WASHINGTON STATE
BUILDING CODE

CHAPTERS 51-56 and 51-57 WAC

UNIFORM PLUMBING CODE
and
UNIFORM PLUMBING CODE STANDARDS

2009 Edition

Washington State Building Code Council

Effective July 1, 2010

Copies of the State Building Codes may be obtained from:

Washington Association of Building Officials
Post Office Box 7310
Olympia, Washington 98507-7310
(888) 664-9515 www.wabo.org/bookstore.htm

Complete copies of the 2009 Uniform Plumbing Code as published by the International Association of Plumbing and Mechanical Officials may be obtained from:

International Association of Plumbing and Mechanical Officials
(800) 85-IAPMO (854-2766) Fax 877 85-CODES
http://publications.iapmo.org/

Fourth Edition Titled
Uniform Plumbing Code
Chapters 51-56/51-57 WAC
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Fourth Edition based on
WSR 10-03-101/WSR 10-04-003

Preface

Authority: The Uniform Plumbing Code (Chapters 51-56 and 51-77 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: Chapters 51-56 and 51-57 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 51-54;
Uniform Plumbing Code, Standards and amendments – WAC 51-56, 51-57.

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 2012 as part of its consideration of adoption of the 2012 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 51-11); 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.

Washington State Building Code Council
Post Office Box 42525
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www.sbcc.wa.gov
(360) 725-2967 Fax (360) 586-9383
e-mail: sbcc@commerce.wa.gov

Printing Format: This version of the rules is published as a series of insert or replacement pages. 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 12, 2009. The rules are effective throughout the state on July 1, 2010. (This version of the code is based on WAC 51-56 and 51-57 as published in WSR 10-03-110. It is subject to review by the State Legislature during the 2010 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 2010. Such fees may be changed by the State Legislature.

Opinions: Only at the request of local enforcement officials, 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 2009 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 2009 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 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 51-56-007 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, 2010, unless local government residential amendments have been approved by the State Building Code Council.

101.4.1.4 Conflicts Between Codes. Delete paragraph.

(Insert Facing Page 1)

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

102.4 Appeals. All persons shall have the right to appeal a decision of the Authority Having Jurisdiction. 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 Authority Having Jurisdiction.

(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 12)

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

(Insert Facing Page 14)

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 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.

(Insert Facing Page 16)

301.1.3 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, 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 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.

(Insert Facing Page 21)

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

(Insert Facing Page 23)

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 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 24)

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.

402.3.1.3.1 Nonwater Urinals. Nonwater urinals shall be listed and comply with the applicable standards referenced in Table 14-1. 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.

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.

(Insert Facing Page 29)

407.5 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.

(Insert Facing Page 30)

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

411.2.1 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.

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

411.7 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.

(Insert Facing Page 32)

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

Sections 412.1 through 412.6 and Table 4-1 are not adopted.

(Insert Facing Page 34)

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 Authority Having Jurisdiction. A list of accepted gas appliance standards is included in Table 14-1.

502.0 Definitions

502.2 Chimney – Delete definition

502.3 Chimney, Factory-Built – Delete definition

502.4 Chimney, Masonry – Delete definition

502.5 Chimney, Metal – Delete definition

502.7 Direct Vent Appliance – Delete definition

502.8 Flue Collar – Delete definition

502.9 Gas Vent, Type B – Delete definition

502.10 Gas Vent, Type L – Delete definition

502.12 Vent – Delete definition

TABLE 5-1[1,3]

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

Notes:
[1]The first hour rating is found on the "Energy Guide" label.
[2]Non-storage and solar water heaters shall be sized to meet the appropriate first hour rating as shown in the table.
[3]For replacement water heaters, see Section 101.4.1.1.1.

(Insert Facing Page 41)

502.13 Vent Connector – Delete definition

502.14 Venting System – Delete definition

504.1 Inspection of Chimneys and Vents. Delete Paragraph.

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

(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 505.1.1. The door assembly shall be installed with a threshold and bottom door seal and shall meet the requirements of Section 505.1.2. 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.

(Insert Facing Page 42)

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

Delete remainder of Section 507.

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.

(Insert Facing Page 43)

Sections 508.6 through 508.9 are not adopted.

(Insert Facing Page 46)

508.12 Building Structural Members. This section is not adopted.

(Insert Facing Page 47)

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

Sections 508.20 through 508.24.5 are not adopted.

(Insert Facing Page 48)

510.0 Venting of Equipment. Delete entire section.

(Insert Facing Page 50)

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

(Insert Facing Page 65)

512.0 Direct Vent Equipment. Delete entire Section.

The remainder of Chapter 5 is not adopted

(Insert Facing Page 70)

601.1 Except where not deemed necessary for safety or sanitation by the AHJ, each plumbing fixture shall be provided with an adequate supply of potable running water piped thereto in an approved manner, so arranged as to flush and keep it in a clean and sanitary condition without danger of backflow or cross-connection. Water closets and urinals shall be flushed by means of an approved flush tank or flushometer valve.

Exception: Listed fixtures that do not require water for their operation and are not connected to the water supply.

⇨ Kitchen sinks, lavatories, bathtubs, showers, bidets, laundry tubs and washing machine outlets shall be provided with hot and cold water. This requirement shall not supersede the requirements for individual temperature control limitations for public lavatories, bidets, bathtubs, whirlpool bathtubs and shower control valves.

(Insert Facing Page 107)

TABLE 6-2
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.

(Insert Facing Page 108)

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 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.

603.1 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 6-2, except for specific applications and provisions as stated in Section 603.4 through 603.4.22.

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 persons having control of such devices or assemblies. Such devices or assemblies shall be tested in accordance with Section 603.3.3 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.

(Insert Facing Page 110)

603.3.3 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 111)

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) Spill-resistant pressure vacuum breaker
(4) Reduced pressure backflow preventer
(5) A double check valve may be allowed when approved by the water purveyor and the Authority Having Jurisdiction.

(Insert Facing Page 112)

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

603.4.16.1 Except as provided under Sections 603.4.16.2 and 603.4.16.3, 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.

603.4.10 Potable water make up connections to steam or hot water boilers shall be protected by an air gap or reduced pressure principle backflow preventer.

603.4.12 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 603.3.4. The piping downstream of the backflow preventer shall not be of copper, copper alloy, or other material that is affected by carbon dioxide.

(Insert Facing Page 113)

604.15 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 116)

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.

(Insert Facing Page 117)

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.

➔

(Insert Facing Page 120)

701.1.2 ABS and PVC DWV piping installations shall be installed in accordance with applicable standards in Table 14-1. 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).

(Insert Facing Page 125)

704.3 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 127)

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.

(Insert Facing Page 131)

PART II — BUILDING SEWERS

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

(Insert Facing Page 133)

903.1.2 ABS and PVC DWV piping installations shall be installed in accordance with applicable standards in Table 14-1. 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).

(Insert Facing Page 143)

908.2.1 Where permitted. 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 10-1. 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.

(Insert Facing Page 145)

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 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).

(Insert Facing Page 155)

1101.12.0 Cleanouts.

1101.12.1 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.

1101.12.2 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.

1101.12.3 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.

1101.12.4 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 157)

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

(Insert Facing Page 158)

1309.1 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 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 218)

1313.3 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 13-3.

(Insert Facing Page 221)

1328.0 System Verification.

1328.1 Prior to any medical gas system being placed in service, each and every system shall be verified as described in Section 1328.2.

1328.1.1 Verification tests shall be performed only after all tests required in Section 1327.0, 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.

(Insert Facing Page 234)

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.

(Remainder of page remains as printed)

Add the following standards to Table 14-1:

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

(Insert Facing Page 239)

Part I, 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 269)

Part II *(This replaces the UPC Part II in its entirety.)*

1613.0 Nonpotable Reuse Water Systems - General.

(A) The provisions of Part II of this chapter shall apply to the installation, construction, alteration, and repair of nonpotable reuse water intended to supply uses such as water closets, urinals, and trap primers for floor drains, and floor sinks, irrigation, industrial processes, water features and other uses approved by the Authority Having Jurisdiction. Potable water supplied as makeup water in these systems shall be protected against back-pressure and backsiphonage in accordance with Sections 602.0 and 603.0.

(B) No permit for any nonpotable reuse water system shall be issued until complete plumbing plans, with appropriate data satisfactory to the Authority Having Jurisdiction, have been submitted and approved. No changes or connections shall be made to either the nonpotable water system or the potable water system within any site containing a nonpotable reuse water system without approval by the Authority Having Jurisdiction.

(C) Before the building is occupied, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction and other authorities having jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

(D) A nonpotable reuse water system shall be designed by a person registered or licensed to perform plumbing design work.

1614.0 Definitions. Nonpotable reuse water shall include the following:

Reclaimed Water - Water derived in any part from wastewater with a domestic wastewater component that has been adequately and reliably treated, so that it can be used for beneficial purposes. Reclaimed water is not considered a wastewater (RCW 90.46.010);

Greywater or Gray Water - Domestic type flows from bathtubs, showers, bathroom sinks, washing machines, dishwashers, and kitchen or utility sinks. Gray water does not include flow from a toilet or urinal (RCW 90.46.010); and

Other nonpotable wastewater sources from appliances and fixtures excluding wastewater streams containing black water.

For rainwater harvesting, see Part III.

1615.0 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any nonpotable reused water system within a building or on a premises without first obtaining a permit to do such work from the Authority Having Jurisdiction.

1616.0 Drawings and Specifications. The Authority Having Jurisdiction shall be permitted to require any or all of the following information to be included with or in the plot plan before a permit is issued for a nonpotable reused water system.

(A) A plot plan drawn to scale and completely dimensioned, showing lot lines and structures, location of present and proposed potable water supplies and meters, water wells, streams, auxiliary water supply and systems, nonpotable reused water supply and meters, drain lines, and locations of private sewage disposal systems and 100 percent expansion areas or building sewer connected to the public sewer.

(B) Details of construction including riser diagrams or isometrics and a full description of the complete installation, including installation methods, construction, and materials as required by the Authority Having Jurisdiction. To the extent permitted by structural conditions, nonpotable reused water risers within the toilet room, including appurtenances such as air/vacuum relief valves, pressure reducing valves, etc., shall be installed in the opposite end of the room containing the served fixtures from the potable water risers or opposite walls, as applicable. To the extent permitted by structural conditions, nonpotable reused water headers and branches off risers shall not be run in the same wall or ceiling cavity of the toilet room where potable water piping is run.

(C) Detailed initial and annual testing requirements as outlined elsewhere in this chapter.

1617.0 Pipe Material/Pipe Identification. Nonpotable reused water systems shall comply with Sections 1617.1 and 1617.2.

1617.1 Pipe Materials. Reclaimed water and nonpotable water reuse pipe, valves and fittings shall conform to the requirements of Sections 604.0, 605.0 and 606.0.

1617.2 Color and Information.

1617.2.1 Reclaimed Water. Reclaimed water systems shall have a purple background with black uppercase lettering with the words "CAUTION: RECLAIMED WATER, DO NOT DRINK." The minimum size of the letters and length of the color field shall conform to Table 6-1. Where used, a colored identification band shall be indicated every twenty feet (6,096 mm) not less than once per room, and shall be visible from the floor level. Marking is not required for pipe manufactured with purple color integral to the pipe and marked with black uppercase lettering to read "CAUTION: NONPOTABLE RECLAIMED WATER, DO NOT DRINK" in intervals not to exceed five feet (1,524 mm). All valves, except fixture supply control valves shall be equipped with a locking feature. All mechanical equipment that is appurtenant to the reclaimed water system shall be painted purple.

(Insert Replacing Page 280)

1617.2.2 Other Nonpotable Reused Water. Except as noted in Section 1617.2.1, nonpotable water systems shall have a yellow background with black uppercase lettering, with the words "CAUTION: NONPOTABLE WATER, DO NOT DRINK." Each nonpotable system shall be identified to designate the liquid being conveyed, and the direction of normal flow shall be clearly shown. The minimum size of the letters and length of the color field shall conform to Table 6-1.

The background color and required information shall be indicated every twenty feet but not less than once per room, and shall be visible from the floor level. Where concealed within construction, the piping shall be labeled on two opposing sides of the pipe within each stud or joist bay.

1618.0 Installation.

1618.1 Collection Reservoir. Nonpotable reuse water shall be collected in an approved reservoir constructed of durable, nonabsorbent and corrosion-resistant materials. The reservoir shall be a closed and gas-tight vessel. Access openings shall be provided to allow inspection and cleaning of the reservoir interior. The reservoir shall be sized to limit the retention time of nonpotable reuse water to a maximum of seventy-two hours.

1618.1.1 Filtration. Nonpotable reuse water entering the reservoir shall pass through an approved filter such as a media, sand or diatomaceous earth filter.

1618.1.2 Required Valve. A full-open valve shall be installed downstream of the last fixture connection to the nonpotable reuse water discharge pipe before entering the required filter.

1618.1.3 Overflow. The collection reservoir shall be equipped with an overflow pipe of the same diameter as, or larger than, the influent pipe for the nonpotable reuse water. The overflow shall be indirectly connected to the sanitary drainage system.

1618.1.4 Drain. A drain shall be located at the lowest point of the collection reservoir and shall be indirectly connected to the sanitary drainage system. The drain shall be the same diameter as the overflow pipe required in Section 1618.1.3.

1618.1.5 Disinfection. Nonpotable reuse water shall be disinfected by an approved method that uses one or more disinfectants such as chlorine, iodine or ozone.

1618.1.6 Makeup Water. Potable water shall be supplied as a source of makeup water for nonpotable water systems that serve plumbing fixtures. The potable supply shall be protected against backflow in accordance with Chapter 6. A full-open valve shall be located on the makeup water supply line to the collection reservoir.

(A) Hose bibbs shall not be allowed on nonpotable reuse water piping systems.

(Insert Replacing Page 281)

(B) The nonpotable reuse water system and the potable water system within the building shall be provided with the required appurtenances (valves, air/vacuum relief valves, etc.,) to allow for deactivation or drainage as required by this chapter for a cross-connection test in Section 1620.0.

(C) Nonpotable reuse water pipes shall not be run or laid in the same trench as potable water pipes. A ten foot (3,048 mm) horizontal separation shall be maintained between pressurized, buried reclaimed and potable water piping. Buried potable water pipes crossing pressurized nonpotable reuse water pipes shall be laid not less than twelve inches (305 mm) above the nonpotable reuse water pipes. Nonpotable reuse water pipes laid in the same trench or crossing building sewer or drainage piping shall be installed in compliance with Sections 609.0 and 720.0 of this code. Nonpotable reuse water pipes shall be protected similar to potable water pipes.

1619.0 Signs.

1619.1 Commercial, Industrial and Institutional Room Entrance Signs. In commercial, industrial, and institutional occupancies, all rooms using nonpotable reuse water for water closets and/or urinals shall be identified with signs. Each sign shall contain one-half inch (12.7 mm) letters of a highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) shall be visible to all users. The number and location of the signs shall be approved by the Authority Having Jurisdiction and shall contain the following text:

TO CONSERVE WATER,

THIS BUILDING USES RECLAIMED WATER TO FLUSH TOILETS AND URINALS.

1619.2 Equipment Room Signs. Each room containing nonpotable reuse water equipment shall have a sign posted with the following wording in one-inch (25.4 mm) letters on a purple background:

CAUTION

NONPOTABLE RECLAIMED WATER, DO NOT DRINK.

DO NOT CONNECT TO DRINKING WATER SYSTEM.

NOTICE

CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

This sign shall be posted in a location that is visible to anyone working on or near nonpotable reuse water equipment.

1619.3 Where water closets and/or urinals are flushed with nonpotable reuse water, the fixture shall be labeled:

CAUTION

TO CONSERVE WATER,
THIS BUILDING USES
NONPOTABLE RECLAIMED WATER
TO FLUSH TOILETS AND URINALS

1619.4 Valve Access Door Signs. Each nonpotable reuse water valve within a wall shall have its access door into the wall equipped with a warning sign approximately six inches by six inches (152 mm x 152 mm) with wording in one-half inch (12.7 mm) letters on a purple background. The size, shape, and format of the sign shall be substantially the same as that specified in subsection (B) above. The signs shall be attached inside the access door frame and shall hang in the center of the access door frame. This sign requirement shall be applicable to any and all access doors, hatches, etc., leading to nonpotable reuse water piping and appurtenances.

1620.0 Inspection and Testing.

1620.1 Nonpotable reuse water piping shall be inspected and tested as outlined in this code for testing of potable water piping.

1620.2 An initial and subsequent annual inspection and test shall be performed on both the potable and nonpotable reuse water systems. The potable and nonpotable reuse water systems shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection as follows:

1620.2.1 Visual Dual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Authority Having Jurisdiction and other authorities having jurisdiction.

(i) Meter locations of the nonpotable reuse water and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.

(ii) Pumps and equipment, equipment room signs, and exposed piping in the equipment room shall be checked.

(iii) Valves shall be checked to ensure that valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.

1620.2.2 Cross-Connection Test. The following procedure shall be followed by the applicant in the presence of the Authority Having Jurisdiction and other authorities having jurisdiction to determine whether a cross connection occurred.

(i) The potable water system shall be activated and pressurized. The nonpotable reuse water system shall be shut down and completely drained.

(ii) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the nonpotable reuse water system is empty. The minimum period the nonpotable reuse water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and nonpotable reuse water distribution systems, but in no case shall that period be less than one hour.

(iii) Fixtures, potable and reclaimed, shall be tested and inspected for flow. Flow from any nonpotable reuse water system outlet shall indicate a cross-connection. No flow from a potable water outlet would indicate that it is connected to the nonpotable reuse water system.

(iv) The drain on the nonpotable reuse water system shall be checked for flow during the test and at the end of the period.

(v) The potable water system shall then be completely drained.

(vi) The nonpotable reuse water system shall then be activated and pressurized.

(vii) The nonpotable reuse water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than one hour.

(viii) Fixtures, potable and reclaimed, shall be tested and inspected for flow. Flow from any potable water system outlet shall indicate a cross-connection. No flow from a nonpotable reuse water outlet would indicate that it is connected to the potable water system.

(ix) The drain on the potable water system shall be checked for flow during the test and at the end of the period.

(x) If there is no flow detected in any of the fixtures that would have indicated a cross-connection, the potable water system shall be repressurized.

1620.2.3 Cross-Connection Discovered. The following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:

(i) Nonpotable reuse water piping to the building shall be shut down at the meter, and the nonpotable reuse water riser shall be drained.

(Insert Replacing Page 282)

(ii) Potable water piping to the building shall be shut down at the meter.

(iii) The cross-connection shall be uncovered and disconnected.

(iv) The building shall be retested following procedures listed in subsections (B)(1) and (2) above.

(v) The potable water system shall be chlorinated with fifty ppm chlorine for twenty-four hours.

(vi) The potable water system shall be flushed after twenty-four hours, and a standard bacteriological test shall be performed. If test results are acceptable, the potable water system shall be permitted to be recharged.

1620.3 An annual inspection of the nonpotable reuse water system, following the procedures listed in subsection 1620.0 (B)(1), shall be required. Annual cross-connection testing, following the procedures listed in subsection 1620.0 (B)(2), shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less often than once in four years. Alternate testing requirements shall be permitted by the Authority Having Jurisdiction.

1621.0 Sizing. Nonpotable reuse water piping shall be sized as outlined in this code for sizing potable water piping.

1622.0 Abandonment of Nonpotable Reuse Water Systems. Where nonpotable reuse water 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.

Part III

1623.0 Rainwater Harvesting Systems - General. All components of the system not specifically addressed by the provisions of Part III of this chapter shall meet all applicable sections of this code, and any applicable manufacturer's installation instructions.

Engineered systems shall be installed per plans and specifications of the engineer of record.

1624.0 Scope. Applications for rainwater harvesting are unique for each application. For this reason, each rainwater harvesting system proposed for use must be engineered and site-specific and are subject to the approval of the Authority Having Jurisdiction. The requirement for the system to be engineered may be waived by the Authority Having Jurisdiction.

1624.1 Water Uses. Harvested rainwater uses may include water closets, urinals, hose bibbs, industrial applications, and irrigation purposes. Other uses may be allowed when first approved by the Authority Having Jurisdiction.

1625.0 Definitions. In addition to other definitions used in the Uniform Plumbing Code, the following definitions apply to rainwater harvesting systems.

1625.1 Auxiliary Supply. The piping arranged and protected from contamination to provide an alternate means of filling a cistern.

1625.2 Cistern. The central storage component of the rainwater harvesting system. Protection and maintenance of the cistern is essential for the health of the system.

1625.3 Debris Excluder. A screen or other device installed on the gutter or downspout system to prevent the accumulation of leaves, needles, or other debris in the system.

1625.4 Flat. Having a slope no greater than 1 in 50.

1625.5 Piping System. The system of pipes that conveys the harvested rainwater and distributes it to various fixtures.

1625.6 Prefiltration. A device to mechanically remove sediment and debris.

1625.7 Pump or Pressure System. The mechanical device necessary to distribute the harvested rainwater from the cistern to the designated fixtures.

1625.8 Rainwater Harvesting System (RWS). A cistern(s), pipe, fittings, pumps and other plumbing appurtenances required for and/or used to harvest and distribute rainwater.

1625.9 Return Elbow. A section of pipe with a 180-degree bend.

1625.10 Roof Drainage System. The roof drains, overflow drains, scuppers, gutters and downspouts used to convey the rainwater from the roof surface to the system.

1625.11 Roof Surface. The surface rainwater harvesting systems rely on for the collection of rainwater that has fallen on a building roof.

1625.12 Roof Wash or Roof Washer. A device or method for removal of sediment and debris from collected roof water by diverting initial rainfall from entry into the cistern(s).

1625.13 Screen. Corrosion resistant wire or other approved mesh having openings in determined sizes.

1625.14 Slope or Sloping. Having a slope greater than 1 in 50.

1625.15 Transfer Pump. The mechanical device to transfer collected water from downspouts to remote cistern(s).

(Insert As Page 282A)

1626.0 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any rainwater harvesting system within a building or on a premises without first obtaining a permit to do such work from the Authority Having Jurisdiction.

In addition to the permits required by this Code, the following additional permits may be required for the installation of a rainwater harvesting system: An electrical permit for the pump or other electrical controls; a building permit for cistern footings, foundations, enclosures and roof structures; a grading permit may be necessary for underground tanks. In addition, contact your regional office of the department of ecology regarding a registration form.

1626.1 Application. The following information must be provided with each permit application for a rainwater harvesting system:

1. Site or plot plan, including site elevations.
2. A diagram of the rainwater harvesting system (including piping and equipment) and domestic potable water systems, including sizing and dimensions.
3. Specifications and manufacturer's installation instructions for cistern(s), pump(s), filtration and/or disinfection, and roof washing or pre-filtration system(s).
4. Engineering. Installation, including, but not limited to, the following systems, will require structural engineering: Cisterns that are located on top of a building structure or cisterns that are located on sloping sites.

Information in addition to that listed above may be necessary in some instances. The size and complexity of the building, site and system will determine the necessity for additional information.

1627.0 General Provisions. A rainwater harvesting system begins at the point of collection and terminates as waste after the water collected has been used in plumbing fixtures, industrial applications, or used for irrigation purposes. The parts of the collection and distribution system include the roof surface, gutters and downspouts, roof washer, cistern, pump and the piping system.

1627.1 Collection System. Rainwater shall only be harvested from roof surfaces. Harvest shall not occur from the following locations:

1. Any vehicular or pedestrian area;
2. Surface water runoff; or
3. Bodies of standing water.

1627.2 Collection Pretreatment. Rainwater harvested from roof surfaces shall be pretreated by either a roof washing system or other filtration system of no more than 50 microns. The quantity of the first flush generated by the rainwater harvesting system during any rain event shall be calculated as the first 0.02 inch of rainfall per 24-hour period per square foot of roof area and shall be diverted away from the cistern. Discharge of any diverted water shall go to a location approved by the Administrative Authority.

Exceptions:

(1) A first flush is not required where a post storage filtration or treatment system is installed and approved by the Administrative Authority.

(2) A first flush is not required for systems used exclusively for irrigation purposes.

1628.0 System Components.

1628.1 Roof Surface. The roof surface may be constructed of any material accepted by the Administrative Authority.

Exception: Copper, zinc or lead roofing materials shall not be used.

1628.2 Roof Drainage System. Gutters and downspouts used to collect rainwater shall comply with the following:

1. Gutters and downspouts may be manufactured of any material. Gutter and downspout materials are not required to meet material specifications found in the Uniform Plumbing Code.

   Exception: Copper or zinc gutters and downspouts shall not be used. If existing gutters and downspouts are already in place, the interior shall be coated with a NSF-quality epoxy paint.

2. Gutter and downspout systems leading to the cistern shall be fitted with debris excluders.

1628.3 Roof Washers and Prefiltration. All rainwater harvesting systems using impervious roof surfaces shall have at least one roof washer per downspout or prefiltration system. A roof washer or prefiltration system is not required for pervious roof surfaces such as green roofs. Roof washers and prefiltration systems shall meet the following design requirements.

1628.3.1 All collected rainwater shall pass through a roof washer or prefiltration system before the water enters the cistern(s).

1628.3.2 If more than one cistern is used, a roof washer or prefiltration system shall be provided for each cistern.

Exception: Where a series of cisterns are interconnected to supply water to a single system.

1628.3.3 The following requirements apply to all roof washers.

1628.3.3.1 The inlet to the roof washer shall be provided with a debris screen that protects the roof washer from the intrusion of waste and vermin.

(Insert As Page 282B)

1628.3.3.2 The roof washer shall rely on manually operated valves or other devices to do the diversion.

1628.3.3.8 Roof washers shall be readily accessible for regular maintenance.

1628.3.4 Prefiltration screens or filters shall be maintained consistent with manufacturer's specifications.

1628.4 Cisterns. The following are the minimum requirements for cisterns.

1628.4.1 General.

1628.4.1.1 All cisterns shall be listed for use with potable water.

1628.4.1.2 Cisterns shall be capable of being filled from both the rainwater harvesting system and the public or private water system.

1628.4.1.3 The municipal or on-site well water system shall be protected from cross-contamination in accordance with Section 603.4.5.

1628.4.1.4 Backflow assemblies shall be maintained and tested in accordance with Section 603.3.3.

1628.4.1.5 Cisterns may be used as storm water collection points that help to minimize flood damage, while providing a reservoir for later use.

1628.4.1.6 Cisterns shall have access to allow inspection and cleaning.

1628.4.2 Size. Any cistern, or combination of cisterns used, shall be sized adequately for the intended use of the water.

1628.4.2.1 For above grade cisterns, the ratio of the cistern size shall not be greater than 1:1 height to width, provided that for an engineered tank with an engineered foundation, the height may exceed the width, subject to approval of the Authority Having Jurisdiction. The ratio for below grade cisterns is not limited.

1628.4.3 Location. Cisterns may be installed either above or below grade. All cisterns shall be installed in accordance with the manufacturer's installation instructions. Where the installation requires a foundation, the foundation shall be flat and shall be capable of supporting the cistern weight when the cistern is full.

1628.4.3.1 Below Grade Cisterns. Below grade cisterns shall be provided with manhole risers a minimum of 8 inches above surrounding grade. Underground cisterns shall have tiedowns per manufacturer's specifications, or the excavated site must have a daylight drain or some other drainage mechanism to prevent floating of the cistern resulting from elevated ground water levels.

1628.4.4 Protection. Cisterns shall be protected from sunlight to inhibit algae growth and ensure life expectancy of tank.

1628.4.5 Inlets, Outlets and Openings. All cistern openings shall be protected from unintentional entry by humans or vermin. Manhole covers shall be provided and shall be secured to prevent tampering. Where an opening is provided that could allow the entry of personnel, the opening shall be marked, "DANGER - CONFINED SPACE."

Cistern outlets shall be located at least 4 inches above the bottom of the cistern.

1628.4.6 Overflow. The cistern shall be equipped with an overflow device.

1628.4.6.1 The overflow device shall consist of a pipe equal to or greater than the cistern inlet and a minimum of 4 inches below any makeup device from other sources.

1628.4.6.2 The overflow outlet shall be protected with a screen having openings no greater than 0.25 inches or a self-sealing cover.

1628.4.6.3 The Authority Having Jurisdiction shall approve the discharge location of the overflow water.

1628.5 Pump. Where a pump is provided in conjunction with the rainwater harvesting system, the pump shall meet the following provisions.

1628.5.1 The pump and all other pump components shall be listed and approved for use with potable water systems.

1628.5.2 The pump shall be capable of delivering a minimum of 15 psi residual pressure at the highest outlet served. Minimum pump pressure shall allow for friction and other pressure losses. Maximum pressures shall not exceed 80 psi.

1628.6 Piping.

1628.6.1 There shall be no direct connection of any rainwater harvesting pipe system and any domestic potable water pipe system.

1628.6.2 Materials. Pipe used to convey harvested rainwater shall be identified per Section 601.2 and Table 6-1. Fittings and other system components shall be listed for use in conjunction with specified piping. Both piping and fittings shall be installed as required by applicable code and standards.

1628.6.2.1 All other products entering into the construction of a rainwater harvesting system shall be listed as required by code for the purpose intended, and suitable for use in a potable water system.

1628.6.3 Color and Information. All rainwater pipe shall be marked "CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK" every four feet along its length, but in no case less than once per room. The pipe and lettering shall comply with Section 601.2. Where concealed within construction, the piping shall be labeled on two opposing sides of the pipe within each stud or joist bay.

(Insert As Page 282C)

1629.0 Signs.

1629.1 Commercial, Industrial and Institutional Room Entrance Signs. In commercial, industrial, and institutional occupancies, all rooms using nonpotable reuse water for water closets and/or urinals shall be identified with signs. Each sign shall contain one-half inch (12.7 mm) letters of a highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) shall be visible to all users. The number and location of the signs shall be approved by the Authority Having Jurisdiction and shall contain the following text:

TO CONSERVE WATER,

THIS BUILDING USES RAINWATER TO FLUSH TOILETS AND URINALS

1629.2 Equipment Room Signs. Each room containing nonpotable reuse water equipment shall have a sign posted with the following wording in one-inch (25.4 mm) letters of a highly visible color on a contrasting background:

CAUTION

NONPOTABLE RAINWATER, DO NOT DRINK.

DO NOT CONNECT TO DRINKING WATER SYSTEM.

NOTICE

CONTACT BUILDING MANAGEMENT

BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

This sign shall be posted in a location that is visible to anyone working on or near nonpotable reuse water equipment.

1629.3 Every water closet or urinal supply, hose bibb or irrigation outlet shall be permanently identified with an indelibly marked placard stating:

CAUTION

NONPOTABLE RAINWATER, DO NOT DRINK

1630.0 Inspection and Testing.

(A) Rainwater harvesting systems shall be inspected and tested as outlined in this code for testing of potable water piping.

(B) An initial inspection and test shall be performed on both the potable and rainwater harvesting systems. The potable and rainwater system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection.

1631.0 System Maintenance. Rainwater harvesting systems shall be maintained in functioning order for the life of the system. It is the property owner's responsibility to maintain the system until the system is abandoned as prescribed in this code.

1632.0 System Abandonment. If the owner of a rainwater harvesting system elects to cease use of, or fails to properly maintain such system, they shall abandon the system. To abandon the system one shall:

1. Remove the system entirely; and
2. Replace the rainwater harvesting pipe system with an approved potable water supply pipe system. Where an existing potable pipe system is already in place, fixtures may be reconnected to the existing system.

Rainwater harvesting system abandonment and potable water installations require permit, inspection(s) and approval(s).

(Insert As Page 282D)

WAC 51-57
State Building Code Amendment and Adoption of Appendix A, B and Appendix I of the 2009 Edition of the Uniform Plumbing Code

WAC 51-57-001 AUTHORITY.

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

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.

WAC 51-57-003 UNIFORM PLUMBING CODE STANDARDS.

The 2009 Edition of the Uniform Plumbing Code Standards (Appendixes A, B and I), published by the International Association of Plumbing and Mechanical Officials is hereby adopted by reference.

WAC 51-57-004 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 51-57-007 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.

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, 2007, unless local government residential amendments have been approved by the State Building Code Council.

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 360)

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 366)

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).

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