for potable water systems.

(Insert Facing Page 260)

2.6.1 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.

(Insert Facing Page 358)

2.7.1 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.

(Insert Facing Page 364)

2.1.2 Primer. Listed primers shall be used that are compatible with the type of listed CPVC cement and pipe used. The primer shall be a true solvent for CPVC, containing no slow drying ingredient. Cleaners shall not be allowed to be used as a substitute or equivalent for a listed primer.

Exception: Listed solvent cements that do not require the use of primer shall be permitted for use with CPVC pipe and fittings, manufactured in accordance with ASTM D2846 (½ in. – 2 in. diameter).



(Insert Facing Page 393)