

**Hawaii State Model Plumbing Code Investigative Committee  
Proposed Amendments to the 2018 Uniform Plumbing Code**

**State Building Code Council  
Hawaii State Plumbing Code**

**Effective Date:** May 19, 2020.

**Purpose.** The purpose of this chapter is to adopt the state plumbing code as required by Section 107-25, Hawaii Revised Statutes (HRS).

**Scope.** This chapter sets forth minimum requirements for the design, installation, alteration, repair, and construction of plumbing and drainage systems, and shall apply to all new construction, relocation, alteration, repair or reconstruction.

**Definitions.** In this chapter, unless the context otherwise requires:

“Chapter” means chapter of this HAR Chapter 3-183.

“IAPMO” means the International Association of Plumbing and Mechanical Officials.

“UPC” means the Uniform Plumbing Code as published by the International Association of Plumbing and Mechanical Officials.

“Section” means a section of a chapter of the Uniform Plumbing Code.

**Adoption of the Uniform Plumbing Code.** The “Uniform Plumbing Code, 2018 Edition” including appendices A, B, C, [~~D, E, F,~~] G, [~~H~~] I, J, K, L, and M, as copyrighted and published by International Association of Plumbing and Mechanical Officials, 5001 East Philadelphia Street, Ontario, CA 91761-2816 is incorporated by reference and made a part of this chapter. This incorporation by reference includes all parts of the Uniform Plumbing Code subject to the amendments hereinafter set forth. The systems or methods outlined in the appendices are permitted only if they are adopted as part of the code. If adopted, these systems or methods may be used, but are not required.

Justification:

Deleted the following appendices which are covered either by other State model codes or Hawaii Administrative Rules.

- D-Sizing Storm Water Drainage
- E-Manufactured/Mobile Home Parks and Recreational Vehicle Parks
- F-Firefighter Breathing Air Replenishment Systems
- H-Private Sewage Disposal Systems

**Permit Authorization.** Each county may, by ordinance, require that a permit be obtained from the building official for any area regulated by this chapter.

**AMENDMENTS TO THE 2018 IAPMO UNIFORM PLUMBING CODE**

**101.1 Title.** This document shall be known as the State of Hawaii Plumbing Code, and may be cited as such, and will be referred to herein as “this code”.

**Organization and Enforcement.**

**102 Organization and Enforcement.** In accordance to HRS107 the provisions of this code are State standards and are enforced when adopted by the counties or as an interim code if the counties fail to adopt within the required period. Provisions for licensing of design professionals and any person to perform plumbing work shall be in accordance to HRS444, 448E and 464.

Justification:

This section was added for consistency with language contained in HRS107, HRS444, HRS448E, and HRS464.

**Definitions.**

**204.0 -B-**

**Building Drain** – That part of the lowest piping of a drainage system that receives the discharge from soil, waste, and other drainage pipes inside the walls of buildings and conveys it to the building sewer beginning [~~2 feet (610 mm)~~] five (5) feet (1524 mm) outside the building wall.

Justification:

This amendment is included to correspond with provisions contained in HRS 448-E.

**210.0 -H- Health Officer** – Health Officer shall mean the director of health of the department of health, State of Hawaii, or the director’s authorized agent.”

Justification:

This amendment is included to clearly define the term Health Officer as used in this code.

**313.8 Seismic supports.** Where earthquake loads are applicable in accordance with the building code, plumbing piping supports shall be designed and installed for the seismic forces in accordance with the building code.

Justification:

This section was added to define the requirements for seismic supports on plumbing piping systems.

**422.0 Minimum Number of Required Fixtures.** Plumbing fixtures shall be provided for the type of building occupancy and in the minimum number required in the Hawaii State Building Code.

Justification:

This section was added to define the requirements for the minimum number of plumbing fixtures as prescribed in the Hawaii State Building Code.

**715.1 Building Sewer Materials.** The building sewer, beginning [~~2 feet (622 mm)~~] five (5) feet (1524 mm) from any building or structure shall be of such materials as prescribed in this code.

Justification:

This amendment was added to correspond with provisions contained in HRS 448-E.

**1101.12.1 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 authority having jurisdiction, 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. Refer to [~~Table D-101.1 (in Appendix D)~~] the National Weather Service rainfall map for 100-year, 60-minute storms at various locations.

Justification:

Section amended to reference the applicable Hawaii rainfall maps.

**1701.0 Referenced Standards.** **Table 1701.2 Standards, Publications, Practices, and Guides** is amended by adding the following State of Hawaii standards:

**TABLE 1701.2 STANDARDS, PUBLICATIONS, PRACTICES AND GUIDES**

Standard Number	Standard Title	Application
State of Hawaii – Rev. Sept. 2000	Standard Details for Public Works Construction	Various
State of Hawaii –2002	Water System Standards	Various

Justification:

Section added to incorporate the State of Hawaii Standards into the table of referenced standards.

**APPENDIX – HAWAII SBCCI**

**HS203 Air Admittance Valve:** A one-way valve designed to allow air to enter the plumbing drainage system when negative pressures develop in the system. The device closes by gravity, without springs or other mechanical means, and seals the vent terminal at zero differential pressure (no flow conditions) and under positive internal pressure. The purpose of an air admittance valve is to provide a method of allowing air to enter the plumbing drainage system without the need for a vent extended outdoors to open air and to prevent sewer gases from escaping into the building.

Justification:

This amendment provides a definition for Air Admittance Valve.

**HS412.1.1 Nonwater Urinals.** Nonwater urinals shall have a liquid barrier sealant to maintain a trap seal. Nonwater urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Where nonwater urinals are installed, not less than one water supplied fixture rated at not less than 1 water supply fixture unit (WSFU) shall be installed upstream on the same drain line to facilitate drain line flow and rinsing. ~~[Where nonwater urinals are installed, they shall have a water distribution line rough-in to each individual urinal location to allow for the installation of an approved backflow prevention device in the event of a retrofit.]~~

**Note** - The code states the minimum requirements for plumbing systems, therefore, no need for an option to rough-in for water distribution lines to each individual urinal. The installer or owner may choose to add water distribution lines to each individual urinal but not required.

Justification:

This amendment provides code users the option to utilize an alternative method or design which the user considers to be beneficial to their system requirements.

**HS414.0 Dishwashing Machines.**

**HS414.3 Drainage Connection.** Domestic dishwashing machines shall discharge~~[indirectly]~~ directly [through an air gap fitting in accordance with Section 807.3] into [a waste receptor,] a wye branch fitting on the tailpiece of a kitchen sink, [ø]dishwasher connection of a food waste disposer or an air break into a standpipe in accordance with Section 804.1. Where a domestic dishwashing machine discharges indirectly through an air gap fitting, the fitting shall be installed at or above the flood level marking of the sink or drainboard, whichever is higher. Where the waste line connects to a kitchen tailpiece or food waste disposer, it shall rise and be securely fastened to the underside of the sink rim or counter. Commercial dishwashing machines shall discharge indirectly through an air break or direct connection. The indirect discharge for commercial dishwashing machines shall be in accordance with Section 807.1, and the direct discharge shall be in accordance with Section 704.3.

Justification:

This amendment provides code users the option to utilize an alternative method or design which the user considers to be beneficial to their system requirements.

**HS610.4 Sizing Water Supply and Distribution Systems.** Systems within the range of Table 610.4 shall be permitted to be sized from that table or by the method in accordance with Section 610.5. Manifold-type parallel water distribution systems shall be installed in accordance with Section 610.13. [Listed parallel water distribution systems shall be installed in accordance with their listing but at no time shall a portion of the system exceed the maximum velocities allowed by the code.]

**HS610.13 Manifold-Type Parallel Water Distribution Systems**

**HS610.13.1 General.** Manifolds and parallel water distribution systems shall be listed and installed in accordance with the manufacturer's installation instructions. Parallel water distribution systems shall provide individual hot and cold water supply lines from a manifold to each fixture served. Manifolds shall be accessible where incorporating removable tubing connections or valves.

**HS610.13.2 Sizing.** Hot and cold water manifolds shall be sized in accordance with Table 613.2(1) based on the total supply demand in gallons per minute. Individual water distribution piping shall be sized in accordance with Table 613.2(2).

**HS610.13.2 Valves.** Individual fixture shutoff valves shall be installed in accordance with Section 606.5.

**HS610.13.3 Installation.** Tubing shall be not less than 12 inches (305 mm) vertically or 6 inches (152 mm) horizontally from sources of high heat unless protected by insulation or other approved methods. Tubing shall be installed to permit expansion and contraction. Hot and cold water piping shall be permitted to be bundled together provided that each individual hot water piping is insulated and permits movement. Tubing passing through drilled or notched metal studs or metal joists, or hollow-shell masonry walls shall be protected from abrasion by elastomeric or plastic sleeves or grommets.

**HS610.13.4 Support.** Tube bundles shall be supported in accordance with Table 313.3. Supports at changes in direction shall comply with the manufacturer's instructions.

**TABLE 610.13.2(1)**  
**MANIFOLD SIZING**

<u>INTERNAL DIAMETER (inches)</u>	<u>MAXIMUM DEMAND (gallons per minute)</u>	
	<u>VELOCITY at 4 feet per second</u>	<u>VELOCITY at 8 feet per second</u>
1/2	2	5
3/4	6	11
1	10	20
1 1/4	15	31
1 1/2	22	44
2	27	54

For SI units: 1 inch = 25 mm, 1 gallon per minute = 0.06 L/s, 1 foot per second = 0.3048 m/s

**TABLE 610.13.2(2)**  
**MINIMUM SIZES OF INDIVIDUAL FIXTURE WATER SUPPLY PIPING**

<u>FIXTURE</u>	<u>MINIMUM PIPE SIZE (inches)</u>
Bathtub or Combination Bath/Shower	1/2
Bidet	3/8
Clothes Washer	3/8
Lavatory	3/8
Sinks	
Bar	3/8
Kitchen, domestic	3/8
Laundry	3/8
Service or Mop Basin	1/2
Shower, per head	1/2
Urinal, 1.0 GPF Flushometer Valve	3/4
Urinal, Flush Tank	1/2
Water Closet, 1.6 GPF Gravity Tank	3/8
Water Closet, 1.6 GPF Flushometer Tank	3/8
Water Closet, 1.6 GPF Flushometer Valve	3/4

For SI units: 1 inch = 25 mm

**Justification:**

This amendment provides code users the option to utilize an alternative method or design which the user considers to be beneficial to their system requirements.

**HS610.14|610.13| Exceptions.**

(Renumber existing Section 610.13 to Section 610.14)

**TABLE 702.1 DRAINAGE FIXTURE UNIT VALUES (DFU)**

PLUMBING, APPLIANCES, APPURTENANCES, OR FIXTURES	MINIMUM SIZE TRAP AND TRAP ARM (inches)	PRIVATE	PUBLIC	ASSEMBLY
Shower, single-head trap	2 <sup>9</sup>	2.0	2.0	2.0

**Notes:**

<sup>9</sup> For a bathtub to shower retrofit, a 1 1/2" (40 mm) trap and trap arm shall be permitted with a maximum shower size of 36 inches (914 mm) in width and 60 inches (1524 mm) in length.

Justification:

This amendment provides code users the option to utilize an alternative method or design which the user considers to be beneficial to their system requirements.

**HS718.1 Slope.** Building sewers shall be run in practical alignment and at a uniform slope of not less than 1/4 inch per foot (20.8 mm/m) toward the point of disposal.

**Exception:** ~~[Where approved by the Authority Having Jurisdiction and]~~ Where it is impractical, due to the depth of the street sewer or to the structural features or the arrangement of a building or structure, to obtain a slope of 1/4 inch per foot (20.8 mm/m), such pipe or piping 4 inches (100 mm) through 6 inches (150 mm) shall be permitted to have a slope of not less than 1/8 inch (10.4 mm/m) and such piping 8 inches (200 mm) and larger shall be permitted to have a slope of not less than 1/16 inch per foot (5.2 mm).

Justification:

This amendment provides code users the option to utilize an alternative method or design which the user considers to be beneficial to their system requirements.

**HS804.1.1 Laundry Tray Waste Connection to Standpipe.** A laundry tray waste connection shall be permitted to connect into a standpipe receptor for a clothes washer drain. The standpipe for a clothes washer drain shall extend not less than 30 inches (762 mm) above the weir of the standpipe trap and shall extend above the flood level rim of the laundry tray. The waste outlet of the laundry tray shall be not more than 30 inches horizontally apart from the standpipe.

Justification:

This amendment provides code users the option to utilize an alternative method or design which the user considers to be beneficial to their system requirements.

~~**807.3 Domestic Dishwashing Machine.** No domestic dishwashing machine shall be directly connected to a drainage system or food waste disposer without the use of an approved dishwasher air gap fitting on the discharge side of the dishwashing machine. Listed air gaps shall be installed with the flood level (FL) marking at or above the flood level of the sink or drainboard, whichever is higher.~~

Justification:

This amendment is required to coordinate with amendment HS414.3.

**HS906.1.1 Sidewall Venting.** Where sidewall venting is utilized, the vent shall not terminate under a vented overhang of a building and shall be located in accordance with Section 906.2. The vent terminal shall be directed downward and covered with a 3/32 of an inch (2.4 mm) mesh screen to prevent the entry of vermin or rodents. Note: Section 906.2 requires that each vent shall terminate not less than 10 feet (3048 mm) from, or not less than 3 feet (914 mm) above, an openable window, door, opening, air intake, or vent shaft, or not less than 3 feet (914 mm) in every direction from a lot line, alley and street excepted.

Justification:

This amendment provides code users the option to utilize an alternative method or design which the user considers to be beneficial to their system requirements.

**HS908.2 Horizontal Wet Venting for a Bathroom Groups.** ~~[A bathroom group located on the same floor level shall be permitted to be vented by a horizontal wet vent where all of the conditions of Section 908.2.1 through Section 908.2.5 are met.]~~ A maximum of two water closets, four lavatories, two bathtubs or combination bath/showers or showers, two bidets or two emergency floor drains connected to a horizontal branch drain on the same floor level shall be permitted to be vented by a horizontal wet vent. Each fixture drain shall connect independently in a horizontal plane of less than 45 degrees (0.79 rad) with the horizontal wet vent. The horizontal wet vent shall be considered as a vent from the most downstream fixture drain connection to the most upstream fixture drain connection to the horizontal branch drain.

**HS908.2.1 Vent Connection.** The dry vent shall connect to the horizontal branch drain and shall be installed in accordance with Section 905.2, Section 905.3, and Section 905.5. ~~[connection to the wet vent shall be an individual vent for the bidet, shower, or bathtub. One or two vented lavatory(s) shall be permitted to serve as a wet vent for a bathroom group.]~~ Only one wet-vented fixture drain or trap arm shall discharge upstream of the dry-vented fixture drain connection. ~~[Dry vent connections to the horizontal wet vent shall be in accordance with Section 905.2 and Section 905.3.]~~

**HS908.2.2 Size.** The horizontal wet vent shall be sized based on the fixture unit discharge into the horizontal wet vent and ~~[-The wet vent]~~ shall be not less than 2 inches (50 mm) in diameter for 4 drainage fixture units (dfu) or less, and not less than 3 inches (80 mm) in diameter for 5 dfu or more. The dry vent shall be sized in accordance with Table 702.1 and Table 703.2 based on the total fixture units discharging into the horizontal wet vent.

**HS908.2.3 Trap Arm.** The length of the fixture trap arm shall not exceed the limits in Table 1002.2. The trap size shall ~~[be in accordance]~~ comply with Section 1003.3. ~~[The vent pipe opening from the horizontal wet vent, except for water closets and similar fixtures, shall not be below the weir of the trap.]~~

**HS908.2.4 Fixtures Water Closet.** The A water closet fixture drain or trap arm connection to the horizontal wet vent shall be located downstream of other fixture drain or trap arm connections made to the horizontal wet vent. ~~[908.2.5 Additional Fixtures. Additional]~~ Other fixtures, other than wet vented fixtures, shall discharge located downstream of the horizontal wet vent shall be vented in accordance with Section 901.2. ~~[system and be conventionally vented. Only the fixtures within the bathroom groups shall connect to the wet-vented horizontal branch.]~~

**Justification:**

This amendment provides code users the option to utilize an alternative method or design which the user considers to be beneficial to their system requirements.

**HS912.0 Air Admittance Valves.**

**HS912.1 General.** Vents shall be permitted to terminate to an air admittance valve where installed in accordance with this section. Stack-type air admittance valves shall comply with ASSE 1050. Individual and branch-type air admittance valves shall comply with ASSE 1051.

**HS912.1.1 Vent Required.** A minimum of one stack vent or vent stack shall extend to the open air on every building drainage and vent system utilizing air admittance valves.

**HS912.2 Installation.** Air admittance valves shall be installed in accordance with the manufacturer's installation instructions.

**HS912.3 Where Permitted.** Individual, branch and circuit vents shall be permitted to terminate with a connection to an individual or branch-type air admittance valve. Stack vents and vent stacks shall be permitted to terminate to stack-type air admittance valves. An individual and branch-type air admittance valves shall only serve as the vent terminal for fixtures located on the same floor level. The horizontal branch drain having individual and branch-type air admittance valves shall comply with Section 912.3.1 or Section 912.3.2. Stack-type air admittance valves shall comply with Section 912.3.3.

**HS912.3.1 Location of Branch.** The horizontal branch drain shall connect to the drainage stack or building drain not more than five stories from the top of the stack.

**HS912.3.2 Relief Vent.** Where the horizontal branch is located more than five stories from the top of the stack, the horizontal branch shall be provided with a relief vent that shall connect to a vent stack or stack vent, or extend outdoors to the open air. The relief vent shall connect to the horizontal branch drain between the stack and the most downstream fixture drain connected to the horizontal branch drain. The relief vent shall be not less than 2 inches (50 mm) in diameter. The relief vent shall be permitted to serve as the vent for other fixtures.

**HS912.3.3 Stack Type Connection.** Stack-type air admittance valves shall connect to vent stacks or stack vents that serve drainage stacks not exceeding seven stories in height.

**HS912.4 Location.** Individual and branch-type air admittance valves shall be located not less than 4 inches (102 mm) above the horizontal branch drain or fixture drain being vented. Stack-type air admittance valves shall be located not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented. The air admittance valve shall be located within the maximum developed length permitted for the vent. The air admittance valve shall be installed not less than 6 inches (152 mm) above insulation materials.

**HS912.5 Access and Ventilation.** Air admittance valves shall be accessible. The valve shall be located within a ventilated space that allows air to enter the valve.

**HS912.6 Size.** The air admittance valve shall be sized for the fixture unit discharge and drainage pipe size of the connected drain.

**HS912.7 Prohibited Installation. Air admittance valves shall not be installed in the following applications:**

- (1) vents for chemical or special waste systems.
- (2) vent sumps or receiving tanks.
- (3) located in supply or return plenums.

**Justification:**

This amendment provides code users the option to utilize an alternative method or design which the user considers to be beneficial to their system requirements.

**HS913.0(912.0) Engineered Vent Systems.**

(Renumber existing Section 912.0 to Section 913.0)

**HS1001.2 Where Required.** Each plumbing fixture shall be separately trapped by an approved type of liquid seal trap. This section shall not apply to fixtures with integral traps. Not more than one trap shall be permitted on a trap arm. Food waste disposers installed with a set of restaurant, commercial, or industrial sinks shall be connected to a separate trap. ~~[Each domestic clothes washer and each laundry tub shall be connected to a separate and independent trap, except that a trap serving a laundry tub shall also be permitted to receive the waste from a clothes washer set adjacent to it.]~~ A trap serving a laundry tray shall be permitted to receive the waste from a clothes washer set adjacent to it. The vertical distance between a fixture outlet and the trap weir shall be as short as practicable, but in no case shall the tailpiece from a fixture exceed 24 inches (610 mm) in length. One trap shall be permitted to serve a set of not more than three single compartment sinks or laundry tubs of the same depth or three lavatories immediately adjacent to each other and in the same room where the waste outlets are not more than 30 inches (762 mm) apart, and the trap is centrally located where three compartments are installed.

**Note** – The combination of this option will permit a laundry tray (without a trap) to discharge into an indirect waste standpipe for a clothes washer. Two areas in the plumbing code need to be addressed (1) clothes washer standpipe is higher than the flood level rim of the laundry tray to prevent flooding at the clothes washer standpipe if a stoppage should occur downstream (laundry tray providing a buffer against overflow of the standpipe as the laundry trap will fill up with the washer discharge) and (2) 30-inch horizontal limitation between the laundry trap and clothes washer standpipe.

**Justification:**

This amendment is required to coordinate with amendment HS804.1.1.

**HS1002.2 Fixture Traps.**

**Table 1002.2 Horizontal Lengths of Trap Arms** is amended as follows:

**TABLE 1002.2 HORIZONTAL LENGTHS OF TRAP ARMS<sup>1</sup>**  
**~~(EXCEPT FOR WATER CLOSETS AND SIMILAR FIXTURES)<sup>1, 2</sup>~~**

TRAP ARM PIPE DIAMETER (inches)	DISTANCE TRAP TO VENT MINIMUM (inches)	LENGTH MAXIMUM (inches)
1 1/4	2 1/2	<del>[30]</del> 60
1 1/2	3	<del>[42]</del> 75
2	4	<del>[60]</del> 100
3	6	<del>[72]</del> 150
4	8	<del>[120]</del> 200
Exceeding 4	2 x Diameter	<del>[120]</del> Diameter x ratio of slope

For SI units: 1 inch = 25.4 mm

**Notes:**

<sup>1</sup> Maintain 1/4 inch per foot slope (20.8 mm/m). For slopes other than 1/4 inch per foot (20.8 mm), divide the pipe diameter by the slope to determine the maximum allowable length.

<sup>2</sup> ~~The developed length between the trap of a water closet or similar fixture (measured from the top of the closet flange to the inner edge of the vent) and its vent shall not exceed 6 feet (1829 mm).]~~

**Justification:**

This amendment is required to coordinate with amendment HS908.2.3.

**HS1007.0 Trap Seal Protection.**

**HS1007.1 General.** ~~[Floor drain or similar traps directly connected to the drainage system and subject to infrequent use shall be protected with a trap seal primer, except where not deemed necessary for safety or sanitation by the Authority Having Jurisdiction. Trap seal primers shall be accessible for maintenance.]~~ Floor drains and traps subject to evaporation due to infrequent use shall be protected with a water supplied trap seal primer, drainage supplied trap seal primer or floor drain trap seal protection device. Water supplied trap seal primers shall be accessible for maintenance.

**HS1007.2 Trap Seal Primers and Floor Drain Trap Seal Protection Devices.** Potable water supply trap seal primer valves shall comply with ASSE 1018. Drainage and electronic design type trap seal primer devices shall comply with ASSE 1044. Barrier-type trap seal protection devices shall comply with ASSE 1072.

Justification:

This amendment provides code users the option to utilize an alternative method or design which the user considers to be beneficial to their system requirements.

**HS1701.1 Referenced Standards** is amended by adding the following:

**TABLE 1701.1 REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTIONS
<u>ASSE 1050-2009</u>	<u>Stack Air Admittance Valves for Sanitary Drainage System</u>	<u>Valves</u>	<u>HS912.1</u>
<u>ASSE 1051-2009</u>	<u>Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems</u>	<u>Valves</u>	<u>HS912.1</u>
<u>ASSE 1072-2007</u>	<u>Barrier Type Floor Drain Trap Seal Protection Devices</u>	<u>DWV Components</u>	<u>HS1007.2</u>

Justification:

This amendment is to add the standards that are referenced in amendments HS912.1 and HS1007.2.