



**RULE-MAKING ORDER**  
(RCW 34.05.360)

**CR-103 (4/25/96)**

**Agency:** Washington State Building Code Council

- Permanent Rule**  
 **Emergency Rule**  
 **Expedited Repeal**

**(1) Date of adoption:** November 14, 1997

**(2) Purpose:** To adopt WAC 51-46 and 51-47, State Adoption and Amendment of the 1997 Uniform Plumbing Code and Standards; and to repeal WAC 51-26 and 51-27, State Adoption and Amendment of the 1991 Uniform Plumbing Code and Standards.

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

**Repealed:** WAC 51-26, 51-27

**Amended:**

**Suspended:**

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

**Other authority:**

**PERMANENT RULE ONLY**

Adopted under notice filed as WSR 97-16-114 on August 6, 1997 (date).

Describe any changes other than editing from proposed to adopted version:

Please see attached

**EMERGENCY RULE ONLY**

Under RCW 34.05.350 the agency for good cause finds:

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

Reasons for this finding:

**EXPEDITED REPEAL ONLY**

Under Preproposal Statement of Inquiry filed as WSR \_\_\_\_\_ on \_\_\_\_\_ (date).

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

- Yes  No If Yes, explain:

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

**Permanent Rules or Expedited Repeal**

31 days after filing

Other (specify) 7/1/98 \*

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

**Emergency Rules**

Immediately

Later (specify) \_\_\_\_\_

**CODE REVISER USE ONLY**

CODE REVISER'S OFFICE  
STATE OF WASHINGTON

JAN 6 1998

TIME 11:59 **AM**

WSR 98-02-055

**NAME (TYPE OR PRINT)**

Mike McEnaney

**SIGNATURE**

**TITLE**

Council Chair

**DATE**

1/5/98

(COMPLETE REVERSE SIDE)

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

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

The number of sections adopted in order to comply with:

Federal statute:	New	_____	Amended	_____	Repealed	_____
Federal rules or standards:	New	<u>1</u>	Amended	_____	Repealed	<u>1</u>
Recently enacted state statutes:	New	_____	Amended	_____	Repealed	_____

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

New	<u>30</u>	Amended	_____	Repealed	_____
-----	-----------	---------	-------	----------	-------

The number of sections adopted on the agency's own initiative:

New	<u>31</u>	Amended	_____	Repealed	<u>37</u>
-----	-----------	---------	-------	----------	-----------

The number of sections adopted in order to clarify, streamline, or reform agency procedures:

New	<u>28</u>	Amended	_____	Repealed	_____
-----	-----------	---------	-------	----------	-------

The number of sections adopted using:

Negotiated rule making:	New	<u>90</u>	Amended	_____	Repealed	<u>37</u>
Pilot rule making:	New	_____	Amended	_____	Repealed	_____
Other alternative rule making:	New	_____	Amended	_____	Repealed	_____

**Describe any changes other than editing from proposed to adopted version:**

**WAC 51-46-0103.** Change the term “licensing” to “certification” throughout the section and limit application to state rules and regulations by deleting the term “and local.” This change brought the proposed rule into closer conformance with other state regulations and addressed concerns heard at public hearing.

**WAC 51-46-0218.** Change definition of plumbing system to clarify that certification is not required for installation of a plumbing system outside a building but within the property lines. This change resulted from testimony at the public hearing.

**WAC 51-46-0402.** Change subsection 402.3.1.2, exception 1, to maintain current regulation. This change resulted from testimony at the public hearing.

**WAC 51-46-0793.** Add category “Floor Drain” to Table 7-3. This change maintains current regulation and resulted from testimony at the public hearing.

**WAC 51-46-1300.** Delete Option 1. This change resulted from testimony at the public hearing.

**WAC 51-46-97121.** Change subsection M 1.11.2.2 by deleting the exception. This change resulted from testimony at the public hearing.

Chapter 51-46 WAC

STATE BUILDING CODE ADOPTION AND  
AMENDMENT OF THE 1997 EDITION OF THE  
UNIFORM PLUMBING CODE

NEW SECTION

**WAC 51-46-001 Authority.** These rules are adopted under the authority of chapter 19.27 RCW.

NEW SECTION

**WAC 51-46-002 Purpose.** The purpose of these rules is to implement the provisions of chapter 19.27 RCW, which provides that the State Building Code council shall maintain the State Building Code in a status which is consistent with the purpose as set forth in RCW 19.27.020. In maintaining the codes, the council shall regularly review updated versions of the codes adopted under the act, and other pertinent information, and shall amend the codes as deemed appropriate by the council.

NEW SECTION

**WAC 51-46-003 Uniform plumbing code.** The 1997 edition of the Uniform Plumbing Code, published by the International Association of Plumbing and Mechanical Officials, is hereby adopted by reference with the following additions, deletions and exceptions: *Provided*, That Chapters 11 and 12 of this code are not adopted. *Provided further*, That those requirements of the Uniform Plumbing Code relating to venting and combustion air of fuel fired appliances as found in Chapter 5 and those portions of the Code addressing building sewers are not adopted.

NEW SECTION

**WAC 51-46-007 Exceptions.** The exceptions and amendments to the uniform codes contained in the provisions of chapter 19.27 RCW shall apply in cases of conflict with any of the provisions of these rules.

NEW SECTION

**WAC 51-46-008 Implementation.** The Uniform Plumbing Code adopted by chapter 51-46 WAC shall become effective in all counties and cities of this state on July 1, 1998, unless local government residential amendments have been approved by the State Building Code council.

NEW SECTION

**WAC 51-46-0100 Chapter 1--Administration.**

NEW SECTION

**WAC 51-46-0101 Section 101 Title, scope and general.**

**101.4.1.4 Conflicts Between Codes.** Delete paragraph.

NEW SECTION

**WAC 51-46-0102 Organization and enforcement.**

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

NEW SECTION

WAC 51-46-0103 Section 103 Permits and inspections.

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

NEW SECTION

WAC 51-46-0200 Chapter 2 - Definitions.

NEW SECTION

WAC 51-46-0205 Section 205.0 - C.

Combustible Construction. Delete definition.

CPVC - Chlorinated Poly (Vinyl Chloride)

NEW SECTION

WAC 51-46-0215 Section 215.0 - M.

Medical Gas - Compressed gasses at hospitals and similar facilities intended for inhalation or sedation including, but not limited to, analgesia systems for dentistry, podiatry, veterinary and similar uses.

NEW SECTION

WAC 51-46-0218 Section 218.0 - P.

PEX - Crosslinked Polyethylene

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



PP - Polypropylene

**Public or Public Use** - All buildings or structures that are not defined as private or private use.

(1) **General use** applies to business, commercial, industrial and assembly occupancies other than those defined under heavy use. Included are the public and common areas in hotels, motels and multi-dwelling buildings.

(2) **Heavy use** assembly applies to toilet facilities in occupancies which place a heavy, but intermittent time-based demand on the water supply system, such as schools, auditoriums, stadiums, race courses, transportation terminals, theaters and similar occupancies where queuing is likely to occur during periods of peak use.

NEW SECTION

**WAC 51-46-0300 Chapter 3 - General regulations.**

NEW SECTION

**WAC 51-46-0301 Materials - Standards and alterations.**

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

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

NEW SECTION

**WAC 51-46-0310 Workmanship.**

**310.4 Installation Practices.** Plumbing systems shall be installed in a manner conforming to this Code and the manufacturer's instructions.

NEW SECTION

**WAC 51-46-0311 Prohibited fittings and practices.**

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

NEW SECTION

**WAC 51-46-0313 Protection of piping, materials, and structures.**

**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.

**313.10.4** In exterior walls, the annular space between sleeves and pipes shall be sealed and made watertight.

EXCEPTION: Any pipe sleeve through fire resistive construction shall be sealed with an approved fire-resistive material in accordance with the Building Code.

NEW SECTION

**WAC 51-46-0314 Hangers and supports.**

**314.5** All piping, fixtures, appliances, and appurtenances shall be adequately supported in accordance with this Code and the manufacturer's installation instructions and approved by the Administrative Authority.



NEW SECTION

WAC 51-46-0392 Table 3-2 Hangers and supports.

TABLE 3-2

Materials	Type of Joints	Horizontal	Vertical
Cast Iron Hub and Spigot	Lead and Oakum	5 feet (1524 mm), except may be 10 feet (3048 mm) where 10 foot (3048 mm) lengths are installed <sup>1, 2, 3</sup>	Base and each floor not to exceed 15 feet (4572 mm)
	Compression Gasket	Every other joint, unless over 4 feet (1219 mm), then support each joint <sup>1, 2, 3</sup>	Base and each floor not to exceed 15 feet (4572 mm)
Cast Iron Hubless	Shielded Coupling	Every other joint, unless over 4 feet (1219 mm), then support each joint <sup>1, 2, 3, 4</sup>	Base and each floor not to exceed 15 feet (4572 mm)
Copper Tube and Pipe	Soldered, Brazed or Welded	1-½ inch (38 mm) and smaller, 6 feet (1829 mm), 2 inch (51 mm) and larger, 10 feet (3048 mm)	Each floor not to exceed 10 feet (3048 mm) <sup>5</sup>
Steel and Brass Pipe for Water or DWV	Threaded or Welded	¾ inch (19 mm) and smaller, 10 feet (3048 mm), 1 inch (25.4 mm) and larger, 12 feet (3658 mm)	Every other floor not to exceed 25 feet (7620 mm) <sup>5</sup>
Steel, Brass and Tinned Copper Pipe for Gas	Threaded or Welded	½ inch (13 mm), 6 feet (1829 mm), ¾ inch (19 mm) and 1 inch (25 mm), 8 feet (2438 mm) 1-¼ inch (32 mm) and larger, 10 feet (3048 mm)	½ inch (13 mm), 6 feet (1829 mm), ¾ inch (19 mm) and 1 inch (25 mm), 8 feet (2438 mm), 1-¼ inch (32 mm) and larger, every floor level
Schedule 40 PVC and ABS DWV	Solvent Cemented	All sizes, 4 feet (1219 mm). Allow for expansion every 30 feet (9144 mm) <sup>3, 6</sup>	Base and each floor. Provide mid-story guides. Provide for expansion every 30 feet (9144 mm) <sup>6</sup>
CPVC	Solvent Cemented	1 inch (25 mm) and smaller, 3 feet (914 mm), 1-¼ inch (32 mm) and larger, 4 feet (1219 mm)	Base and each floor. Provide mid-story guides <sup>6</sup>
Lead	Wiped or Burned	Continuous support	Not to exceed 4 feet (1219 mm)
PEX	<u>Mechanical</u>	<u>1 inch (25 mm) and smaller, 3 feet (914 mm), 1-¼ inch (32 mm) and larger, 4 feet (1219 mm)</u>	<u>Base and each floor. Provide mid-story guides</u>
Copper	Mechanical	In accordance with standards acceptable to the Administrative Authority	
Steel & Brass	Mechanical	In accordance with standards acceptable to the Administrative Authority	

<sup>1</sup> Support adjacent to joint, not to exceed eighteen (18) inches (457 mm).

<sup>2</sup> Brace at not more than forty (40) foot (12192 mm) intervals to prevent horizontal movement.

<sup>3</sup> Support at each horizontal branch connection.

<sup>4</sup> Hangers shall not be placed on the coupling.

<sup>5</sup> Vertical water lines may be supported in accordance with recognized engineering principals with regard to expansion and contraction, when first approved by the Administrative Authority.

<sup>6</sup> See the appropriate IAPMO Installation Standard for expansion and other special requirements.

(Table 3-2)

NEW SECTION

**WAC 51-46-0316 Joints and connections.**

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

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

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

NEW SECTION

**WAC 51-46-0400 Chapter 4 - Plumbing fixtures and fixture fittings.**

NEW SECTION

**WAC 51-46-0402 Water-conserving fixtures and fittings.**

**402.0 Water-Conserving Fixtures and Fittings**

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

**402.2 Application.**

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

**402.3 Water Efficiency Standards.**

**402.3.1 Standards for Vitreous China Plumbing Fixtures.**

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

ANSI/ASME A112.19.2M-1990 Vitreous China Plumbing Fixtures

ANSI/ASME A112.19.6-1990 Hydraulic Requirements for Water Closets and Urinals

CSA B45 CSA Standards on Plumbing Fixtures

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

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

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

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

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

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

#### **402.3.2 Standards for Plumbing Fixture Fittings.**

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

ANSI/ASME A112.18.1M-1989	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 Accepted Plumbing Fixtures and Fixture Fittings.**

Plumbing fixtures and fixture fittings which are tested in accordance with the standards listed herein and listed by either the International Association of Plumbing and Mechanical Officials or the Canadian Standards Association may be approved by the

Administrative Authority for installation. Under Section 301, the Administrative Authority may approve plumbing fixtures and fixture fittings, not listed by either the International Association of Plumbing and Mechanical Officials or the Canadian Standards Association, PROVIDED the products meet the testing, and marking and labeling requirements listed in Section 402.3.

The State Building Code council will publish and distribute a current list of fixtures and fixture fittings that meet the standards listed within Section 402 and have been listed with either the International Association of Plumbing and Mechanical Officials or the Canadian Standards Association.

#### **402.6 Implementation.**

**402.6.1** 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.

**402.6.2** 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.

#### NEW SECTION

##### **WAC 51-46-0412 Floor drains and shower stalls.**

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

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

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

#### NEW SECTION

##### **WAC 51-46-0413 Minimum number of required fixtures.**

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



NEW SECTION

**WAC 51-46-0500 Chapter 5 - Water heaters.**

NEW SECTION

**WAC 51-46-0501 General.**

**501.0 General.**

The regulations of this chapter shall govern the construction, location, and installation of all fuel burning and other water heaters heating potable water. 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 and shall be of such character as to secure the results sought to be obtained by this Code. No water heater shall be hereinafter installed which does not comply in all respects with the type and model of each size thereof approved by the Administrative Authority. A list of generally accepted gas equipment standards is included in Table 14-1.

Water heaters used for space heating only are prohibited.

NEW SECTION

**WAC 51-46-0502 Definitions.**

**502.8 Vent** - Delete definition

**502.9 Vent Collar** - Delete definition

NEW SECTION

**WAC 51-46-0505 Gas-fired water heater approval requirements.**

**505.0 Gas-Fired Water Heater Approval Requirements.**

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

**505.2** Except when reconditioned by the manufacturer or the manufacturer's approved agent in accordance with its original approval requirements and reinstalled at its original location, each reconditioned water heater shall be tested for safety and conformity to approved standards, and shall bear the label of an

approved test agency certifying and testing that such equipment has been tested and inspected and meets the requirements of applicable standards. Such label shall also state clearly that the water heater has been reconditioned, and shall give the name and address of the reconditioner. Every person applying for a permit to install a used or reconditioned water heater shall clearly state on the application for permit that such equipment is used or reconditioned.

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

NEW SECTION

**WAC 51-46-0507 Combustion air.**

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

Delete remainder of this section.

NEW SECTION

**WAC 51-46-0509 Prohibited locations.**

**509.0 Prohibited Locations.**

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

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

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

NEW SECTION

**WAC 51-46-0512 Venting of water heaters.**

**512.0 Venting of Water Heaters** Delete entire Section.

NEW SECTION

WAC 51-46-0513 Limitations.

513.0 Limitations Delete entire Section.

NEW SECTION

WAC 51-46-0514 Vent connectors.

514.0 Vent Connectors. Delete entire Section.

NEW SECTION

WAC 51-46-0515 Location and support of venting system.

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

NEW SECTION

WAC 51-46-0516 Length pitch and clearance.

516.0 Length Pitch and Clearance. Delete entire Section.

NEW SECTION

WAC 51-46-0517 Vent termination.

517.0 Vent Termination. Delete entire Section

NEW SECTION

WAC 51-46-0518 Area of venting system.

518.0 Area of Venting System. Delete entire Section

NEW SECTION

WAC 51-46-0519 Multiple appliance venting.

519.0 Multiple Appliance Venting. Delete entire Section.

NEW SECTION

WAC 51-46-0520 Existing venting system.

520.0 Existing Venting System. Delete entire Section.

NEW SECTION

WAC 51-46-0521 Draft hoods.

521.0 Draft Hoods. Delete entire Section.

NEW SECTION

WAC 51-46-0522 Gas venting into existing masonry chimneys.

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

NEW SECTION

WAC 51-46-0523 Installation.

523.0 Installation. Delete entire Section.

NEW SECTION

WAC 51-46-0524 Mechanical draft systems.

524.0 Mechanical Draft Systems. Delete entire Section.

NEW SECTION

WAC 51-46-0525 Venting through ventilating hoods and exhaust systems.

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

NEW SECTION

WAC 51-46-0600 Water supply and distribution.

NEW SECTION

WAC 51-46-0603 Cross-connection control.

603.0 Cross-Connection Control.

Cross-connection control shall be provided in accordance with the provisions of this chapter. The Administrative Authority shall coordinate with the local water purveyor where applicable in all matters concerning cross-connection control within the property lines of the premises.

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

603.3.2 The premise owner or responsible person shall have the backflow prevention assembly tested by a Washington State Department of Health certified backflow assembly tester at the time of installation, repair, or relocation and at least on an annual schedule thereafter or more often when required by the Administrative Authority.

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

1. Atmospheric vacuum breaker
2. Pressure vacuum breaker
3. Reduced pressure backflow preventer
4. A double check valve may be allowed when approved by the water purveyor and the Administrative Authority.

NEW SECTION

**WAC 51-46-0604 Materials.**

**604.0 Materials**

**604.1** Water pipe and fittings shall be of brass, copper, cast iron, galvanized malleable iron, galvanized wrought iron, galvanized steel or other approved materials. Cast iron fittings used for water need not be galvanized if over two (2) inches (51 mm) in size. Asbestos-cement, CPVC, PEX, PE, PVC or other approved water pipe materials manufactured to recognized standards may be used for cold water distribution systems outside a building. PEX or CPVC water pipe and tubing may be used for hot and cold water distribution systems within a building. Other products not listed in this section are acceptable for their intended use, provided that such materials or distribution systems are listed and approved in accordance with nationally recognized standards. All materials used in the water supply system, except valves and similar devices shall be of like material, except where otherwise approved by the Administrative Authority.

**604.11** Plastic water 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 within the building.

NEW SECTION

**WAC 51-46-0608 Water pressure, pressure regulators, pressure relief valves, and vacuum relief valves.**

**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 and 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.



NEW SECTION

**WAC 51-46-0609 Installation, testing, unions, and location.**

**609.6 Location.** Except as provided in Section 609.7, no building supply shall be located in any lot other than the lot which is the site of the building or structure served by such building supply.

NEW SECTION

**WAC 51-46-0610 Size of potable water piping.**

**610.4** Where the maximum length of supply piping is two hundred (200) feet (60,960 mm) or less, each water piping system of fifty (50) fixture units or less shall be sized in accordance with the values set forth in Table 6-5. Other systems of more than fifty (50) fixture units and within the range of Table 6-5 may be sized from that table or by the method set forth in Section 610.5.

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

NEW SECTION

**WAC 51-46-0700 Sanitary drainage.**

NEW SECTION

**WAC 51-46-0701 Materials.**

**701.0 Materials.**

**701.1** Drainage piping shall be cast iron, galvanized steel, galvanized wrought iron, lead, copper, brass, Schedule 40 ABS DWV, Schedule 40 PVC DWV, extra strength vitrified clay pipe, or other approved materials having a smooth and uniform bore, except that:

**701.1.1** No galvanized wrought iron or galvanized steel pipe shall be used underground and shall be kept at least six (6) inches (152 mm) above ground.

**701.1.2** No vitrified clay pipe or fittings shall be used above ground or where pressurized by a pump or ejector. They shall be kept at least twelve (12) inches (305 mm) below ground.

**701.1.3** Copper tube for underground drainage and vent piping shall have a weight of not less than that of copper drainage tube type DWV.

701.1.4 Copper tube for above ground drainage and vent piping shall have a weight of not less than that of copper drainage tube type DWV.

NEW SECTION

WAC 51-46-0704 Fixture connections (drainage).

704.3 Delete paragraph.

NEW SECTION

WAC 51-46-0710 Drainage of fixtures located below the next upstream manhole or below the main sewer level.

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).

NEW SECTION

WAC 51-46-0713 Building sewers.

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

NEW SECTION

WAC 51-46-0793 Table 7-3 Drainage fixture unit values.

**TABLE 7-3**  
**Drainage Fixture Unit Values (DFU)**

	Min. Size Trap and Trap Arm <sup>7</sup>	Private		Public	
		Individual Dwelling	3 or More Dwellings	General Use	Heavy-Use Assembly
<b>Individual Fixtures</b>					
Bar Sink .....	1-1/2"	1.0	1.0		
Bar Sink .....	1-1/2" <sup>2</sup>			2.0	
Bathub or Combination Bath/Shower.....	1-1/2"	3.0	3.0		
Bidet, 1-1/4" trap .....	1-1/4"	1.0	1.0		
Clinical Sink, 3" trap.....	3"			6.0	
Clothes Washer, domestic, 2" standpipe <sup>5</sup> .....	2"	3.0	3.0	3.0	
Dental Unit, cuspidor.....	1-1/4"			1.0	
Dishwasher, domestic, with independent drain.....	1-1/2"	2.0	2.0	2.0	
Drinking Fountain or Watercooler.....	1-1/4"			0.5	
Food-waste-grinder, commercial.....	2"			3.0	
<u>Floor Drain.....</u>	<u>2"</u>	<u>2.0</u>	<u>2.0</u>	<u>2.0</u>	
Floor Drain, emergency .....				0.0	
Kitchen Sink, domestic, with one 1-1/2" trap .....	1-1/2" <sup>2</sup>	2.0	2.0	2.0	
Kitchen Sink, domestic, with food-waste-grinder ...	1-1/2" <sup>2</sup>	2.0	2.0	2.0	
Kitchen Sink, domestic, with dishwasher.....	1-1/2" <sup>2</sup>	3.0	3.0	3.0	
Kitchen Sink, domestic, w/grinder and dishwasher ..	1-1/2" <sup>2</sup>	3.0	3.0	3.0	
Laundry Sink, one or two compartments .....	1-1/2"	2.0	2.0	2.0	
Laundry Sink, with discharge from clothes washer ..	1-1/2"	2.0	2.0	2.0	
Lavatory, single.....	1-1/4"	1.0	1.0	1.0	1.0
Lavatory in sets of two or three .....	1-1/2"	2.0	2.0	2.0	2.0
Mobile Home, trap .....	3"	12.0	12.0		
Mop Basin, 3" trap.....	3"			3.0	
Receptor, indirect waste. 1-1/2" trap <sup>1,3</sup> .....	1-1/2"			(1)	
Receptor, indirect waste, 2" trap <sup>1,4</sup> .....	2"			(1)	
Receptor, indirect waste, 3" trap <sup>1</sup> .....	3"			(1)	
Service Sink, 2" trap.....	2"			3.0	
Service Sink, 3" trap.....	3"			3.0	
Shower Stall, 2" trap .....	2"	2.0	2.0	2.0	
Shower, group, per head (continuous use).....	2"			5-6 <u>1.0</u>	
Sink, commercial, 1-1/2" trap, with food waste .....	1-1/2" <sup>2</sup>			3.0	
Sink, service, flushing rim.....	3"			6.0	
Sink, general, 1-1/2" trap.....	1-1/2"	2.0	2.0	2.0	
Sink, general, 2" trap.....	2"	3.0	3.0	3.0	
Sink, general, 3" trap.....	3"			5.0	
Urinal, 1.0 GPF .....				4.0	5.0
Urinal, greater than 1.0 GPF .....				5.0	6.0
Urinal, 1-1/2" trap.....	1-1/2" <sup>2</sup>			4.0	5.0
Washfountain, 1-1/2" trap.....	1-1/2"			2.0	
Washfountain, 2" trap .....	2"			3.0	
Wash Sink, each set of faucets.....				2.0	
Water Closet, 1.6 GPF Gravity Tank <sup>6</sup> .....	3"	3.0	3.0	4.0	6.0
Water Closet, 1.6 GPF Flushometer Tank <sup>6</sup> .....	3"	3.5	3.5	5.0	8.0
Water Closet, 1.6 GPF Flushometer Valve <sup>6</sup> .....	3"	3.0	3.0	4.0	6.0
Water Closet, 3.5 GPF Gravity Tank <sup>6</sup> .....	3"	4.0	4.0	6.0	8.0
Water Closet, 3.5 GPF Flushometer Valve <sup>6</sup> .....	3"	4.0	4.0	6.0	8.0
Whirlpool Bath or Combination Bath/Shower .....	2"	3.0	3.0		

Footnotes for Table 7-3:

<sup>1</sup>Indirect waste receptors shall be sized based on the total drainage capacity of the fixtures that drain therein to, in accordance with Table 7-4.

<sup>2</sup>Provide a 2" (51 mm) minimum branch drain beyond the trap arm.

<sup>3</sup>For refrigerators, coffee urns, water stations, and similar low demands.

<sup>4</sup>For commercial sinks, dishwashers, and similar moderate or heavy demands.

<sup>5</sup>Buildings having a clothes washing area with clothes washers in a battery of three (3) or more, clothes washers shall be rated at six (6) fixtures units each for purposes of sizing common horizontal and vertical drainage piping.

<sup>6</sup>Water closets shall be computed as six (6) fixtures units when determining septic tank sizes based on Appendix K of this Code.

<sup>7</sup>Trap sizes shall not be increased to the point where the fixture discharge may be inadequate to maintain their self-scouring properties.

NEW SECTION

WAC 51-46-0800 Indirect wastes.

NEW SECTION

**WAC 51-46-0810 Steam and hot water drainage condensers and sumps.**

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

NEW SECTION

**WAC 51-46-0814 Refrigeration wastes.**

**814.0 Refrigeration Wastes.**

For refrigeration wastes see Mechanical Code Section 1105.13.

NEW SECTION

**WAC 51-46-0815 Air-conditioning equipment.**

**815.0 Air-Conditioning Equipment.**

**815.1 Size.** For sizing of equipment see Mechanical Code Table 11-E. Air conditioning waste pipes shall be constructed of materials specified in Chapter 7.

**815.2 Point of Discharge.** Air-conditioning condensate waste pipes shall connect indirectly to the drainage system through an airgap or airbreak to:

**815.2.1** A properly trapped receptor; or

**815.2.2** Other points of discharge acceptable to the Administrative Authority, including dry wells, leach pits, the tailpiece of plumbing fixtures, etc.

NEW SECTION

**WAC 51-46-0900 Vents.**

NEW SECTION

**WAC 51-46-0903 Materials.**

903.1.2 Delete paragraph.

NEW SECTION

**WAC 51-46-1000 Traps and interceptors.**

NEW SECTION

**WAC 51-46-1003 Traps - Described.**

1003.1 Each trap, except one for an interceptor or similar device shall be self-cleaning. Traps for bathtubs, showers, lavatories, sinks, laundry tubs, floor drains, hoppers, urinals, drinking fountains, dental units, and similar fixtures shall be of standard design and weight and shall be of ABS, cast brass, cast iron, lead, PP, PVC, or other approved material. An exposed and readily accessible drawn brass tubing trap, not less than 17 B&S Gauge (0.045 inch) (1.1 mm), may be used on fixtures discharging domestic sewage but shall exclude urinals. Each trap shall have the manufacturer's name stamped legibly in the metal of the trap and each tubing trap shall have the gauge of the tubing in addition to the manufacturer's name. Every trap shall have a smooth and uniform interior waterway.

NEW SECTION

**WAC 51-46-1012 Laundries.**

1012.0 **Laundries.** Delete entire Section.

NEW SECTION

**WAC 51-46-1300 Medical gas systems.** Replace entire chapter with the following.



NEW SECTION

**WAC 51-46-1301 Scope.**

**1301.0 Scope.**

**1301.1** The provisions herein shall apply to the design, installation, testing, and verification of medical gas, medical vacuum systems, and related permanent equipment for safe use in patient care hospitals, clinics, and other health care facilities.

**1301.2** The purpose of this chapter is to provide minimum requirements for the design, installation and verification of medical gas, medical vacuum systems, and related permanent equipment.

NEW SECTION

**WAC 51-46-1302 Definitions.**

**1302.0 Definitions.**

**1302.1 Installer Performance Testing** - Testing conducted by the installer or representative prior to system verification using oil-free, dry nitrogen as stated in Chapter 14.

**1302.2 System Verification** - Testing conducted by a qualified party other than the installer or material vendor after the installer performance testing and prior to the medical gas system being put into service.

NEW SECTION

**WAC 51-46-1303 Plan review.**

**1303.0 Plan Review.**

**1303.1** Before any medical gas or medical vacuum system is installed or altered in any patient care hospital, clinic, or health care facility, duplicate plans and specifications shall be filed with the Administrative Authority. The Administrative Authority shall approve the plans prior to the issuance of any permit.

**1303.2** Plans and specifications submitted to the Administrative Authority shall be of sufficient clarity to indicate the nature and extent of the work proposed and shown in detail that such work will conform to the provisions of this Code, specifically Chapter 14 of this Code.

NEW SECTION

**WAC 51-46-1304 System installation and performance testing.**

**1304.0 System Installation and Installer Performance Testing.**

**1304.1** Medical gas and medical vacuum systems shall be designed and installed in accordance with the requirements of this Chapter and the installation requirement of this Code, specifically Chapter 14 of this Code.

**1304.2** A report of completion of the installer performance testing which includes the specific items in Chapter 14 shall be furnished to the Administrative Authority prior to system verification.

NEW SECTION

**WAC 51-46-1305 System verification.**

**1305.0 System Verification.**

**1305.1** Prior to any medical gas system being placed in service, each and every system shall be verified as described in Chapter 14. This verification shall be accomplished by an independent third party verification agency which is approved by the Administrative Authority.

**1305.2** A report which includes at least the specific items in Chapter 14 shall be furnished to the Administrative Authority prior to final acceptance of the system.

NEW SECTION

**WAC 51-46-1400 Referenced standards.**

NEW SECTION

**WAC 51-46-1401 Referenced standards.**

**CHAPTER 14**

**REFERENCED STANDARDS**

Table of Contents for Table 14-1

Title	Page
Appliances and Appurtenances - Plumbing	130
Backflow Preventers (see Valves and Appurtenances)	
Backwater Valves (see Interceptors and Backwater Valves)	
Cleanouts (see Traps and Cleanouts)	
Drainage System - Sanitary	131

Drains - Storm	137
Building - Below Ground	149
Interior - Above Ground	149
Drains - Subsoil	138
Fixtures and Trim - Plumbing	139
Hangers and Supports	142
Indirect Waste Piping and Special Wastes	142
Interceptors and Backwater Valves	146
Joining Materials and Methods	
Medical Gas Piping	146
Sanitary Drainage Systems	135
Sanitary Vents	154
Storm Drains	150
Subsoil Drains	139
Water Supply System	160
Joining Methods - Indirect Waste Piping and Special Waste	145
Manholes	146
Medical Gas and Vacuum Systems	146
Miscellaneous	146
Pumps	147
Roof Drains	138
Sewer, Building (see Drainage System - Sanitary)	
Sewer, Building Combined	148
Traps and Cleanouts	152
Valves and Appurtenances	159
Vents and Venting	153
Water Supply Systems	155
Wrapping and Coating	162
Footnotes to standards listed in Table 14-1 and abbreviations are at the end of the table.	

NEW SECTION

WAC 51-46-1491 Table 14-1 Standards for materials, equipment, joints and connections.

**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.

Item	ANSI	ASTM	Other
<b>APPLIANCES AND APPURTENANCES PLUMBING</b>			
Chimneys, factory-built residential type and building heating appliances	UL 103-95		
Dishwashers, households	AHAM DW-2PR-86		
	UL 749-94		
	ASSE 1006-89		
Dishwashers, commercial	ASSE 1004-90		NSF No. 3-82
	UL 921-95		
Draft Hoods	Z21.12-90		
Electrical heating, water supply, and power boilers	UL 834-91		
Electrical heating appliances	UL 499-87		
Food waste disposers (grinders), household	ASSE 1008-89		
	AHAM FWD-2PR-80		
	(R1989)		
	UL 430-86		
Food waste disposers (grinders), commercial	ASSE 1009-90		
	AHAM FWD-1-83		
Gas vents	UL 441-91		
Icemakers	UL 563-91		
Laundry equipment, household	ASSE 1007-92		
	AHAM HLW-2 PR-86		
Manual food and beverage dispensing equipment	NSF 18-90		

Item	ANSI	ASTM	Other
Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves	Z21.15-92		
Manually Operated Metallic Gas Valves (Line Type) for Use in Gas Piping Systems Up to 125 psig(Sizes 1/2 in. through 2 in.)	ASME B16.33-90		
Large Metallic Valves for Gas Distribution (Manually Operated, NPS 2-1/2 to 12, 125 psig Maximum)	ASME B16.38-85		
Metal Gas Connectors for Gas Appliances	Z21.24-93		
Quick Disconnect Devices for Use with Gas Fuel	Z21.41-89		
Pressure Regulating Valves for LP Gas Pigtails and Flexible Hose Connectors for LP-Gas	UL 144-85 UL 569-94		
Steel auxiliary tanks for oil-burner fuel	UL 443-89		
Steel inside tanks for oil burner fuel	UL 80-92		
Constant-level oil valves	UL 352-92		
Oil fired boiler assemblies	UL 726-90		
<b>Water Heaters</b>			
Water heater relief valve drain tubes	ASME A112.4.1-93		
Electric Booster and Commercial Storage Tank Water Heaters	UL 1453-94		
Gas, Volume III, circulating tank instantaneous and large automatic type water heaters	Z21.10.3a-94 Z21.10.32-90 Z21.10.3b-92		
Gas, Volume I, automatic storage-type water heaters with input of 75,000 BTU/H (22 kW), or less	Z21.10.1a-94		
Electric	Z21.10.1a-91 UL 174-89		
Oil	Z21.10.1b-92 UL 732-87		
Gas Fired Low-Pressure Steam and Hot Water Boilers and Addenda	Z21.13-91		
<b>DRAINAGE SYSTEM - SANITARY</b>			
<b>Building Sewers</b>			
Cast iron soil pipe and fittings - hub and spigot		A 74-93 <sup>1</sup>	CISPI HSN-85

Item	ANSI	ASTM	Other
Hubless cast iron sanitary system			CISPI 301-90 CISPI 310-90 IAPMO IS 6-95
Ductile iron pipe centrifugally cast in sand-lined or metal molds	AWWA C151/ A21.51-91	A 377-89	
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
Clay pipe	A106.6-70	C 700-91 C 425-90a C 428-92 <sup>6,7</sup>	IAPMO IS 18-85
Asbestos-cement nonpressure sewer pipe			
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube		B 88-93a	IAPMO IS 3-93
Copper drainage tube		B 306-92	IAPMO IS 3-93
Cast copper alloy solder joint drainage fittings	ASME B16.23-92		IAPMO IS 3-93
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
Concrete sewer, storm drain and culvert pipe		C 14-92	
Low pressure air test for building sewers (Installation)		IAPMO IS 16-84	
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 1-91 IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) sewer pipe and fittings	NSF 14-90	D 2751-93 <sup>1</sup>	IAPMO IS 11-87 IAPMO IS 1-91
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 1-91 IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) composite sewer piping		D 2680-93	IS 1-91
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 1-91 IAPMO IS 9-95
Type PSP poly (vinyl chloride) (PVC) sewer pipe and fittings	NSF 14-90	D 3033-85 (D)	IAPMO IS 1-91



Item	ANSI	ASTM	Other
Shielded couplings joining hubless cast iron soil pipe and fittings		C 1277-94	
Ductile iron pipe centrifugally cast in sand-lined or metal molds	AWWA C151/ A21.51-91	A 377-89	
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA 153/ A21.53-88		
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube		B 88-93a	IAPMO IS 3-93
Copper drainage tube		B 306-92	IAPMO IS 3-93
Seamless copper tube		B 75-93	IAPMO IS 3-93
Seamless brass tube		B 135-91	
Cast bronze solder-joint drainage fittings	ASME B16.23-92		
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
Steel pipe (galvanized)	ASME B36.10-85	A 53-93a A 120-84 (D)	
Cast iron threaded drainage fittings	ASME B16.12-91 <sup>1</sup>		
Lead pipe and bends			WW-P 325B-76
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Coextruded poly (vinyl chloride) (PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95
<b>Building Drains – Below Ground</b>			
Cast iron soil pipe and fittings – hub and spigot		A 74-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system		C 564-95a	CISPI 310-90 CISPI 301-90 <sup>1</sup> IAPMO IS 6-95
Ductile iron pipe centrifugally cast in sand-lined or metal molds	AWWA C151/ A21.51-91	A 377-89	

Item	ANSI	ASTM	Other
Type PSM poly (vinyl chloride) (PVC) sewer pipe and fittings	NSF 14-90	D 3034-94	IAPMO IS 1-91
Poly (vinyl chloride) (PVC) sewer pipe and fittings	NSF 14-90	D 2729-93 <sup>1</sup>	IAPMO IS 1-91
Type PS-46 poly (vinyl chloride) (PVC) plastic gravity flow sewer pipe and fittings	NSF 14-90	F 789-89 <sup>1</sup>	IAPMO IS 1-91
Coextruded poly (vinyl chloride)(PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 1-91 IAPMO IS 9-95
Poly (vinyl chloride) (PVC) corrugated sewer pipe with a smooth interior and fittings		F 949-93a	IAPMO IS 1-91
<b>Building Drains Above Ground</b>			
Cast iron soil pipe and fittings – hub and spigot		A 74-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system		C 564-95a	CISPI 310-90 CISPI 301-90 <sup>1</sup> IAPMO IS 6-95
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube		B 88-93a	IAPMO IS 3-93
Copper drainage tube		B 306-92	IAPMO IS 3-93
Cast bronze solder-joint drainage fittings	ASME B16.23-92		
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
Lead pipe and bends			WW-P-325B-76
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95

Item	ANSI	STM	Other
Coextruded poly (vinyl chloride)(PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95
<b>Sanitary Drain and Waste – Above Ground</b>			
Cast iron soil pipe and fittings hub and spigot		A 74-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system		C 564-95a	CISPI 310-90, CISPI 301-90 <sup>1</sup> , IAPMO IS 6-95
Ductile iron pipe centrifugally cast in sand-lined or metal molds	AWWA C151/ A21.51-91	A 377-89	
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube		B 88-93a	IAPMO IS 3-93
Copper drainage tube		B 306-92	IAPMO IS 3-93
Cast bronze solder-joint drainage fittings	ASME B16.23-92		
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
Cast bronze solder-joint fittings for solvent drainage systems	ASME B16.32-92		
Copper alloy fixture fittings	ASME A112.18.1M-94		
Lead pipe and bends			WW-P-325B-76
Steel pipe (galvanized)	ASME B36.10M-85	A 53-93a A 120-84 (D)	
Cast iron threaded drainage fittings	ASME B16.12-91		
ABS and PVC piston driven DWV expansion joints			IAPMO PS 51-92
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95

Item	ANSI	ASTM	Other
Coextruded poly (vinyl chloride)(PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95
<b>Sanitary Drain and Waste - Below Ground</b>			
Cast iron soil pipe and fittings hub and spigot		A 74-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system			CISPI 301-90 <sup>1</sup> CISPI 310-90 IAPMO IS 6-95
Ductile iron pipe centrifugally cast in sand-lined or metal molds	AWWA C151/ A21.51-91	A 377-89	
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube		B 88-93a	IAPMO IS 3-93
Copper drainage tube		B 306-92	IAPMO IS 3-93
Cast bronze solder-joint drainage fittings	ASME B16.23-92		IAPMO IS 3-93
Copper flush pipes	ASME A112.18.1M-94		
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
Cast bronze solder-joint fittings for solvent drainage systems	ASME B16.32-92		
Lead pipe, lead traps and bends			WW-P-325B-76
Cast iron threaded drainage fittings	ASME B16.12-91 <sup>1</sup>		
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Coextruded poly (vinyl chloride)(PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95

Item	ANSI	ASTM	Other
<b>JOINING MATERIALS AND METHODS – SANITARY DRAINAGE SYSTEMS</b>			
Type “F” clamps for plumbing applications	SAE J1670-93		
Rubber gasket joints for ductile-iron and gray-iron pressure pipe and fittings	AWWA C111 A21.11-90		
Cast iron soil pipe and fittings hub and spigot neoprene compression gaskets, caulking, lead wool and lead pig		C 564-95a B 29-92	CISPI HSN-85
Threaded joints (IPS)	ASME B1.10.1-83 B1.20.3-91		
Hubless cast iron sanitary systems neoprene gasket and stainless steel shield		C 564-95a	CISPI 310-90, CISPI 301-90 <sup>1</sup> , IAPMO IS 6-95
Flexible transition couplings for underground piping systems		C 1173-95	
Shielded transition couplings for use with dissimilar DWV pipe and fittings above ground			IAPMO PS 44-92
Clay pipe		C 425-90a	IAPMO IS 18-85
Braze filler metals	AWS A5.8-92		
Solder metal and wiping solder		B 32-95a <sup>4</sup>	
Silver brazing joints for wrought and cast solder-joint fittings			MSS-SP-73-91
Flux brazing			0-F-499D-85
Flux soldering			
Seal compound pipe joint and thread			TT-S-1732-71
<b>Plastic DWV, ABS</b>			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Solvent cement for Acrylonitrile-Butadiene- Styrene (ABS) plastic pipe and fittings	NSF 14-90	D 2235-93a	IAPMO IS11-87 IAPMO IS 5-92
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	IAPMO IS 5-92
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	



Item	ANSI	ASTM	Other
<b>Plastic DWV, PVC</b>			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Solvent cement for poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	D 2564-93	IAPMO IS 9-95
Primers for use in solvent cement joints of poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	F 656-93	IAPMO IS 9-95
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	IAPMO IS 9-95
Making solvent-cemented joints with poly (vinyl chloride)(PVC) pipe and fittings		D 2855-93	IAPMO IS 9-95
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	
<b>Plastic Sewer, ABS</b>			
Solvent cement for Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe and fittings	NSF 14-90	D 2235-93a	
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	
Underground installation of flexible thermo-plastic sewer pipe		D 2321-89	
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	
<b>Plastic Sewer, PVC</b>			
Solvent cement for poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	D 2564-93	
Primers for use in solvent cement joints of poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	F 656-93	
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	
Underground installation of flexible thermo-plastic sewer pipe		D 2321-89	



Item	ANSI	ASTM	Other
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	
Making solvent-cemented joints with poly (vinyl chloride) (PVC) pipe and fittings		D 2855-93	
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	
Underground installation of flexible thermo-plastic sewer pipe		D 2321-89	
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	
Plastic stabilizers for use with plastic closet bends			IAPMO PS 91-95
Mechanical cast iron closet flanges			IAPMO PS 97-96
<b>Pumps – Drainage</b>			
Sewage pump, centrifugal, wet pit			
Sump pumps, vertical, wet pit			MIL-P-21214B-92
<b>Sewage Ejectors</b>			
Mechanical and air			
<b>DRAINS – STORM</b>			
<b>Building Storm Sewers</b>			
Joints for circular concrete sewer and culvert pipe, using rubber gaskets		C 443-85a(R90)	
Cast iron soil pipe and fittings hub and spigot		A 74-93 <sup>1</sup> C 564-95a	CISPI HSN-85
Hubless cast iron sanitary system		C 564-95a	CISPI 301-90 <sup>1</sup> CISPI 310-90 IAPMO IS 6-95
Flexible transition couplings for underground piping systems		C 1173-95	
Ductile iron pipe centrifugally cast in sand-lined or metal molds	AWWA C151/ A21.51-91	A 377-89	
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
Clay pipe		C 700-91 C 425-90a	IAPMO IS 1-91 IAPMO IS 18-85
Asbestos-cement nonpressure sewer pipe		C 428-92 <sup>6,7</sup>	

Item	ANSI	ASTM	Other
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube (types K, L and M)		B 88-93a	IAPMO IS 3-93
Copper drainage tube-type DWV		B 306-92	IAPMO IS 3-93
Cast copper alloy solder joint drainage fittings	ASME B16.23-92		IAPMO IS 3-93
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
Concrete sewer, storm drain and culvert pipe		C 14-92	
Low pressure air test for building sewers (Installation)			IAPMO IS 16-84
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	M265-811 IAPMO IS 1-91 IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) sewer pipe and fittings	NSF 14-90 K65.59-71	D 2751-93 <sup>1</sup>	IAPMO IS11-87 IAPMO IS 1-91
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92 IAPMO IS 1-91
Acrylonitrile-Butadiene-Styrene (ABS) composite sewer pipe		D 2680-93	IAPMO IS 1-91
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95 IAPMO IS 1-91
Type PSP poly (vinyl chloride) (PVC) sewer pipe and fittings	NSF 14-90	D 3033-85 (D)	IAPMO IS 1-91
Type PSM poly (vinyl chloride) (PVC) sewer pipe and fittings	NSF 14-90	D 3034-94	IAPMO IS 1-91
Type PS-46 poly (vinyl chloride) (PVC) plastic gravity flow sewer pipe and fittings	NSF 14-90	F 789-89 <sup>1</sup>	IAPMO IS 1-91
Coextruded poly (vinyl chloride)(PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 1-91 IAPMO IS 9-95
Poly (vinyl chloride) (PVC) corrugated sewer pipe with a smooth interior and fittings		F 949-93a	IAPMO IS 1-91

Item	ANSI	ASTM	Other
<b>SUBSOIL DRAINS</b>			
Cast iron soil pipe and fittings hub and spigot		C 564-95a A 74-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system		C 564-95a	CISPI 310-90 CISPI 301-90 <sup>1</sup> IAPMO IS 6-95
Clay pipe		C 700-91	IAPMO IS 18-85
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube (types K, L and M)		B 88-93a	IAPMO IS 3-93
Copper drainage tube-type DWV		B 306-92	IAPMO IS 3-93
Cast bronze solder-joint drainage fittings	ASME B16.23-92		IAPMO IS 3-93
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
<b>Plastic, PE</b>			
Corrugated polyethylene tubing		F 405-93	
<b>Plastic, SR</b>			
Styrene-rubber (SR) plastic drain pipe, perforated-type		D 3298-81 (D)	
<b>ROOF DRAINS</b>			
Copper and other metallic roof/deck/balcony drains	A112.21.2M-83		IAPMO PS 41-91
Plastic roof drains			IAPMO PS 47-92
<b>JOINING MATERIALS AND METHODS - SUBSOIL DRAINS</b>			
Clay pipe (open jointed clay pipe or perforated clay pipe)		C 425.90a	
Caulking lead, wool and lead pig		B 29-92	
Brazing filler metals	AWS A5.8-92		
Solder metal and wiping solder		B 32-95a <sup>4</sup>	MSS-SP-73-91
Silver brazing joints for wrought and cast solder joint fittings			
<b>Plastic, PE</b>			
Corrugated polyethylene tubing		F 405-93	
Underground installation of flexible thermo-plastic sewer pipe		D 2321-89	
<b>Plastic, PVC</b>			
Solvent cements for poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	D 2564-93	IAPMO IS 9-95

Item	ANSI	ASTM	Other
Primers for use in solvent cement joints of poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	F 656-93	IAPMO IS 9-95
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	IAPMO IS 9-95
Underground installation of flexible thermo-plastic sewer pipe		D 2321-89	
Making solvent-cemented joints with poly (vinyl chloride) (PVC) pipe and fittings		D 2855-93	IAPMO IS 9-95
<b>Plastic, SR</b>			
Solvent cement for styrene-rubber (SR) plastic pipe and fittings		D 3122-93	
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	
Underground installation of flexible thermo-plastic sewer pipe		D 2321-89	
<b>FIXTURES AND TRIM – PLUMBING</b>			
Plumbing fixtures, general specification			WW-P-541- E-Gen.1980
Drains for prefabricated and precast showers			IAPMO PS 4-95
Porous filter protector for sub-drain weep holes			IAPMO PS 100-96
Prefabricated fiberglass church baptistries			IAPMO PS 98-96
Bathwaste strainer drains			IAPMO PS 55-92
Plastic bathwaste and overflow assemblies			IAPMO PS 69-93
Bathtub/whirlpool bathtubs with pressure sealed doors			IAPMO PS 70-93
Electronic controlled showers			IAPMO PS 71-93
Flexible metallic water connectors			IAPMO PS 14-89
Non-Vitreous Ceramic Plumbing Fixtures	ASME A112.19.9M-91		
Plumbing fixtures, stainless steel	ASME A112.19.3M-87		
Shower heads and water control valves	ASME A112.18.1M-94 ASSE 1016-90 ASSE 1017-86		
Water flow control devices			ASSE 1028-81 ASSE 1034-81

Item	ANSI	ASTM	Other
Showers, plastic	Z124.2-95		
Showers, terrazzo			IAPMO PS 99-96
Shower pans-sheet lead, grade B, 4 lb. min.			00-L-201 f-70
Shower units, chlorinated polyethylene sheeting		D 4068-91	
Subdrains for built-up shower pans			IAPMO PS 16-90
Tile-Lined shower receptors (and replacements) (Installation)			IAPMO IS 4-96
Load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installations	A118.10-93		
Poly (vinyl chloride)(PVC) plastic flexible concealed water-containment membranes		D 4551-91	
Sinks, kitchen, service	ASME A112.19.1M-87		
Sinks, Plastic	Z124.6-90		
Sinks, terrazzo			IAPMO PS 99-96
Laundry tubs	ASME A112.19.1M-87		
Supports for off-the-floor plumbing fixtures with or without concealed tanks			IAPMO PS 58-92
Supports for off-floor plumbing fixtures for public use	ASME A112.6.1M-88		
Urinals	ASME A112.19.2M-95 Z124.9-94 <sup>1</sup>		
<b>Water Closets</b>			
Vitreous china	ASME A112.19.2M-95		
Plastic	Z124.4-86 Z124.4a-90		
Water closet trim	A112.19.5-79		
Plastic Toilet (Water Closet) Seats	Z124.5-89		
Water closet seats with spray			IAPMO PS 93-95
Hydraulic Requirements for Water Closets & Urinals	ASME A112.19.6-90		
Fabricated stainless steel security water closets			IAPMO PS 61-92
Electrohydraulic water closets			IAPMO PS 77-95
Dual flush for electrohydraulic and gravity 6 liter (1.6 gallons) water closet			IAPMO PS 78-95
<b>Whirlpool Bathtubs</b>			
Appliances	ASME A112.19.7M-95		
Suction fittings	ASME A112.19.8M-87		

Item	ANSI	ASTM	Other
Soaking and hydrotherapy (whirlpool) bathtubs with hydraulic seatlift			IAPMO PS 89-95
<b>Bathtubs</b>			
Cast iron	ASME A112.19.1M-87		
Steel	ASME A112.19.4M-94		
Plastic	Z124.1-95		
Terrazzo			IAPMO PS 99-96
<b>Built-Up Fixtures</b>			
Roman tubs			IAPMO IS 2-92
Drinking fountains and drinking water coolers	ARI 1010-84 UL 399-92		
Plumbing fixture fittings	ASME A112.18.1M-94		
Bathtub three-way diverter valves with backflow protection			IAPMO PS 45-91
Backflow prevention requirements for fixture fittings with hose connected singular moveable outlets			IAPMO PS 49-92
Fixture supply and drains	ASME A112.18.1M-94		
Floor drains	ASME A112.21.1M-91 <sup>1</sup>		
Enameled cast iron sanitary floor sinks			IAPMO PS 62-93
Epoxy coated cast iron sanitary floor sinks			IAPMO PS 83-95
PVC plastic sanitary floor sinks			IAPMO PS 84-95
<b>Flushometers</b>			
Pressurized flushing devices	ASSE 1037-90		MIL-V-29193-80(D)
<b>Lavatories</b>			
Vitreous china	ASME A112.19.2M-95		
Cast iron	ASME A112.19.1M-87		
Steel, enamel	ASME A112.19.4M-94		
Plastic and cultured marble	Z124.3-95		
Steel, stainless	ASME A112.19.3M-87		
<b>Utility Hydrants</b>	ASME A112.21.3M-85 <sup>1</sup>		
Wall hydrants, anti-freeze-type with vacuum breaker	ASSE 1019-95		
<b>Accessibility Standard</b>	CABO A117.1-92		
<b>HANGERS AND SUPPORTS - PIPING</b>			MSS SP-58-93
<b>Plastic Waste, ABS</b>			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste, and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92



Item	ANSI	ASTM	Other
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste, and vent pipe having a foam core Drain, waste, and vent hangers	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
<b>Plastic Waste, PVC</b>			IAPMO PS 95-96
Poly (vinyl chloride) (PVC) plastic drain, waste, and vent pipe and fittings Drain, waste, and vent hangers	NSF 14-90	D 2665-94	IAPMO IS 9-95
<b>Plastic Water Distribution Piping, CPVC</b>			IAPMO PS 95-96
Chlorinated poly (vinyl chloride) CPVC plastic hot-and cold-water distribution system Supports for off-the-floor plumbing fixtures for public use	NSF 14-90	D 2846-93	
	ASME A112.6.1M-88		
<b>INDIRECT WASTE PIPING AND SPECIAL WASTE</b>			
<b>Indirect Waste Piping</b>			
Cast iron soil pipe and fittings – hub and spigot		A 74-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system coupling			CISPI 301-90 <sup>1</sup> CISPI 310-90 IAPMO IS 6-95
Steel pipe (galvanized)		A 53-93a	
Cast iron threaded drainage fittings		A 120-84 (D)	
Copper alloy sand casting for general applications		A 126-93	
Seamless copper water tube		B 584-93b <sup>5</sup>	
Copper drainage tube		B 88-93a	IAPMO IS 3-93
Cast bronze solder-joint drainage fittings	ASME B16.23-92	B 306-92	IAPMO IS 3-93
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92

Item	ANSI	ASTM	Other
Plastic, PP			
Polypropylene (PP) pipe and fittings (Sch. 40 and 80)	NSF 14-90	D 2146-82 (D)	
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Coextruded poly (vinyl chloride) (PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95
<b>Special Waste Piping</b>			
Chemical			
Clay pipe		C 700-91	IAPMO IS 18-85
Lead pipe		C 425-92a	WW-P-325B-76
Glass			MIL-P-22561-82(D)
Borosilicate glass pipe and fittings for drain, waste and vent (DWV) applications		C 1053-90 <sup>1</sup>	
Corrosion-resistant high silicon cast iron hub and spigot		A 518-92	
High-Silicon Iron Pipe and Fittings		A 861-92 <sup>1</sup>	
Fiberglass (glass fiber reinforced thermosetting resin) fittings			IAPMO PS 82-95
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Plastic, PP			
Polypropylene (PP) pipe and fittings (Sch.40 and 80)	NSF 14-90	D 2146 (D)	
Polyolefin pipe and fittings for corrosive waste drainage systems		F 1412-94	
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95

Item	ANSI	ASTM	Other
Coextruded poly (vinyl chloride)(PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95
<b>Corrosive waste piping</b>			
Clay pipe		C 700-91	IAPMO IS 18-85
Lead pipe		C 425-90a	WW-P-325B-76
Glass			MIL-P-22561-82(D)
Borosilicate glass pipe and fittings for drain, waste and vent (DWV) applications		C 1053-90 <sup>1</sup>	
Corrosion-resistant high silicon cast iron hub and spigot		A 518-92	
Fiberglass (glass fiber reinforced thermosetting resin) fittings			IAPMO PS 82-95
High-Silicon Iron Pipe and Fittings		A 861-92 <sup>1</sup>	
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Plastic, PP			
Polypropylene (PP) pipe and fittings (Sch. 40 and 80)	NSF 14-90	D 2146 (D)	
Polyolefin pipe and fittings for corrosive waste drainage systems		F 1412-94	
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
<b>Industrial</b>			
Cast iron soil pipe and fittings – hub and spigot		A 74-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system coupling			CISPI 301-90 <sup>4</sup> CISPI 310-90 CISPI HSN-85 IAPMO IS 6-95

Item	ANSI	ASTM	Other
Corrosion-resistant high silicon cast iron hub and spigot		A 518-92	
Fiberglass (glass fiber reinforced thermosetting resin) fittings			IAPMO PS 82-95
Steel pipe (galvanized)	B125.1	A 53-93a A 120-84 (D)	
Cast iron threaded drainage fittings	ASME B16.12-91 <sup>1</sup>	A 126-93	
Clay pipe		C 700-91	IAPMO IS 18-85
Lead pipe		C 425-90a	WW-P-325B-76
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Plastic, PP			
Polypropylene (PP) pipe and fittings (Sch. 40 and 80)	NSF 14-90	D 2146 (D)	
Polyolefin pipe and fittings for corrosive waste drainage systems		F 1412-94	
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Coextruded poly (vinyl chloride)(PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95
<b>JOINING METHODS - INDIRECT WASTE PIPING AND SPECIAL WASTE</b>			
Type "F" clamps for plumbing applications	SAE J1670-93		
Corrosion-resistant high silicon cast iron hub and spigot		A 518-92	
Fiberglass (glass fiber reinforced thermosetting resin) fittings			IAPMO PS 82-95
Cast iron soil pipe and fittings hub and spigot -neoprene gaskets, compression caulking, lead wool and lead pig		A 7-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system neoprene gasket and stainless steel shield		C 564-95a	CISPI 301-90 CISPI 310-90 IAPMO IS 6-95

Item	ANSI	ASTM	Other
Clay pipe		C 425-90a	IAPMO IS 18-85
Silver brazing joints for wrought and cast bronze solder joint fittings	A106.6-77		MSS-SP-73-91
Solder metal		B 32-95a <sup>4</sup>	
Brazing filler metal	AWS A5.8-92		
<b>Plastic, ABS</b>			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Solvent cement for Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe and fittings	NSF 14-90	D 2235-93a	
Joints for drain and sewer plastic pipes using flexible thermoplastic sewer pipe		D 3212-92	
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	
<b>Plastic, PP</b>			
Practice for heating joining of thermal plastic pipe and fittings		D 2657-90	
Polypropylene (PP) pipe and fittings (Sch. 40 and 80)	NSF 14-90	D 2146-82 (D)	
<b>Plastic, PVC</b>			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Solvent cement for poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	D 2564-93	IAPMO IS 9-95
Primers for use in solvent cement joints of poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	F 656-93	IAPMO IS 9-95
Making solvent-cemented joints with poly (vinyl chloride) (PVC) pipe and fittings		D 2855-93	IAPMO IS 9-95
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	IAPMO IS 9-95
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	

Item	ANSI	ASTM	Other
<b>INTERCEPTORS AND BACKWATER VALVES</b>			
<b>Interceptors</b>			
Grease (Grease Traps)			PDI G-101-85 IAPMO PS 13-89 <sup>2</sup>
Grease interceptors and clarifiers			IAPMO PS 80-95
Sand			
Oil			PDI G-101-85 IAPMO PS 8-77 (D)
Rainwater diverter valve for non-roofed area slabs			IAPMO PS 86-95
<b>Backwater Valves</b>	A112.14.1-75 (Rev.90)		
Acrylonitrile-butadiene-styrene (ABS) and poly (vinyl chloride) (PVC) backwater valves			IAPMO PS 38-91
<b>MANHOLES</b>		C 478-90b	
<b>MEDICAL GAS AND VACUUM SYSTEMS</b>			
Medical Gas Systems	NFPA 99-96 (Ch. 2 & 4)		
Medical - Surgical Vacuum Systems	NFPA 99-96 (Ch. 2 & 4)		
<b>JOINING MATERIALS AND METHODS -MEDICAL GAS PIPING</b>			
Seamless copper tube for medical gas systems		B 819-92	
Brazing filler metal	AWS A5.8-92		
Certified Brazing			AWS B2.2. ASME Section IX Boiler and Pressure Vessel Code
<b>MISCELLANEOUS</b>			
National fuel gas code	Z223.1-92/ NFPA 54		
Energy efficient design of new buildings except low-rise residential buildings	ASHRAE 90.1-89		
Proportional chemical dispensers with backflow protection			IAPMO PS 75-95



Item	ANSI	ASTM	Other
Ballcock or flushometer valve tailpiece trap primers and trap primer receptors/adapters			IAPMO PS 76-95
Multiport electronic trap primer			IAPMO PS 79-95
Diverters for faucets with antisiphon	ASSE 1025-78		
Hand-held water connected shower devices	ASSE 1014-90		
Water closet flush tank ballcocks	ASSE 1002-86		
Fixture mounted hot water dispensers	ASSE 1023-79		
Dishwasher drain air gap	AHAM DW-1-92		ASSE 1021-77
Accessible and usable buildings and facilities	CABO A117.1-92		
General requirements for wrought seamless copper and copper-alloy tube		B 251-93	
Welded Copper Tube		B 447-93	
Copper sheet and strip for building construction		B 370-92	
Copper sheet, strip, plate, and rolled bar		B 152-94	
General requirements for steel sheet, zinc-coated (galvanized) by the hot-dip process		A 525-93	
Seamless copper tube for air conditioning and refrigeration field service		B 280-93a	
Schemes for identification of piping systems	A13.1-81(R93)		
Threaded joints	B2.1-90		
Drinking water treatment units - aesthetic effects	NSF 42-88		
Drinking water treatment units - health effects	NSF 53-94		
Reverse osmosis drinking water treatment systems	NSF 58-96		
Liquified petroleum gases, storage and handling	NFPA 58-92		
Welded and seamless carbon steel and austenitic stainless steel pipe nipples		A 733-89	
Brass-, copper-, and chromium-plated pipe nipples		B 687-88 <sub>e1</sub>	
Thermoplastic gas pressure pipe tubing and fittings		D 2513-94a <sup>1</sup>	IAPMO IS 12-93
Anodeless transition riser for use with polyethylene and PVC gas yard piping			IAPMO PS 40-91

Item	ANSI	ASTM	Other
Thermoplastic well casing pipe and couplings made in standard dimension ratios (SDR) schedule 40 and schedule 80		F 480-94	
Asbestos cement pressure pipe for water service and yard piping (Installation)			IAPMO IS 15-82
Special cast iron fittings			IAPMO PS 5-84
Tubing trap wall adapters			IAPMO PS 7-84
Diversion tees and twin waste elbows			IAPMO PS 9-84
Pipe flashings			IAPMO PS 64-93
Smoothwall polyethylene (PE) pipe for use in drainage and waste disposal absorption fields		F 810-93	
<b>PUMPS</b>			
<b>Sump Pumps</b>			
Sewage pumps			MIL-P-21251B-81 (D) SSPMA-85
Vertical sump pumps			MIL-P-21214B-92 SSPMA-85
<b>Pumps – Water</b>			
Motor-operated water pumps	UL 778-91		
Centrifugal – general service			
Submersible, axial flow, electric motor driven			MIL-P-62156 (1)-1983 (D)
Shallow-well pumps			MIL-P-52407 (A)-1976 (D)
<b>BUILDING SEWER – COMBINED</b>			
Cast iron soil pipe and fittings hub and spigot		A 74-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system		C 564-95a	CISPI 301-90 <sup>1</sup> IAPMO IS 6-95 CISPI 310-90
Ductile iron pipe centrifugally cast in sand-lined or metal molds	AWWA C151/ A21.51-91	A 377-89	
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
Clay pipe		C 700-91 C 425-90a	IAPMO IS 1-91 IAPMO IS 18-85

Item	ANSI	ASTM	Other
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube (types K, L and M)		B 88-93a	IAPMO IS 3-93
Copper drainage tube (DWV)		B 306-92	IAPMO IS 3-93
Cast bronze solder joint drainage fittings	ASME B16-23-92		IAPMO IS 3-93
Wrought copper and copper alloy-solder joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
<b>Plastic, ABS</b>			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings		D 2661-94a <sup>1</sup>	IAPMO IS 5-92 IAPMO IS 1-91
Acrylonitrile-Butadiene-Styrene (ABS) sewer pipe and fittings	NSF 14-90	D 2751-93 <sup>1</sup>	IAPMO IS11-87 IAPMO IS 1-91
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 1-91 IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) composite sewer pipe		D 2680-93	IAPMO IS 1-91
<b>Plastic, PVC</b>			
Poly (vinyl chloride) (PVC) plastic drain waste and vent pipe and fittings	NSF 14-90	D 2665-94 (D)	IAPMO IS 9-95 IAPMO IS 1-91
Coextruded poly (vinyl chloride) (PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 1-91 IAPMO IS 9-95
Type PSP poly (vinyl gravity flow chloride) (PVC) sewer pipe and fittings	NSF 14-90	D 3033-85 (D)	IAPMO IS 1-91
Type PSM poly (vinyl chloride) (PVC) sewer pipe and fittings	NSF 14-90	D 3034-94	IAPMO IS 1-91
Type PS-46 poly (vinyl chloride) (PVC) plastic gravity flow sewer pipe and fittings	NSF 14-90	F 789-89 <sup>1</sup>	IAPMO IS 1-91
<b>INTERIOR STORM DRAINS - ABOVE GROUND</b>			
Cast iron soil pipe and fitting hub and spigot		C 564-95a A 74-93 <sup>1</sup>	CISPI HSN-85
Shielded couplings joining hubless cast iron soil pipe and fittings		C 1277-94	
Hubless cast iron sanitary systems		C 564-95a	CISPI 310-90 CISPI 301-90 <sup>1</sup> IAPMO IS 6-95

Item	ANSI	ASTM	Other
Ductile iron pipe centrifugally cast in sand-lined or metal molds	AWWA C151/ A21.51-91	A 377-89	
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube (types K, L and M)		B 88-93a	IAPMO IS 3-93
Copper drainage tube (type DWV)		B 306-92	IAPMO IS 3-93
Cast copper alloy solder joint drainage fittings	ASME B16.23-92		IAPMO IS 3-93
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
Lead pipe			WW-P-325B -76
Steel pipe (galvanized)	ASME B36.10M-85	A 53-93a A 120-84 (D)	
Cast iron threaded drainage fittings	ASME B16.12-91 <sup>1</sup>		
ABS and PVC piston driven DWV expansion joints			IAPMO PS 51-92
<b>Plastic, ABS</b>			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1</sup>	IAPMO IS 5-92
<b>Plastic, PVC</b>			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Coextruded poly (vinyl chloride) (PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95
<b>BUILDING STORM DRAINS – BELOW GROUND</b>			
Cast iron soil pipe and fittings hub and spigot		C 564-95a A 74-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system		C 564-95a	CISPI 301-90 <sup>1</sup> CISPI 310-90 IAPMO IS 6-95
Ductile iron pipe centrifugally cast in sand-lined or metal molds	AWWA C151/ A21.51-91	A 377-89	

Item	ANSI	JTM	Other
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
Clay pipe		C 700-91 C 425-90a	IAPMO IS 18-85
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube (types K, L, and M)		B 88-93a	IAPMO IS 3-93
Copper drainage tube (type DWV)		B 306-92	IAPMO IS 3-93
Cast copper alloy solder-joint drainage fittings	ASME B16.23-92		IAPMO IS 3-93
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
Lead pipe and bends			WW-P-325B-76
<b>Plastic, ABS</b>			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
<b>Plastic, PVC</b>			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Coextruded poly (vinyl chloride)(PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95
<b>JOINING MATERIALS AND METHODS - STORM DRAIN</b>			
Type "F" clamps for plumbing applications	SAE J1670-93		
Cast iron soil pipe and fittings hub and spigot			CISPI HSN-85
Neoprene gaskets, compression		C 564-95a	
Caulking, lead wool and lead pig		B 29-92	CISPI 301-85 <sup>1</sup>
Hubless cast iron sanitary systems neoprene		C 564-95a	CISPI 301-90 <sup>1</sup> CISPI 310-90 IAPMO IS 6-95
Shielded transition couplings for use with dissimilar DWV pipe and fittings above ground			IAPMO PS 44-92
Clay pipe		C 425-90a	IAPMO IS 18-85

Item	ANSI	ASTM	Other
Brazing filler metals	AWS A5.8-92		
Solder metal and wiping solder		B 32-95a <sup>4</sup>	
Silver brazing joints for wrought and cast iron-solder joint fillings			MSS-SP-73-91
Flux, brazing			O-F-499d-85
Flux, soldering			O-F-506C-72 (D)
Seal, compound pipe joint and thread			TT-S-1732-71
Rubber gasket joints for ductile-iron and gray-iron pressure pipe and fittings	AWWA C111/ A21.11-90		
<b>Plastic DWV, ABS</b>			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Solvent cement for Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe and fittings	NSF 14-90	D 2235-93a	IAPMO IS11-87
Solvent Cements for Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe and fittings	NSF 14-90	D 2564-93	IAPMO IS 8-95
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	IAPMO IS 8-95
<b>Plastic DWV, PVC</b>			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Primers for use in solvent cement joints of poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	F 656-93	IAPMO IS 9-95
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	IAPMO IS 9-95
Making solvent-cemented joints with poly (vinyl chloride) (PVC) pipe and fittings		D2855-93	IAPMO IS 9-95
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	



Item	ANSI	ASTM	Other
<b>Plastic Sewer, ABS</b>			
Solvent cement for Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe and fittings	NSF 14-90	D 2235-93a	IAPMO IS11-87
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	
Underground installation of flexible thermoplastic sewer pipe		D 2321-89	
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	
<b>Plastic Sewer, PVC</b>			
Solvent cements for poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	D 2564-93	
Primers for use in solvent cement joints of poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	F 656-93	
Safe handling of solvent cements and primers used for joining thermo-plastic pipe and fittings		F 402-93	
Underground installation of flexible thermo-plastic sewer pipe		D 2321-89	
Joints for drain and sewer plastic pipes using flexible elastomeric seals		D 3212-92	
Making solvent-cemented joints with poly (vinyl chloride) (PVC) pipe and fittings		D 2855-93	
<b>Plastic Sewer, SR</b>			
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	
Joints for drain and sewer plastic pipe using flexible elastomeric seals		D 3212-92	
Underground installation of flexible thermo-plastic sewer pipe		D 2321-89	
<b>TRAPS AND CLEANOUTS</b>			
<b>Traps</b>			
P-Trap, supply stop and riser insulated protector			IAPMO PS 94-96

Item	ANSI	ASTM	Other
Copper alloy	ASME B16.23-92 ASME A112.18.1M-94		*IAPMO PS 2-89 *Applies to bronze trap IAPMO IS 3-93
Cast iron		A 74-93 <sup>1</sup>	CISPI 301-90 <sup>1</sup>
Lead			WW-P-325B-76
Malleable iron	ASME B16.3-92	A 197-87 (R-92)	
Plastic	NSF 14-90	F 409-93 <sup>1</sup>	
Plastic, ABS			
Thermoplastic accessible and replaceable plastic tube and tubular fittings	NSF 14-90	F 409-93 <sup>1</sup>	
Drain, waste, and vent (DWV) plastic fittings patterns		D 3311-92	
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste, and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) plastic drain, waste, and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Plastic, PP			
Thermoplastic accessible and replaceable plastic tube and tubular fittings	NSF 14-90	F 409-93 <sup>1</sup>	
Plastic, PVC			
Thermoplastic accessible and replaceable plastic tube and tubular fittings	NSF 14-90	F 409-93 <sup>1</sup>	
Drain, waste, and vent (DWV) plastic fittings patterns		D 3311-92 <sup>1</sup>	
Poly (vinyl chloride) (PVC) plastic drain, waste, and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
<b>Cleanouts - Plugs</b>			
Metal			
Cast iron	ASME A112.36.2M-91 <sup>1</sup>	A 74-93 <sup>1</sup>	CISPI 301-85 <sup>1</sup>
Copper alloy	ASME B16.23-92		
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste, and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92

Item	ANSI	ASTM	Other
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste, and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Drain, waste, and vent (DWV) plastic fittings patterns		D 3311-92 <sup>1</sup>	
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste, and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.23-92	ASME B16.29-86 <sup>1</sup>	IAPMO IS 3-93
Cast bronze solder-joint fittings for solvent drainage systems	ASME B16.32-92		
Lead pipe			WW-P-325B-76
Steel pipe (galvanized)	B125.1-84 B125.2	A 53-93a A 120-84 (D)	
Malleable iron threaded fittings	ASME B16.3-92	A 197-87(R-92)	
Cast iron threaded fittings	ASME B16.12-91 <sup>1</sup>	A 126-93	
Elastomeric test caps/cleanout caps			IAPMO PS 90-95
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings		D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core		F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	
<b>VENTS AND VENTING</b>			
<b>Vents - Below Ground</b>			
Cast iron soil pipe and fittings hub and spigot		C 564-95a A 74-93 <sup>1</sup>	CISPI HSN-85
Hubless cast iron sanitary system			CISPI 310-90 CISPI 301-90 <sup>1</sup> IAPMO IS 6-95
Ductile iron pipe centrifugally cast in sand-lined or metal molds	AWWA C151/ A21.51-91	A 377-89	
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		

Item	ANSI	ASTM	Other
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper water tube (types K, L and M)		B 88-93a	IAPMO IS 3-93
Copper drainage tube (type DWV)		B 306-92	IAPMO IS 3-93
Wrought copper and copper alloy solder-joint drainage fittings	ASME B16.29-86 <sup>1</sup>		IAPMO IS 3-93
Cast copper alloy solder-joint fittings for solvent drainage systems	ASME B16.32-92		
Lead pipe			WW-P-325B-76
Cast iron threaded fittings	ASME B16.12-91 <sup>1</sup>	A 126-93	
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Coextruded poly (vinyl chloride)(PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95
<b>JOINING MATERIALS AND METHODS - SANITARY VENTS</b>			
Type "F" clamps for plumbing applications	SAE J1670-93		
Cast iron soil pipe and fittings hub and spigot neoprene compression gaskets, caulking, lead wool and lead pig		C 564-95a B 29-92	CISPI HSN-85
Rubber gasket joints for ductile-iron and gray and iron pressure pipe and fittings	AWWA C111/A21.11-90		
Hubless cast iron sanitary systems neoprene gasket and stainless steel shield		C 564-95a	CISPI 310-90 CISPI 301-90 <sup>1</sup> IAPMO IS 6-95
Braze filler metals	AWS A5.8-92		
Solder metal and wiping solder		B 32-95a <sup>4</sup>	
Silver brazing joints for wrought and cast solder joint			MSS-SP-73-91 0-F-499D-85
Flux, brazing			
Flux, soldering			

Item	ANSI	ASTM	Other
Seal compound pipe joint and thread			TT-S-1732-71
Threaded joints (IPS)	ASME B1.20.1-83(R-92)		
Dryseal Pipe Threads (Inch)	ASME B1.20.3-91		
<b>Plastic, ABS</b>			
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2661-94a <sup>1</sup>	IAPMO IS 5-92
Acrylonitrile-Butadiene-Styrene (ABS) Sch. 40 plastic drain, waste and vent pipe having a foam core	NSF 14-90	F 628-93 <sup>1,3</sup>	IAPMO IS 5-92
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	
Solvent cement for Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe and fittings	NSF 14-90	D 2235-93a	IAPMO IS 5-92
<b>Plastic, PVC</b>			
Poly (vinyl chloride) (PVC) plastic drain, waste and vent pipe and fittings	NSF 14-90	D 2665-94	IAPMO IS 9-95
Coextruded poly (vinyl chloride)(PVC) plastic pipe with a cellular core		F 891-93a	IAPMO IS 9-95
Solvent cement for poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	D 2564-93	IAPMO IS 9-95
Primers for use in solvent cement joints of poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	F 656-93	IAPMO IS 9-95
Making solvent-cemented joints with poly (vinyl chloride) (PVC) pipe and fittings		D 2855-93	IAPMO IS 9-95
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	IAPMO IS 9-95
<b>WATER SUPPLY SYSTEMS</b>			
<b>Water Service</b>			
Asbestos-cement pressure pipe		C 296-93	
Asbestos-cement distribution pipe, 4 in. through 16 in. (100 mm through 400 mm) for water distribution systems	AWWA C400-93		
Ductile iron pipe centrifugally cast in metal or sand-lined molds	AWWA C151/ A21.51-91	A 377-89	

Item	ANSI	ASTM	Other
Ductile iron or grey iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
Gray Iron Threaded Fittings	ASME B16.4-92		
Grooved-type mechanical couplings and fittings for cast iron pipe and ductile iron pipe	AWWA C606-87		
Copper alloy sand casting for general applications			
Seamless copper pipe		B 42-93	
Seamless red brass pipe		B 43-94	
Seamless copper water tube		B 88-93a	IAPMO IS 3-93
Reinforced thermo setting resin pipe	NSF 14-90	D 2996-88	
Threadless copper pipe		B 302-92	
Cast copper alloy threaded fittings, 125 and 250 class	ASME B16.15-85		
Cast copper alloy threadless fittings			MIL-F-1183-83[D]
Cast copper alloy solder-joint pressure fittings	ASME B16.18-84 <sup>1</sup>		IAPMO IS 3-93
Cast copper alloy fittings for flared copper tubes	ASME B16.26-88		IAPMO IS 3-93
Wrought copper and copper alloy solder-joint pressure fittings	ASME B16.22-95		IAPMO IS 3-93
Copper alloy flanges and flanged fittings 150-300 class	ASME B16.24-91		
Steel pipe (galvanized)	B125.1-84 B125.2-72	A 53-93a	IAPMO IS 13-91
Malleable iron threaded fittings	ASME B16.3-92	A 197-87 (R-92)	IAPMO IS 13-91
Stainless steel	A312-93 A40.3-93		
Plastic, ABS			
Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe Sch. 40 and 80	NSF 14-90	D 1527-89	
Socket-type (ABS) plastic pipe fittings (Sch. 40)	NSF 14-90	D 2468-93	
Socket-type Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe fittings, Sch. 80	NSF 14-90	D 2469-76[D]	
Threaded Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe fittings, Sch. 80	NSF 14-90	D 2465-73[D]	
Acrylonitrile-Butadiene-Styrene (ABS) plastic pipe (SDR-PR)	NSF 14-90	D 2282-89	



Item	ANSI	ASTM	Other
<b>Plastic, CPVC</b>			
Chlorinated poly (vinyl chloride) (CPVC) plastic pipe, Sch. 40 and 80	NSF 14-90	F 441-94	IAPMO IS 20-96
Socket-type chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Sch. 40	NSF 14-90	F 438-93	IAPMO IS 20-96
Chlorinated poly (vinyl chloride) (CPVC) plastic pipe (SDR-PR)	NSF 14-90	F 442-93	IAPMO IS 20-96
Threaded chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Sch. 80	NSF 14-90	F 437-93	IAPMO IS 20-96
Socket-type chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Sch. 80	NSF 14-90	F 439-93a	IAPMO IS 20-96
Bell-end chlorinated poly (vinyl chloride) (CPVC) pipe, Sch. 40	NSF 14-90	F 443-77 <sub>e1</sub> [D]	IAPMO IS 20-96
Chlorinated poly (vinyl chloride) (CPVC) plastic pipe, tubing and fittings	NSF 14-90	D 2846-93	IAPMO IS 20-96
<b>Plastic, PB</b>			
Polybutylene (PB) plastic pipe based on outside diameter	NSF 14-90	D 3000-93	
Polybutylene piping	AWWA C902-88 NSF 14-90		
<b>Plastic, PE</b>			
Polyethylene (PE) plastic pipe, (SDR-PR)	NSF 14-90	D 2239-93	IAPMO IS 7-90
Polyethylene (PE) plastic pipe, Sch. 40	NSF 14-90	D 2104-93	IAPMO IS 7-90
Polyethylene (PE) plastic tubing	NSF 14-90	D 2737-93	IAPMO IS 7-90
Polyethylene (PE) plastic pipe, Sch. 40 and 80 based on controlled outside diameter	NSF 14-90	D 2447-93	IAPMO IS 7-90
Polyethylene (PE) piping	AWWA C901-88 NSF 14-90		IAPMO IS 7-90
<b>Plastic, PEX</b>			
<u>Crosslinked Polyethylene (PEX) Tubing</u>		<u>ASTM F 876-93</u>	
<u>Crosslinked Polyethylene (PEX) Plastic hot- and cold-water distribution systems</u>		<u>ASTM F 877-93</u>	

Item	ANSI	ASTM	Other
Plastic, PVC			
Poly (vinyl chloride) (PVC) plastic pipe Sch. 40, 80 and 120	NSF 14-90	D 1785-93	IAPMO IS 8-95
Socket-type poly(vinyl chloride) (PVC) plastic pipe fittings, Sch. 40	NSF 14-90	D 2466-94 <sup>1</sup>	IAPMO IS 8-95
Socket-type poly (vinyl chloride) (PVC) plastic pipe fittings, Sch. 80	NSF 14-90	D 2467-94 <sup>1</sup>	IAPMO IS 8-95
Threaded poly (vinyl chloride) (PVC) plastic pipe fittings, Sch. 80	NSF 14-90	D 2464-94 <sup>1</sup>	IAPMO IS 8-95
Socket-type poly (vinyl chloride) (PVC) plastic line couplings	NSF 14-90	D 3036-73[D]	IAPMO IS 8-95
Poly vinyl chloride (PVC) plastic pipe (SDR-PR)	NSF 14-90	D 2241-93	IAPMO IS 8-95
Joints for IPS PVC pipe using solvent cement	NSF 14-90	D 2672-94	IAPMO IS 8-95
Poly (vinyl chloride) (PVC) plastic tubing	NSF 14-90	D 2740-89 <sub>e</sub> [D]	IAPMO IS 8-95
Poly (vinyl chloride) (PVC) pressure pipe 4 in. to 12 in. (100 mm to 300 mm) for water	NSF 14-90 AWWA C900-89		IAPMO IS 8-95
<b>Water Distribution Piping – Above Ground</b>			
Welded Copper water tube		B 716-93	IAPMO IS 21-89
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	
Seamless copper pipe		B 42-93	IAPMO IS 3-93
Seamless red brass pipe		B 43-94	
Seamless copper water tube		B 88-93a	IAPMO IS 3-93
Seamless and welded copper distribution tube (Type D)		B 641-93	IAPMO IS 3-93
Threadless copper pipe		B 302-92	IAPMO IS 3-93
Cast copper alloy threaded fittings, 125 and 150 class	ASME B16.15-85		
Cast copper alloy threadless fittings			MIL-F-1183 H(1)-83 [D] IAPMO IS 3-93
Cast copper alloy solder-joint pressure fittings	ASME B16.18-84 <sup>1</sup>		
Cast copper alloy fittings for flared copper tubes	ASME B16.26-88		
Wrought copper and bronze solder-joint pressure fittings	ASME B16.22-95		IAPMO IS 3-93

Item	ANSI	ASTM	Other
Copper alloy flanges and flanged fittings 150-300 class	ASME B16.24-91		
Steel pipe (galvanized)	ASME B36.10M-85	A 53-90a A 120-84[D]	
Malleable iron threaded fittings (galvanized)	ASME B16.3-92 A 197-87(R-92)		
Grooved-type mechanical couplings and fittings for steel pipe		A 47-93 A 536-84(R93)	
Ductile iron pipe centrifugally cast in metal or sand-lined molds	AWWA C151/ A21.51-91	A 377-89	
Ductile iron or gray iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
<b>Plastic, CPVC</b>			
Chlorinated poly (vinyl chloride) (CPVC) plastic pipe, (SOR-PR) (cold water only)	NSF 14-90	F 442-93	IAPMO IS 20-96
Socket-type chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Sch. 40	NSF 14-90	F 438-93	IAPMO IS 20-96
Threaded chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Sch. 80	NSF 14-90	F 437-93	IAPMO IS 20-96
Socket-type chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Sch. 80	NSF 14-90	F 439-93a	IAPMO IS 20-96
Bell-end chlorinated poly (vinyl chloride) (CPVC) pipe, Sch. 40 (cold water only)	NSF 14-90	F 443-77 <sub>el</sub> [D]	IAPMO IS 20-96
Chlorinated poly (vinyl chloride) (CPVC) plastic pipe, tubing and fittings	NSF 14-90	D 2846-93	IAPMO IS 20-96
<b>Plastic, PEX</b>			
<u>Crosslinked Polyethylene (PEX) Tubing</u>		<u>ASTM F 876-93</u>	
<u>Crosslinked Polyethylene (PEX) Plastic hot and cold-water distribution systems</u>		<u>ASTM F 877-93</u>	
<b>Water Distribution Piping - Below Ground</b>			
Welded Copper water tube		B 716-93	IAPMO IS 21-89
Asbestos-cement pressure pipe		C 296-93	
Copper alloy sand casting for general applications		B 584-93b <sup>5</sup>	

Item	ANSI	ASTM	Other
Seamless copper water tube (types K, L and M only)		B 88-93a	IAPMO IS 3-93
Threadless copper pipe		B 302-92	IAPMO IS 3-93
Seamless copper tube		B 75-93	IAPMO IS 3-93
Seamless copper alloy tube		B 135-91	IAPMO IS 3-93
Seamless and welded copper distribution tube (Type D)		B 641-93	IAPMO IS 3-93
Cast copper alloy threaded fittings, 125 and 250 class	ASME B16.15-85		
Cast copper alloy threadless fittings			MIL-F-1183 H(I)-83[D]
Cast copper alloy solder-joint pressure fittings	ASME B16.18-84 <sup>1</sup>		IAPMO IS 3-93
Cast copper alloy fittings for flared copper tubes	ASME B16.26-88		IAPMO IS 3-93
Wrought copper and copper alloy solder-joint pressure fittings	ASME B16.22-95		IAPMO IS 3-93
Copper alloy flanges and flanged fittings - 150-300 class	ASME B16.24-91		
Steel pipe (galvanized)	ASME B36.10M-85	A 53-93a A 120-84[D]	IAPMO IS 13-91
Malleable iron threaded fittings (galvanized)	ASME B16.3-92	A 197-87(R-92)	IAPMO IS 13-91
Ductile iron pipe centrifugally cast in metal or sand-lined molds	AWWA C151/ A21.51-91	A 377-89	
Ductile iron or gray iron fittings	AWWA C110/ A21.10-93	A 377-89	
Ductile iron compact fittings	AWWA C153/ A21.53-88		
Plastic, CPVC			
Chlorinated poly (vinyl chloride) (CPVC) plastic pipe, Sch. 40 and 80 (cold water only)	NSF 14-90	F 441-94	IAPMO IS 20-96
Socket-type chlorinated poly(vinyl chloride) (CPVC) plastic pipe fittings, Sch. 40	NSF 14-90	F 438-93	IAPMO IS 20-96
Chlorinated poly (vinyl chloride) (CPVC) plastic pipe (SDR-PR) (cold water only)	NSF 14-90	F 442-93	IAPMO IS 20-96
Threaded chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Sch. 80 (cold water only)	NSF 14-90	F 437-93	IAPMO IS 20-96
Socket-type chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Sch. 80	NSF 14-90	F 439-93a	IAPMO IS 20-96

Item	ANSI	ASTM	Other
Bell-end chlorinated poly (vinyl chloride) (CPVC) pipe, Sch. 40 (cold water only)	NSF 14-90	F 443-77 <sub>ci</sub> [D]	IAPMO IS 20-96
Chlorinated poly (vinyl chloride) (CPVC) plastic pipe, tubing and fittings hot and cold water	NSF 14-90	D 2846-93	IAPMO IS 20-96
Plastic PEX			
Crosslinked polyethylene (PEX) tubing		F 876-93	
Crosslinked polyethylene (PEX) plastic hot- and cold-water distribution systems		F 877-93	
<b>Valves and Appurtenances</b>			
Angle, globe and check			MSS-SP-71-90 MSS-SP-80-87
Gate (bronze) steel flanged and butt welded	ASME B16.34-88		
Corrosion-resistant cast flanged valves			MSS-SP-42-90
Gate (cast iron bodies brass mounted)	AWWA C500-93		MSS-SP-70-90
Ball			MSS-SP-72-92
Butterfly	AWWA C504-88		MSS-SP-67-90
Cocks, balancing, stop and check			MSS-SP-25-93
MSS standard marking system for valves, fittings, flanges and unions			
Cast iron plug valves			MSS-SP-78-87
Pressure reducing and regulating	ASSE 1003-95		
Relief valves, pressure, temperature, temperature/pressure	Z21.22-a-90		
Thermostatic mixing valve	ASSE 1017-86		
Valves with atmospheric vacuum breakers			IAPMO PS 72-93
Pre-Pressurized potable water tanks			IAPMO PS 88-95
<b>Unions</b>			
Carbon steel pipe unions			MSS-SP-83-87
Malleable iron	ASME B16.39-86		
Copper alloy (bronze)			WW-U-516A-74(b) WW-P-521F-77
<b>Flanges</b>			
Cast iron	ASME B16.1-89		
Steel	ASME B16.5-88 ASME B16.47-90	MSS-SP-44-91	



Item	ANSI	ASTM	Other
Copper alloy flanges and flanged fittings 150 lb. and 300 lb.	ASME B16.24-91		
Flared or compression connection non-ferrous pipe flanges	ASME B16.26-88		
Copper alloy (bronze)	ASME B16.24-91		
Flanged gaskets	ASME B16.21-92		
<b>Backflow Preventers</b>	AWWA C510-92 AWWA C511-92		IAPMO PS 31-95
Pipe applied atmospheric vacuum breakers	ASSE 1001-90		
Hose-connected vacuum breakers	ASSE 1011-95		
Hose connection backflow preventers	ASSE 1052-93		
Back siphonage vacuum breakers	ASSE 1056-95		
Reduced pressure principle backflow preventer			ASSE 1013-93
Double check valve assembly			ASSE 1015-93
Pressure type vacuum breaker	ASSE 1020-90		
Water hammer arrestors	ASME A112.26.1M-84		ASSE 1010-82 PDI WH-201-92
Air gaps	ASME A112.1.2-91		IAPMO PS-23-89 IAPMO PS 65-93
Airgap units for water conditioning equipment installation			
Trap primer valve (water distribution type)	ASSE 1018-86		
Freezeless automatic draining and backflow wall hydrant	A112.21.3M-85 <sup>1</sup> ASSE 1019-95		
Dual check valve type backflow preventers for carbonated beverage dispensers-post mix types			ASSE 1032-80
Laboratory faucet vacuum breakers	ASSE 1035-95		
<b>JOINING MATERIAL AND METHODS - WATER SUPPLY SYSTEMS</b>			
Reinforced flexible water connectors			IAPMO PS 74-95
Tools for mechanically formed tee connections in copper tubing			IAPMO PS 85-95
Asbestos-cement pressure pipe		C 296-93 D 1869-94	
Rubber rings for asbestos-cement pipe			
Rubber gasket joint for ductile iron and gray cast iron pressure pipe fittings	AWWA C111/ A21.11-90		
Copper and nickel alloys (rods)			QQ-R-571C-69 [D]
Brazing filler metals	AWS A5.8-92		



Item	ANSI	ASTM	Other
Grooved-type mechanical couplings and fittings		A 47-91 A 536-84(R-93)	
Grooved mechanical pipe couplings and grooved end fittings			IAPMO PS 53-92
Dielectric waterway fittings			IAPMO PS 66-93
Solder metal		B 32-95a <sup>4</sup>	
Lead-free sealing compounds for threaded joints			IAPMO PS 36-90
Making capillary joints by soldering of copper and copper alloy tube and fittings		B 828-92 <sub>e1</sub>	
Liquid and paste fluxes for soldering applications of copper and copper alloy tube		B 813-93	
Silver brazing joints for wrought and cast solder joint fittings			MSS-SP-73-91
Caulking, lead wool and lead pig		B 29-92	
Plastic, ABS			
Solvent cement for Acrylonitrile Butadiene-Styrene (ABS) plastic pipe and fittings	NSF 14-90	D 2235-93a	
Joints for plastic pressure pipes using flexible elastomeric seals		D 3139-89	
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	
Plastic, CPVC			
Solvent cements for chlorinated poly (vinyl chloride) (CPVC) plastic pipe and fittings		F 493-93a	IAPMO IS 20-96 NSF No. 14
Joints for plastic pressure pipes using flexible elastomeric seals		D 3139-89	IAPMO IS 20-96 NSF No. 14
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	IAPMO IS 20-96
Chlorinated poly (vinyl chloride) (CPVC) plastic pipe, tubing and fittings	NSF 14-90	D 2846-93	IAPMO IS 20-96
Plastic, PB			
Metal insert fittings for polybutylene (PB) tubing		F 1380-94	
Plastic, PE			
Polyethylene (PE) piping	AWWA C901-88 NSF 14-90		IAPMO IS 7-90

Item	ANSI	ASTM	Other
Heat-joining poly-olefin pipe and fittings		D 2657-90	
Flaring polyolefin pipe and tubing		D 3140-90	IAPMO IS 7-90
Plastic insert fittings for polyethylene (PE) plastic pipe		D 2609-93 <sup>1</sup>	IAPMO IS 7-90
<u>Plastic, PEX</u>			
<u>Crosslinked Polyethylene (PEX) Tubing</u>		<u>ASTM F 876-93</u>	
<u>Crosslinked Polyethylene (PEX) Plastic hot and cold-water distribution systems</u>		<u>ASTM F 877-93</u>	
<u>Plastic, PVC</u>			
Solvent cement for poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	D 2564-93	IAPMO IS 8-95
Primers for use in solvent cement joints of poly (vinyl chloride) (PVC) plastic pipe and fittings	NSF 14-90	F 656-93	IAPMO IS 8-95
Safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings		F 402-93	IAPMO IS 8-95
Joints for plastic pressure pipes using flexible elastomeric seals		D 3139-89	IAPMO IS 8-95
Making solvent-cemented joints with poly (vinyl chloride) (PVC) pipe and fittings		D 2855-93	IAPMO IS 8-95
Poly (vinyl chloride) (PVC) piping	AWWA C900-89 NSF 14-90		IAPMO IS 8-95
<b>WRAPPING AND COATING</b>			
Protectively coated pipe (Installation)			IAPMO IS 13-91
Black plastic poly (vinyl chloride) (PVC) or polyethylene (PE) pressure-sensitive corrosion preventive tape			IAPMO PS 37-90
Coal-tar protective coatings and linings for steel water pipelines - enameled and tape - hot applied	AWWA C203-91		
Extruded polyolefin coatings for the exterior of steel water pipelines	AWWA C215-88		

## Footnotes for Table 14-1

- 1 Although this standard is referenced in Table 14-1, some of the pipe, tubing, fittings, valves, or fixtures included in the standard are not acceptable for use under the provisions of the Uniform Plumbing Code.
- 2 PDI Standard G101 by reference.
- 3 Additional Requirements for Inner and Outer Layers.
- 4 See Section 316.1.3 for restriction.
- 5 Alloy C85200 for cleanout plugs.
- 6 Limited to domestic sewage.
- 7 Type II only.

## **ABBREVIATIONS IN TABLE 14-1**

AHAM	Association of Home Appliance Manufacturers, 20 North Wacker Drive, Chicago, IL 60606.
ANSI	American National Standards Institute, Inc., W. 42nd Street, New York, NY 10036.
ASME	The American Society of Mechanical Engineering, 345 East 47th Street, New York, NY 10017.
ASSE	American Society of Sanitary Engineering, P.O. Box 40362, Bay Village, OH 44140.
ASTM	American Society of Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.
AWS	American Welding Society, 550 NW LeJuene Road, Miami, FL 33126.
AWWA	American Water Works Association, 6666 W. Quincy Avenue, Denver, CO 80235.
CABO	Council of American Building Officials, 5203 Leesburg Pike, Suite 708, Falls Church, VA 22041.
CISPI	Cast Iron Soil Pipe Institute, 5959 Shallowford Road, Suite 419, Chattanooga, TN 37421.
(D) or [D]	Discontinued.
e1	An editorial change since the last revision or reapproval.
FS	Federal Specifications, Federal Supply Service, Standards Division, General Services Administration, 7th and D Streets, Washington, DC 20407.
IAPMO	International Association of Plumbing and Mechanical Officials, 20001 Walnut Drive S., Walnut, CA 91789-2825.
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry, 127 Park Street, N.E., Vienna, VA 22180.
NEMA	National Electrical Manufacturers Association, 2101 L Street, N.W., Suite 300, Washington, DC 20037.
NFPA	National Fire Protection Association, P.O. Box 9101, 1 Batterymarch Park, Quincy, MA 02269-9101.
NSF	NSF International, 3475 Plymouth Road, P.O. Box 1468, Ann Arbor, MI 48106.
PDI	Plumbing and Drainage Institute, 1106 W. 77th Street, South Drive, Indianapolis, IN 46208.
SSPMA	Sump and Sewage Pump Manufacturers Association, P.O. Box 298, Winnetka, IL 60093-0298.
UL	Underwriters' Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062.

(Table 14-1)

NEW SECTION

**WAC 51-46-97120 Appendix M--Storm drainage.**

NEW SECTION

**WAC 51-46-97121 General.**

**M 1.0 General.**

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

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

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

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

**M 1.5 Subsoil Drains.**

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

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

**M 1.5.3** Where it is not possible to convey the drainage by gravity, subsoil drains shall discharge to an accessible sump pit provided with an approved automatic electric pump. A sump pit



shall be at least fifteen (15) inches (381 mm) in diameter, eighteen (18) inches (457 mm) in depth, and provided with a fitted cover. The sump pump shall have an adequate capacity to discharge all water coming into the sump as it accumulates to the required discharge point, and the capacity of the pump shall not be less than fifteen (15) gpm (1.0 L/s). The discharge piping from the sump pump shall be a minimum of one and one-half (1-1/2) inches (38 mm) in diameter and have a union to make the pump accessible for servicing.

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

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

**M 1.5.6** Nothing in Section M 1.5 shall prevent drains that serve either subsoil drains or areaways of a detached building from discharging to a properly graded open area, provided that:

- (1) They do not serve continuously flowing springs or groundwater;
- (2) The point of discharge is at least ten (10) feet (3048 mm) from any property line; and
- (3) It is impracticable to discharge such drains to a storm drain, to an approved water course, to the front street curb or gutter, or to an alley.

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

**M 1.7 Areaway Drains.** All open subsurface space adjacent to a building, serving as an entrance to the basement or cellar of a building, shall be provided with a drain or drains. Such areaway drains shall be two (2) inches (51 mm) minimum diameter for areaways not exceeding one hundred (100) square feet (9.3 m<sup>2</sup>) in area, and shall be discharged in the manner provided for subsoil drains not serving continuously flowing springs or ground water (see Section M 1.5.2). Areaways in excess of one hundred (100) square feet (9.3 m<sup>2</sup>) shall not drain into subsoil. Areaway drains for areaways exceeding one hundred (100) square feet (9.3 m<sup>2</sup>) shall be sized according to Table M-2.

**M 1.8 Window Areaway Drains.** Window areaways not exceeding ten (10) square feet (0.9 m<sup>2</sup>) in area may discharge to the subsoil drains through a two (2) inch (51 mm) pipe. However, window areaways exceeding ten (10) square feet (0.9 m<sup>2</sup>) in area shall be handled in the manner provided for entrance areaways (see Section M 1.7).

**M 1.9 Filling Stations and Motor Vehicle Washing Establishments.** Public filling stations and motor vehicle washing establishments shall have the paved area sloped toward sumps or gratings within the property lines. Curbs not less than six (6) inches (152 mm)



high shall be placed where required to direct water to gratings or sumps.

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

**M 1.11 Roof Drainage.**

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

**M 1.11.2 Secondary Roof Drainage.**

**M 1.11.2.1** Where parapet walls or other construction extend above the roof and create areas where storm water would become trapped if the primary roof drainage system failed to provide sufficient drainage, an independent secondary roof drainage system consisting of scuppers, standpipes, or roof drains shall be provided. Secondary roof drainage systems shall be sized in accordance with Section M 1.11.1 of this Code. Overflow drains shall be the same size as the roof drains with the inlet flow line two (2) inches (51 mm) above the low point of the roof and shall be installed independent from the roof drains.

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

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

**M 1.11.2.4** Scuppers shall be sized as rectangular weirs, using hydraulic principles to determine the required length and resulting overflow head (see Appendix D). Secondary roof drains and standpipes shall be sized according to Table M-1. Where standpipes are used, the head allowance required under Section M 1.11.2.3 shall be not less than one and one-half (1-1/2) inches (38 mm).

**M 1.11.3 Equivalent Systems.** When approved by the Administrative Authority, the requirements of Sections M 1.11.1 and M 1.11.2 shall not preclude the installation of an engineered roof drainage system that has sufficient capacity to prevent water from ponding on the roof in excess of that allowed in the roof structural design with a rainfall rate of at least twice that for a 100-year, 60-minute storm and with a blockage in any single point in the storm drainage system.

**M 1.12 Cleanouts.**

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

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

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

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

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

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

## NEW SECTION

### **WAC 51-46-97122 Materials.**

**M 2.0 Materials.**

**M 2.1 Conductors.**

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

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

**M 2.2 Leaders.**

**M 2.2.1** Leaders shall be constructed of materials specified in Table 14-1.

**M 2.2.2** Leaders shall be of seamless copper water tube, Type K, L or M; Schedule 40 copper pipe; Schedule 40 copper alloy pipe; type

DWV copper drainage tube; service weight cast iron soil pipe or hubless cast iron soil pipe; galvanized steel sheet metal or copper sheet metal; standard weight galvanized steel pipe; Class DL or XL lead pipe; or Schedule 40 ABS or Schedule 40 PVC plastic pipe.

**M 2.3 Underground Building Storm Drains.** All underground building storm drains shall be constructed of materials specified in Table 14-1.

**M 2.4 Building Storm Sewers.** Building storm sewers shall be constructed of materials specified in Table 14-1.

**M 2.5 Subsoil Drains.**

**M 2.5.1** Subsoil drains shall be constructed of materials specified in Table 14-1.

**M 2.5.2** Subsoil drains shall be open-jointed or of perforated pipe, vitrified clay, plastic, cast iron, or porous concrete.

## NEW SECTION

**WAC 51-46-97123 Traps on storm drains and leaders.**

**M 3.0 Traps on Storm Drains and Leaders.**

**M 3.1 Where Required.** Leaders and storm drains, when connected to a combined sewer, shall be trapped. Floor and area drains connected to a storm drain shall be trapped.

**EXCEPTION:** Traps shall not be required where roof drains, rain leaders and other inlets are at locations allowed under Section 906.0, Vent Terminals.

**M 3.2 Where Not Required.** No trap shall be required for a leader(s) or conductor(s) which is connected to a sewer carrying storm water exclusively.

**M 3.3 Trap Size.** Traps, when installed for individual conductors, shall be the same size as the horizontal drain to which they are connected.

**M 3.4 Method of Installation of Combined Sewer.** Individual storm-water traps shall be installed on the storm-water drain branch serving each storm-water inlet, or a single trap shall be installed in the main storm drain just before its connection with the combined building sewer. Such traps shall be provided with an accessible cleanout on the outlet side of the trap.

## NEW SECTION

**WAC 51-46-97124 Leaders, conductors, and connections.**

**M 4.0 Leaders, Conductors, and Connections.**

**M 4.1 Improper Use.** Leaders or conductors shall not be used as soil, waste, or vent pipes, nor shall soil, waste, or vent pipes be used as leaders or conductors.

**M 4.2 Protection of Leaders.** Leaders installed along alleyways, driveways, or other locations where they may be exposed to damage shall be protected by metal guards, recessed into the wall, or constructed from ferrous pipe.

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

## NEW SECTION

### WAC 51-46-97125 Roof drains.

**M 5.0 Roof Drains.**

**M 5.1 Material.**

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

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

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

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

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

**M 5.4.1** Where lead flashing material is used, it shall be a minimum of four (4) pounds per square foot (19.5 kg/m<sup>2</sup>).

**M 5.4.2** Where copper flashing material is used, it shall be a minimum of twelve (12) ounces per square foot (3.7 kg/m<sup>2</sup>).



## NEW SECTION

**WAC 51-46-97126 Size of leaders, conductors, and storm drains.**

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

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

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

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

**M 6.4 Side Walls Draining onto a Roof.** Where vertical walls project above a roof so as to permit storm water to drain to the roof area below the adjacent roof area may be computed from Table M-1 as follows:

(1) For one (1) wall - add fifty (50) percent of the wall area to the roof area figures.

(2) For two (2) adjacent walls - add thirty-five (35) percent of the total wall areas.

(3) Two (2) walls opposite of same height - add no additional area.

(4) Two (2) walls opposite of differing heights - add fifty (50) percent of wall area above top of lower wall.

(5) Walls on three (3) sides - add fifty (50) percent of area of the inner wall below the top of the lowest wall, plus allowance for the area of wall above top of lowest wall, per (2) and (4) above.

(6) Walls on four (4) sides - no allowance for wall areas below top of lowest wall - add for areas above the top of the lowest wall per (1), (2), (4) and (5) above.

## NEW SECTION

**WAC 51-46-97127 Values for continuous flow.**

**M 7.0 Values for Continuous Flow.**

Where there is a continuous or semi-continuous discharge into the building storm drain or building storm sewer, as from a pump, ejector, air-conditioning plant, or similar device, one (1) gpm (3.8 L/min.) of such discharge shall be computed as being equivalent to twenty-four (24) square feet (2.2 m<sup>2</sup>) of roof area, based upon a rate of rainfall of four (4) inches (102 mm) per hour.

**WAC 51-46-97128 Testing.**

**M 8.0 Testing.**

**M 8.1 Testing Required.** New building storm drainage systems and parts of existing systems that have been altered, extended or repaired shall be tested as described in Section M 8.2.1 to disclose leaks and defects.

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

**M 8.2.1 Water Test.** After piping has been installed, the water test shall be applied to the drainage system, either in its entirety or in sections. If applied to the entire system, all openings in the piping shall be tightly closed except for the highest opening, and the system shall be filled with water to the point of overflow. If the system is tested in sections, each opening shall be tightly plugged except for the highest opening of the section under test, and each section shall be filled with water, but no section shall be tested with less than a ten (10) foot (3048 mm) head of water. In testing successive sections, at least the upper ten (10) foot (3048 mm) of the next preceding section shall be tested so that no joint of pipe in the building (except the uppermost ten (10) foot (3048 mm) of a roof drainage system, which shall be filled with water to the flood level of the uppermost roof drain) shall have been submitted to a test of less than a ten (10) foot (3048 mm) head of water. The water shall be kept in the system or in the portion under test for at least fifteen (15) minutes before inspection starts; the system shall then be tight at all points.

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

**M 8.2.3 Exceptions.** When circumstances exist that make air and water tests, described in Sections M 8.2.1 and M 8.2.2 above, impractical, and for minor maintenance, repairs and installations, the Administrative Authority may perform the inspection as considered advisable by said authority to assure that the work has been in accordance with provisions of this Code.



## WAC 51-46-97129 Tables M-1 through M-3.

Table M-1 - Sizing roof drains, leaders and vertical rainwater piping.

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

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

Table M-1 (Metric) - Sizing roof drains, leaders and vertical rainwater piping.

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

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

Notes

1. The sizing data for vertical conductors, leaders, and drains is based on the pipes flowing 7/24 full.
2. For rainfall rates other than those listed, determine the allowable roof area by dividing the area given in the 1 inch/hour (25 mm/hour) column by the desired rainfall rate.
3. Vertical piping may be round, square, or rectangular. Square pipe shall be sized to enclose its equivalent round pipe. Rectangular pipe shall have at least the same cross-sectional area as its equivalent round pipe, except that the ratio of its side dimensions shall not exceed 3 to 1.

TABLE M-2  
Sizing of Horizontal Rainwater Piping

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

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

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

## Notes

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

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

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

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

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

## Notes

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

TABLE M-3  
Size of Gutters

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

Diameter of Gutter in Inches	Maximum Rainfall in Inches per Hour				
	1/8"/ft. Slope	2	3	4	5
3	480	320	240	192	160
4	1020	681	510	408	340
5	1760	1172	880	704	587
6	2720	1815	1360	1085	905
7	3900	2600	1950	1560	1300
8	5600	3740	2800	2240	1870
10	10,200	6800	5100	4080	3400

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

Diameter of Gutter in Inches	Maximum Rainfall in Inches per Hour				
	1/2"/ft. Slope	2	3	4	5
3	960	640	480	384	320
4	2040	1360	1020	816	680
5	3540	2360	1770	1415	1180
6	5540	3695	2770	2220	1850
7	7800	5200	3900	3120	2600
8	11,200	7460	5600	4480	3730
10	20,000	13,330	10,000	8000	6660

TABLE M-3 (Metric)  
Size of Gutters

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

Diameter of Gutter in mm	Maximum Rainfall in Millimeters per Hour				
	10.4 mm/m Slope	50.8	76.2	101.6	127.0
76.2	44.6	29.7	22.3	17.8	14.9
101.6	94.8	63.3	47.4	37.9	31.6
127.0	163.5	108.9	81.8	65.4	54.5
152.4	252.7	168.6	126.3	100.8	84.1
177.8	362.3	241.5	181.2	144.9	120.8
203.2	520.2	347.5	260.1	208.1	173.7
254.0	947.6	631.7	473.8	379	315.9

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

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



Chapter 51-47 WAC

STATE BUILDING CODE ADOPTION OF APPENDIX I OF THE 1997 EDITION OF  
THE UNIFORM PLUMBING CODE

NEW SECTION

**WAC 51-47-001 Authority.** These rules are adopted under the authority of chapter 19.27 RCW.

NEW SECTION

**WAC 51-47-002 Purpose.** The purpose of these rules is to implement the provisions of chapter 19.27 RCW, which provides that the State Building Code council shall maintain the State Building Code in a status which is consistent with the purpose as set forth in RCW 19.27.020. In maintaining the codes, the council shall regularly review updated versions of the codes adopted under the act, and other pertinent information, and shall amend the codes as deemed appropriate by the council.

NEW SECTION

**WAC 51-47-003 Uniform plumbing code standards.** The 1997 edition of the Uniform Plumbing Code Standards (Appendix I), published by the International Association of Plumbing and Mechanical Officials is hereby adopted by reference.

NEW SECTION

**WAC 51-47-007 Exceptions.** The exceptions and amendments to the Uniform Codes contained in the provisions of chapter 19.27 RCW shall apply in cases of conflict with any of the provisions of these rules.

NEW SECTION

**WAC 51-47-008 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, 1998, unless local government residential amendments have been approved by the State Building Code council.