

**PUBLIC HEALTH DEPARTMENT[641]**

**Adopted and Filed**

**Rule making related to the state plumbing code**

The Plumbing and Mechanical Systems Board hereby amends Chapter 25, “State Plumbing Code,” Iowa Administrative Code.

*Legal Authority for Rule Making*

This rule making is adopted under the authority provided in Iowa Code section 105.4.

*State or Federal Law Implemented*

This rule making implements, in whole or in part, Iowa Code section 105.4.

*Purpose and Summary*

These amendments include the adoption by reference of the Uniform Plumbing Code (UPC), 2021 Edition. The Board previously adopted the 2018 edition of the UPC. The Board is required by law to adopt the most recent version of the UPC.

Notable changes in the most recent version include a new Appendix N titled “Impact of Water Temperature on the Potential for Scalding and Legionella Growth,” new provisions for backflow prevention devices, new provisions for temperature-limiting devices, new guards and rails requirements for installation of equipment and appliances on roofs, new requirements for the discharge of temperature and pressure relief valve piping, a new provision on leak detection devices, new provisions for potable water pumps, new standards for drain waste and vent pipe and fittings, new provisions for drain waste and vent cleanouts, updated and expanded circuit vent provisions, updated fuel gas provisions, and updated medical gas provisions.

*Public Comment and Changes to Rule Making*

Notice of Intended Action for this rule making was published in the Iowa Administrative Bulletin on February 24, 2021, as **ARC 5478C**.

There were eight comments for Chapter 25. Five commenters from various trade organizations offered letters of support. Two commenters took issue with the state plumbing code changes the Board made in the last code cycle (2018). One commenter requested a change, but the Board disagreed with the commenter.

One commenter suggested that air admittance valves should be allowed to be used. Air admittance valves were not included as part of the 2021 state plumbing code changes and were not considered during the many months of work on the 2021 state plumbing code updates. However, in response to the comment, the Board disagreed with the commenter and did not believe air admittance valves should be allowed. The 2021 UPC does not allow air admittance valves because they have a tendency to disrupt the basic principles of venting, which can lead to venting system failure. Specifically, they involve the use of mechanical parts, which can fail.

Two comments were received regarding the use of single-stack drainage systems. The Board made changes to eliminate the use of such systems during its last update to the state plumbing code in 2018. Single-stack drainage systems were not included as part of the 2021 state plumbing code changes and were not considered during the many months of work on the 2021 state plumbing code updates. The Board has not changed its position on these systems and reiterates its response from 2018:

Section 301.5 of the UPC requires alternative engineered designs to comply with the intent of the overall UPC. Section 310.4 of the UPC, which the Board is also adopting, already prohibits single-stack drainage and venting systems with unvented branch lines. The Board’s proposed rule provides a uniform,

easy-to-apply, bright-line rule that does not allow alternative engineered designs to become a loophole circumventing Section 310.4.

Additionally, the Board has found that single-stack systems in Iowa often do not maintain the one-inch water column required under Section 901.3 of the UPC. Potential cost savings for contractors are not a compelling reason to continue utilizing single-stack systems if the cost savings come at the expense of compliance with the UPC's other provisions and overall intent.

The Board is not making any changes in response to the comments.

#### *Adoption of Rule Making*

This rule making was adopted by the Board on April 20, 2021.

#### *Fiscal Impact*

This rule making has no fiscal impact to the State of Iowa.

#### *Jobs Impact*

After analysis and review of this rule making, no impact on jobs has been found.

#### *Waivers*

Any person who believes that the application of the discretionary provisions of this rule making would result in hardship or injustice to that person may petition the Board for a waiver of the discretionary provisions, if any, pursuant to the Board's general waiver provisions contained in 641—Chapter 31.

#### *Review by Administrative Rules Review Committee*

The Administrative Rules Review Committee, a bipartisan legislative committee which oversees rule making by executive branch agencies, may, on its own motion or on written request by any individual or group, review this rule making at its [regular monthly meeting](#) or at a special meeting. The Committee's meetings are open to the public, and interested persons may be heard as provided in Iowa Code section 17A.8(6).

#### *Effective Date*

This rule making will become effective on June 23, 2021.

The following rule-making actions are adopted:

ITEM 1. Amend rules 641—25.1(105) to 641—25.3(105) as follows:

**641—25.1(105) Adoption.** Sections 101 and 102 and Chapters 2 to 17 of the Uniform Plumbing Code, 2018 2021 Edition, as published by the International Association of Plumbing and Mechanical Officials, 4755 E. Philadelphia Street, Ontario, California 91761-2816, are hereby adopted by reference with amendments as the state plumbing code authorized by Iowa Code section 105.4. Portions of this chapter reproduce excerpts from the 2018 2021 International Plumbing Code; Copyright 2017 2020; Washington, D.C.: International Code Council. Such excerpts are reproduced with permission, all rights reserved. [www.ICCSAFE.org](http://www.ICCSAFE.org)

**641—25.2(105) Applicability.** The provisions of this code the Uniform Plumbing Code, as adopted and amended by this chapter, are applicable to the plumbing in buildings or on premises in Iowa. Local jurisdictions may not adopt other plumbing codes. Local jurisdictions may adopt additional amendments provided they are stricter than the Uniform Plumbing Code as amended by this chapter. Copies of any local amendments shall be provided to the board.

**641—25.3(105) Fuel gas piping.** Fuel gas piping shall comply with the requirements of Chapter 12 of the Uniform Plumbing Code, 2018 2021 Edition, unless the provisions conflict with 661—Chapter 226, Liquefied Petroleum Gas, Iowa Administrative Code. Where Chapter 12 conflicts with 661—Chapter 226, the provisions of 661—Chapter 226 shall be followed.

ITEM 2. Amend subrules 25.4(2) to 25.4(5) as follows:

**25.4(2)** The following amendments shall apply to UPC Chapter 3:

*a.* No change.

*b.* Section 309.6 Dead Legs. Modify the section by adding the following sentence to the end of the section: “The authority having jurisdiction can determine the method of flushing.”

~~*b. c.*~~ Subsection 314.4.1 Installation of Thermoplastic Pipe and Fittings. Trench width for thermoplastic pipe shall be limited to six times the outside diameter of the piping at the base. Thermoplastic piping shall be bedded in not less than 4 inches (102 mm) of aggregate bedding material supporting the pipe. Initial backfill shall encompass the pipe. Aggregate material shall be three-eighths (3/8) inch p-gravel or 1-inch clean class one bedding.

**25.4(3)** The following amendments shall apply to UPC Chapter 4:

*a.* and *b.* No change.

~~*c.* Section 408.4 Waste Outlet. Modify the section by adding the following exception to the end of the section: “Exception: In a residential dwelling unit where a 2-inch waste pipe is not readily available and approval of the Authority Having Jurisdiction has been granted, the waste outlet, fixture tailpiece, trap and trap arm may be 1½ inches when an existing tub is being replaced by a shower sized per Section 408.6(2). This exception only applies where one shower head rated at 2.5 gpm is installed.”~~ Section 408.3.2 Temperature Limiting.

(1) Modify this section by adding the following to the end of (3): “and installed at or as close as possible to the point of use.”

(2) Modify this section by adding the following to the end of (5): “may be used downstream of other allowed device. TAFR valves are not intended to be installed in place of devices complying with ASSE 1016, ASSE 1017, ASSE 1066, ASSE 1069, or ASSE 1070.”

*d.* Section 408.11 Showers. Create a new Section 408.11 stating: “Limitation of Hot Water Temperature of Hair Shampoo Bowls and Pet Grooming Stations. The maximum hot water temperature discharging from hair shampoo bowls and pet grooming stations shall be limited to 120°F (49°C). The maximum temperature shall be regulated by one of the following means, which shall be installed at or as close as possible to the point of use:

“(1) A limiting device conforming to ASSE 1070, ASME A112.1070, CSA B125.70, or CSA B125.3.

“(2) A water heater conforming to ASSE 1084.”

~~*e. f.*~~ Section 409.4 Limitation of Hot Water in Bathtubs and Whirlpool Bathtubs. Modify the section by adding the following sentence to the end of the section: “These devices shall be installed at or as close as possible to the point of use.”

~~*e. f.*~~ Section 410.3 Limitation of Water Temperature in Bidets. Modify the section by adding the following sentence to the end of the section: “These devices shall be installed at or as close as possible to the point of use.”

~~*f. g.*~~ Section 416.5 Drain. Modify the section by deleting the last sentence, which states: “Where a drain is provided, the discharge shall be in accordance with Section 811.0.”

~~*g. h.*~~ Section 418.3 Location of Floor Drains. Modify the section by adding the following to the end of the section: “(5) Rooms equipped with a water heater.”

~~*h. i.*~~ Section 422.1 Fixture Count.

(1) Modify the section by deleting the first paragraph and inserting the following in lieu thereof: “Plumbing fixtures shall be provided in each building for the type of building occupancy and in the minimum number shown in Table 403.1 of the International Plumbing Code, reprinted here as Table 422.1. The design occupant load and occupancy classification shall be determined in accordance with Section 1004 of the 2015 International Building Code the state building code or the authority having

jurisdiction. Required public facilities shall be designated by a legible sign for each sex. Signs shall be readily visible and located near the entrance to each toilet facility.”

(2) The minimum number of fixtures shall be calculated at 50 percent male and 50 percent female based on the total occupant load. Where information submitted indicates a difference in the distribution of the sexes, such information shall be used to determine the number of fixtures for each sex. Once the occupancy load and occupancy are determined, Table 422.1 shall be applied to determine the minimum number of plumbing fixtures required. When gender-neutral restrooms are provided, the total number of fixtures provided must be the sum of men’s and women’s fixtures as figured, and urinals in gender-neutral restrooms shall not be substituted for more than 67 percent of men’s water closets in assembly and educational occupancies or 50 percent of men’s water closets in all other occupancies. Where gender-neutral fixtures are provided in addition to separate men’s and women’s facilities, those gender-neutral fixtures shall be included in determining the number of fixtures provided in an occupancy. Where applying the fixture ratios in Table 422.1 results in fractional numbers, such numbers shall be rounded to the next whole number. For multiple occupancies, fractional numbers shall be first summed and then rounded to the next whole number.

~~i. j.~~ Subsection 422.1.1 Family or Assisted-Use Toilet and Bathing Facilities. Modify the subsection by adding the following sentence to the end of the subsection: “Required family or assisted-use fixtures are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile occupancies.”

~~j. k.~~ Table 422.1 Minimum Plumbing Facilities. Delete the table and insert the following table in lieu thereof. ~~Exception: Projects under the jurisdiction of the state building code may use fixture counts from the 2015 International Building Code.~~

**TABLE 422.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**

(See Sections 403.1.1 and 403.2)

(Reprinted with permission,\* from the 2018 International Plumbing Code, excerpt from IPC Table 403.1)

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 422.7)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 415.0)	OTHER
			MALE	FEMALE	MALE	FEMALE			
1	Assembly	Theaters and other buildings for the performing arts and motion pictures <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Nightclubs, bars, taverns, dance halls and buildings for similar purposes <sup>d</sup>	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
		Restaurants, banquet halls and food courts <sup>d</sup>	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
		Gaming areas	1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400	1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400	1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750		—	1 per 1,000	1 service sink
		Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Passenger terminals and transportation facilities <sup>d</sup>	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
		Places of worship and other religious services <sup>d</sup>	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink

**TABLE 422.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**

(See Sections 403.1.1 and 403.2)

(Reprinted with permission,\* from the 2018 International Plumbing Code, excerpt from IPC Table 403.1)

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 422.7)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 415.0)	OTHER
			MALE	FEMALE	MALE	FEMALE			
1	Assembly (cont'd)	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities <sup>f</sup>	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
2	Business	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink <sup>e</sup>
3	Educational	Educational facilities	1 per 50		1 per 50		—	1 per 100	1 service sink
4	Factory and Industrial	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		—	1 per 400	1 service sink

**TABLE 422.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**

(See Sections 403.1.1 and 403.2)

(Reprinted with permission,\* from the 2018 International Plumbing Code, excerpt from IPC Table 403.1)

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 422.7)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 415.0)	OTHER
			MALE	FEMALE	MALE	FEMALE			
5	Institutional	Custodial care facilities	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		Medical care recipients in hospitals and nursing homes	1 per room <sup>c</sup>		1 per room <sup>c</sup>		1 per 15	1 per 100	1 service sink per floor
		Employees in hospitals and nursing homes <sup>b</sup>	1 per 25		1 per 35		—	1 per 100	—
		Visitors in hospitals and nursing homes	1 per 75		1 per 100		—	1 per 500	—
		Prisons <sup>b</sup>	1 per cell		1 per cell		1 per 15	1 per 100	1 service sink
		Reformatories, detention centers, and correctional centers <sup>b</sup>	1 per 15		1 per 15		1 per 15	1 per 100	1 service sink
		Employees in reformatories, detention centers and correctional centers <sup>b</sup>	1 per 25		1 per 35		—	1 per 100	—
		Adult day care and child day care	1 per 15		1 per 15		1	1 per 100	1 service sink
6	Mercantile	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 service sink <sup>e</sup>

**TABLE 422.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**

(See Sections 403.1.1 and 403.2)

(Reprinted with permission,\* from the 2018 International Plumbing Code, excerpt from IPC Table 403.1)

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 422.7)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 415.0)	OTHER
			MALE	FEMALE	MALE	FEMALE			
7	Residential	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink
		Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units



**TABLE 422.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**

(See Sections 403.1.1 and 403.2)

(Reprinted with permission,\* from the 2018 International Plumbing Code, excerpt from IPC Table 403.1)

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 422.7)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 415.0)	OTHER
			MALE	FEMALE	MALE	FEMALE			
7	Residential (cont'd)	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		One- and two-family dwellings and lodging houses with five or fewer guestrooms	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit
		Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
8	Storage	Structures for the storage of goods, warehouses, storehouse and freight depots. Low and Moderate Hazard.	1 per 100		1 per 100		—	1 per 1,000	1 service sink

a The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the International Building Code.

b Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e For business and mercantile classifications with an occupant load of 15 or fewer, service sinks shall not be required.

~~f The required number and type of plumbing fixtures for outdoor public swimming pools shall be in accordance with Section 609 of the International Swimming Pool and Spa Code.~~

\*Excerpted (with modifications) from Table 403.1 of the 2018 International Plumbing Code; Copyright 2017; Washington, D.C.: International Code Council. Reproduced with permission. All rights reserved. [www.ICCSAFE.org](http://www.ICCSAFE.org)

l. Section 422.2 Separate Facilities. Modify this section by adding an additional exception: “(4) Separate facilities shall not be required where rooms having both water closets and lavatory fixtures are designed for use by any gender and sufficient privacy for water closets is installed. Partitions or compartment walls shall extend from no more than 1 inch from the floor to no less than 84 inches from the floor. Urinals shall be located in an area visually separated from the remainder of the facility or each urinal that is provided shall be located in a stall.”

~~k. m.~~ Subsection 422.2.2 Family or Assisted-Use Toilet ~~and Bathing~~ Facilities. Modify the subsection by adding the following sentence to the end of the subsection: “Required family or assisted-use fixtures are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile occupancies.”

~~l. n.~~ Insert the following text at the end of Chapter 4:

“422.6 Substitution for Water Closets. In each bathroom or toilet room, urinals shall not be substituted for more than 67 percent of the required water closets in assembly and educational occupancies. Urinals shall not be substituted for more than 50 percent of the required water closets in all other occupancies. (Reprinted from the 2018 International Plumbing Code section 424.2)”

**25.4(4)** The following amendments shall apply to UPC Chapter 6:

a. and b. No change.

c. Section ~~609.H~~ 609.12 Pipe Insulation. Delete sections Sections 609.11 through 609.11.2 and insert the following in lieu thereof:

Section ~~609.H~~ 609.12 Pipe Insulation. Insulation of domestic hot water piping shall be in accordance with the applicable energy conservation code.

d. and e. No change.

**25.4(5)** The following amendments shall apply to UPC Chapter 7:

a. Section 702.1 Trap Size. Table 702.1 Note 9. Modify this note by deleting “a maximum shower size of 36 inches (914 mm) in width and 60 inches (1524 mm) in length” and inserting the following in lieu thereof: “showers having only one shower head rated at a maximum of 2.5 gpm.”

~~a. b.~~ Section 710.1 Backflow Protection. Modify the section by adding the following sentences to the end of the section: “The requirement for the installation of a backwater valve shall apply only when determined necessary by the Authority Having Jurisdiction based on local conditions. When a valve is required by the Authority Having Jurisdiction, it shall be a manually operated gate valve or fullway ball valve. An automatic backwater valve may also be installed but is not required.”

~~b.~~ Section 717.1 General. Modify the section by adding the following language to the end of the section: “No building sewer shall be smaller than 4 inches in diameter.”

ITEM 3. Amend subrule 25.4(8) as follows:

**25.4(8)** The following amendments shall apply to UPC Chapter 10:

a. No change.

*b.* Section 1007.1 Trap Seal Protection. General. Modify this section by deleting “not deemed necessary for safety or sanitation by the Authority Having Jurisdiction” and inserting the following in lieu thereof: “floor drains or similar traps that receive a liquid discharge year round.”

*b. c.* Section 1014.1.3 Food Waste Disposers and Dishwashers. Modify the section by deleting the second sentence and inserting the following in lieu thereof: “Commercial food waste disposers shall discharge into the building’s drainage system in accordance with the requirements of the Authority Having Jurisdiction.”

ITEM 4. Amend paragraph **25.4(9)“c”** as follows:

*c.* Subsection ~~1208.6.4.4~~ 1208.6.4.5 Corrugated Stainless Steel Tubing. Delete subsection ~~1208.6.4.4~~ 1208.6.4.5 and insert the following in lieu thereof:

Subsection ~~1208.6.4.4~~ 1208.6.4.5 Corrugated Stainless Steel Tubing. Only CSST with an arc-resistant jacket or covering system listed in accordance with ANSI LC-1 (Optional Section 5.16)/CSA 6.26-2016 shall be installed, in accordance with the terms of its approval, the conditions of listing, the manufacturer’s instructions and this code, including electrical bonding requirements in Section 1211.2. CSST shall not be used for through-wall penetrations from the point of delivery of the gas supply to the inside of the structure. CSST shall not be installed in locations where subject to physical damage unless protected in an approved manner.

ITEM 5. Adopt the following **new** paragraph **25.4(9)“d”**:

*d.* Section 1211.3 Arc-Resistant Jacketed CSST. Delete the section.

ITEM 6. Amend rule 641—25.5(105), introductory paragraph, as follows:

**641—25.5(105) Backflow prevention with containment.** Cities with populations of 15,000 or greater as determined by the 2010 census or any subsequent regular or special census shall have a backflow prevention program with containment. The minimum requirements for a program are given in subrules 25.5(1) through 25.5(5). These requirements are in addition to the applicable requirements of Section 603 of the Uniform Plumbing Code, ~~2018~~ 2021 Edition.

ITEM 7. Amend subrule 25.5(1), introductory paragraph, as follows:

**25.5(1) Definitions.** The following definitions are added to those in Chapter 2 and Section 603 of the Uniform Plumbing Code, ~~2018~~ 2021 Edition, or are modified from those definitions for the purposes of rule 641—25.5(105) only.

ITEM 8. Amend **641—Chapter 25**, implementation sentence, as follows:

These rules are intended to implement Iowa Code chapter 105 as amended by 2013 Iowa Acts, Senate File 427.

[Filed 4/21/21, effective 6/23/21]

[Published 5/19/21]

EDITOR’S NOTE: For replacement pages for IAC, see IAC Supplement 5/19/21.