IPC

2021 GROUP A PUBLIC COMMENT AGENDA

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PITTSBURGH, PA

ICC
INTERNATIONAL CODE COUNCIL®

2021 Public Comment Agenda

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P1-21

Proposed Change as Submitted

Proponents: Julius Ballanco, representing Self (JBENGINEER@aol.com)

2021 International Plumbing Code

Revise as follows:

BATHROOM GROUP. A group of fixtures consisting of a water closet, lavatory, bathtub or shower, including or excluding a bidet, an *emergency floor drain* or both. Such fixtures are located together on the same floor level.
Half Group. A group of fixtures consisting of a water closet and lavatory, including or excluding a bidet, located in the same room.

709.1 Values for fixtures. *Drainage fixture unit* values as given in Table 709.1 (1) and 709.1(2) designate the relative load weight of different kinds of fixtures that shall be employed in estimating the total load carried by a soil or waste pipe, and shall be used in connection with Tables 710.1(1) and 710.1(2) of sizes for soil, waste and vent pipes for which the permissible load is given in terms of fixture units.

TABLE 709.1(1) DRAINAGE FIXTURE UNITS FOR FIXTURES AND GROUPS

FIXTURE TYPE	DRAINAGE FIXTURE UNIT VALUE AS LOAD FACTORS	MINIMUM SIZE OF TRAP (inches)
Automatic clothes washers, commercial[a, g]	3	2
Automatic clothes washers, residential[g]	2	2
~~Bathroom group as defined in Section 202 (1.6 gpf water closet)[f]~~	~~5~~	—
~~Bathroom group as defined in Section 202 (water closet flushing greater than 1.6 gpf)[f]~~	~~6~~	—
Bathtub[b] (with or without overhead shower or whirlpool attachments)	2	1 1/2
Bidet	1	1 1/4
Combination sink and tray	2	1 1/2
Dental lavatory	1	1 1/4
Dental unit or cuspidor	1	1 1/4
Dishwashing machine[c], domestic	2	1 1/2
Drinking fountain	1/2	1 1/4
Emergency floor drain	0	2
Floor drains[h]	2[h]	2
Floor sinks	Note h	2
Kitchen sink, domestic	2	1 1/2
Kitchen sink, domestic with food waste disposer, dishwasher or both	2	1 1/2
Laundry tray (1 or 2 compartments)	2	1 1/2
Lavatory	1	1 1/4
Shower (based on the total flow rate through showerheads and body sprays) flow rate: 5.7 gpm or less Greater than 5.7 gpm to 12.3 gpm Greater than 12.3 gpm to 25.8 gpm Greater than 25.8 gpm to 55.6 gpm	 2 3 5 6	 1 1/2 2 3 4
Service sink	2	1 1/2
Sink	2	1 1/2
Urinal	4	Note d
Urinal, 1 gallon per flush or less	2[e]	Note d
Urinal, nonwater supplied	1/2	Note d
Wash sink (circular or multiple) each set of faucets	2	1 1/2
Water closet, flushometer tank, public or private	4[e]	Note d
Water closet, private (1.6 gpf)	3[e]	Note d
Water closet, private (flushing greater than 1.6 gpf)	4[e]	Note d
Water closet, public (1.6 gpf)	4[e]	Note d
Water closet, public (flushing greater than 1.6 gpf)	6[e]	Note d

For SI: 1 inch = 25.4 mm, 1 gallon = 3.785 L, gpf = gallon per flushing cycle, 1 gallon per minute (gpm) = 3.785 L/m.

a. For traps larger than 3 inches, use Table 709.2.

b. A showerhead over a bathtub or whirlpool bathtub attachment does not increase the drainage fixture unit value.

c. See Sections 709.2 through 709.4.1 for methods of computing unit value of fixtures not listed in this table or for rating of devices with intermittent flows.

d. Trap size shall be consistent with the fixture outlet size.

e. For the purpose of computing loads on building drains and sewers, water closets and urinals shall not be rated at a lower drainage fixture unit unless the lower values are confirmed by testing.

f. ~~For fixtures added to a bathroom group, add the dfu value of those additional fixtures to the bathroom group fixture count.~~

g. See Section 406.2 for sizing requirements for fixture drain, branch drain and drainage stack for an automatic clothes washer standpipe.

h. See Sections 709.4 and 709.4.1.

Add new text as follows:

TABLE 709.1(2) DRAINAGE FIXTURE UNITS FOR BATHROOM GROUPS

FIXTURE GROUP	DRAINAGE FIXTURE UNIT - INDIVIDUAL DWELLING UNIT[1]	DRAINAGE FIXTURE UNIT - 3 OR GREATER DWELLING UNITS
Bathroom group as defined in Section 202 (1.6 gpf or less water closet)		
Half Group	3.5	2.5
1 Bathroom Group	5	3
1-1/2 Bathroom Groups	6	3.5
2 Bathroom Groups	7	4.5
2-1/2 Bathroom Groups	8	5
3 Bathroom Groups	9	5.5
Each Addition Half Group	0.5	0.5
Each Additional Bathroom Group	1	1
Bathroom group as defined in Section 202 (greater than 1.6 gpf water closet		
Half Group	3.5	2.5
1 Bathroom Group	6	4
1-1/2 Bathroom Groups	8	5.5
2 Bathroom Groups	10	6.5
2-1/2 Bathroom Groups	11	7.5
3 Bathroom Groups	12	8
Each Addition Half Group	0.5	0.5
Each Additional Bathroom Group	1	1

a. Individual dwelling units includes guest rooms, patient rooms, and single user bathrooms in other buildings. For multiple family dwelling units greater than 3 dwelling units, the drainage fixture unit within the dwelling unit shall be based on the individual dwelling drainage fixture unit value. The drainage fixture unit value for the system, shall be based on the greater than 3 dwelling units drainage fixture unit value.

Reason: The late Tom Konen did extensive research on the impact of flows in drainage systems using low flow fixtures. The proposed new table of fixture unit values was published by Tom Konen in 1994. While going through the history of changes to the International Plumbing Code, there has never been a proposal to introduce the table Konen developed in his research. By the time the report was published, the first edition of the International Plumbing Code was already completed and published. For the last 25 years, there hasn't been any consideration of adding the modified fixture unit table.
What Konen identified in his paper is that families are getting smaller and houses are getting bigger with more bathrooms. Using the queuing theory developed by Dr. Roy B. Hunter, Konen determined that the use of fixtures varies based on the number of fixture installed in a dwelling unit. A five bathroom home occupied by 3 people could not possibly have a peak demand whereby half of the fixture are used simultaneously. Konen's data identified the frequency of use. The data resulted in a revised fixture unit table for bathroom groups. This table has been included in the IAPMO National Standard Plumbing Code (formerly known as the PHCC National Standard Plumbing Code) for the last 25 years. The history of using these revised fixture unit values have been proven out in states such as New Jersey and Maryland.

The International Plumbing Code should be updated to reflect the research and field experience with revised fixture units for dwelling unit bathroom groups.

Bibliography: Impact of Water Conservation on Interior Plumbing, Thomas P. Konen, P.E., Stevens Institute of Technology, ASPE 1994 Convention Technical Proceedings, Copyright 1995, American Society of Plumbing Engineers

Cost Impact: The code change proposal will decrease the cost of construction
This change will lower the cost of construction by allowing lower drainage fixture unit values for larger dwelling units. The result can be smaller diameter drainage pipes.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The Committee was not opposed to the principle and concept. However, the presentation and format leaves a lot to be desired. No one is going to know how to use the right column of the new table because it refers to the system that seems to be addressing building sewer, building drains and stacks. This is a new concept that is not intuitive and code users are not going to understand it. A number of other problems such as 1) the definition half-bath has a misplaced phrase "including or excluding a bidet," (should be after "group of fixtures" 2) new table refers to greater than 1.6 gpf water closets (1.6 gpf exceeds code limitation), 3) the entire new table depends 100% on a footnote in the table, 4) the first sentence of the footnote addresses "guest rooms, patient rooms, and single user bathrooms in other buildings" in the context of individual dwelling units (confusing applications) 4) the table title of the right column speaks to 3 or greater water closets (does the table not apply dwelling units with 2 water closets?) and the last sentence of the footnote indicates that the values apply to the system (no definition of what that means). The resultant effect of this table will be some reduction of the size of piping and that might have unknown consequences to overall system venting. (8-6)

P1-21

Individual Consideration Agenda

Public Comment 1:

IPC: 709.1, TABLE 709.1(2)

Proponents: Julius Ballanco, representing Self (jbengineer@aol.com); Dan Buuck, representing National Association of Home Builders (dbuuck@nahb.org) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

709.1 Values for fixtures . *Drainage fixture unit* values as given in Table 709.1(1) and 709.1(2) designate the relative load weight of different kinds of fixtures that shall be employed in estimating the total load carried by a soil or waste pipe, and shall be used in connection with Tables 710.1(1) and 710.1(2) of sizes for soil, waste and vent pipes for which the permissible load is given in terms of fixture units. Column A of Table 709.1(2) shall be used to determine the *drainage fixture unit* values for one and two family dwellings, individual dwelling units in multifamily dwellings, guest rooms, patient rooms, and single user bathrooms in other buildings. Column B of Table 709.1(2) shall be used to determine the *drainage fixture unit* values for piping systems receiving the discharge of 3 or more dwelling units.

TABLE 709.1(2) DRAINAGE FIXTURE UNITS FOR BATHROOM GROUPS

FIXTURE GROUP	COLUMN A -DRAINAGE FIXTURE UNIT - ONE AND TWO FAMILY DWELLINGS AND INDIVIDUAL DWELLING UNIT OR ROOMS[a]	COLUMN B -DRAINAGE FIXTURE UNIT - 3 OR GREATER DWELLING UNITS
Bathroom group as defined in Section 202 (1.6 gpf or less water closet)		
Half Group	3.5	2.5
1 Bathroom Group	5	3
1-1/2 Bathroom Groups	6	3.5
2 Bathroom Groups	7	4.5
2-1/2 Bathroom Groups	8	5
3 Bathroom Groups	9	5.5
Each Addition Half Group	0.5	0.5
Each Additional Bathroom Group	1	1
Bathroom group as defined in Section 202 (greater than 1.6 gpf water closet		
Half Group	3.5	2.5
1 Bathroom Group	6	4
1-1/2 Bathroom Groups	8	5.5
2 Bathroom Groups	10	6.5
2-1/2 Bathroom Groups	11	7.5
3 Bathroom Groups	12	8
Each Addition Half Group	0.5	0.5
Each Additional Bathroom Group	1	1

~~a. Individual dwelling units includes guest rooms, patient rooms, and single user bathrooms in other buildings. For multiple family dwelling units greater than 3 dwelling units, the drainage fixture unit within the dwelling unit shall be based on the individual dwelling drainage fixture unit value. The drainage fixture unit value for the system, shall be based on the greater than 3 dwelling units drainage fixture unit value.~~

Commenter's Reason: The Committee expressed concerns with the understanding of the difference between the two columns listing fixture unit values. That has been clarified by a change to Section 709.1. The new text in Section 709.1 incorporates the comments in Note a. The note to Table 709.1(2) has been deleted as a result of the modification to Section 709.1.
Another concern expressed by the Committee was the inclusion of water closets having a flush volume of greater than 1.6 gpf. The current Table 709.1 has a listing for water closet having a flush volume of greater than 1.6 gpf. Since this change is regarding the research on the proper fixture unit values, no change has been made to delete the row on water closets having a flush volume greater than 1.6 gpf. Such a change should be made separately to the table if one is inclined.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
The change will lower the cost of construction. However, this Public Comment only clarifies the original intent of the change.

Public Comment# 2706

P9-21

Proposed Change as Submitted

Proponents: Ted Williams, representing American Gas Association (twilliams@aga.org)

2021 International Plumbing Code

Add new text as follows:

306.2.4 Tracer wire.
For plastic sewer piping, an insulated copper tracer wire or other approved conductor shall be installed adjacent to and over the full length of the piping. Access shall be provided to the tracer wire or the tracer wire shall terminate at the cleanout between the building drain and building sewer. The tracer wire size shall be not less than 14 AWG and the insulation type shall be listed for direct burial.

Reason: The new provision that applies to buried plastic sewer piping requires a tracer wire in close proximity of the non-metallic sewer piping to assist in identifying the location of the buried pipe to avoid damaging the pipe when digging in the area of the underground pipe. This will help ensure that there will be no 3rd party damage during excavation in the area where the piping is located along with other utilities that may be in the same trench.

Cost Impact: The code change proposal will increase the cost of construction
Adding tracer wire to installations will contribute a minor cost of line installation.

P9-21

Public Hearing Results

Committee Action: **As Submitted**

Committee Reason: The Committee believes this is an enhancement for safety at minimal expense. There have been many instances of gas lines being cross-bored through through plastic sewer lines. Subsequent clearing of a blockage in the sewer can result in a disaster.(9-5)

P9-21

Individual Consideration Agenda

Public Comment 1:

Proponents: Michael Cudahy, representing PPFA (mikec@cmservices.com) requests Disapprove

Commenter's Reason: This was a divided vote for good reason. The requirement for new building plastic sewer piping to have a buried tracer wire is going to have minimal use, as building sewer lines on the property line are easy to locate, and the majority of existing sewer lines - plastic or otherwise, would still require manual marking prior to excavation. One could even just run a wire thru the sewer line on the property or use another methodology, if ever needed.

Bibliography: none

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
No change to code.

Public Comment# 2810

Public Comment 2:

Proponents: Gary Kozan, representing self (garyk@ridgewayplumbing.com) requests Disapprove

Commenter's Reason: Plastic sewers have been around for over fifty years, and every utility locating service has the capability to find them easily without resorting to tracer wires. They've been doing so for years. Unlike some other buried non-metallic piping such as gas lines and water mains, sewer cleanouts allow for the easy insertion of a metal fish tape, or a sewer camera equipped with a sonde/beacon, to pinpoint the pipe's location and depth with greater precision than a tracer wire. These products are ubiquitous in today's marketplace. Additionally, ground penetrating radar (GPR) has become increasingly popular, and can provide accurate results in 2D and 3D. With today's technology, locating plastic sewers is just not a problem. If a sewer line gets damaged during excavation or cross-boring, it's either the fault of the locator or the operator, not a weakness in the code. There's just no need to start requiring tracer wires on plastic sewer lines now.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
No change to code.

Public Comment# 2261

P11-21

Proposed Change as Submitted

Proponents: James Walls, CISPI, representing CISPI (jwalls@cispi.org)

2021 International Plumbing Code

Revise as follows:

308.6 Sway bracing. Where *horizontal drainage or waste pipes* 4 inches (102 mm) and larger are suspended in excess of 18 inches measured from the top of the horizontal piping being supported to the point of support,- these pipes and fittings shall be braced to prevent horizontal movement. ~~convey drainage or waste, and where a pipe fitting in that piping changes the flow direction greater than 45 degrees (0.79 rad), rigid bracing or other rigid support arrangements shall be installed to resist movement of the upstream pipe in the direction of pipe flow. A change of flow direction into a vertical pipe shall not require the upstream pipe to be braced.~~

Reason: This proposed change removes language not related to sway bracing. Section 308.7 and 308.7.1 of this code includes thrust restraints at changes of direction for piping greater than 4 inches. This change removes conflicting information and clarifies the intent of sway bracing requirements.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
There are no additional cost with this change.

P11-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The language proposed to be removed is important to retain in the code. (14-0)

P11-21

Individual Consideration Agenda

Public Comment 1:

IPC: 308.6 (New), 308.6.1 (New), 308.6.2 (New)

Proponents: James Walls, representing CISPI (cispi@flash.net) requests As Modified by Public Comment

Replace as follows:

2021 International Plumbing Code

308.6
Sway Bracing and Restraint

308.6.1 Sway Bracing . Where horizontal pipes 4 inches (102mm) and larger convey drainage or waste, and where a pipe fitting changes the flow direction greater than 45 degrees (0.79 rad), rigid bracing or other rigid support arrangements shall be installed to resist movement. Sway bracing as a component of piping seismic supports shall be installed in accordance with Section 308.2.

308.6.2 Restraint . Where horizontal pipe sizes greater than 4 inches (102mm) convey drainage or waste shall be restrained at all changes in direction 45 degrees or greater.

Commenter's Reason: There is a great deal of confusion between sway bracing and restraint of pipe joints. This helps to clarify this information to the code official, installer, and other users of the code by making it clear what is required to accomplish each, as they are not the same thing. Information can be inserted on what each is and what each is meant to do and why it needs to be delineated in this fashion.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction

There is no cost increase with these code change proposals.

Public Comment# 2468

P22-21

Proposed Change as Submitted

Proponents: Joseph Summers, Chair, representing Chair of PMGCAC (PMGCAC@iccsafe.org)

2021 International Plumbing Code

Revise as follows:

TABLE 403.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
			MALE	FEMALE	MALE	FEMALE			
1	Assembly	Theaters and other buildings for the performing arts and motion pictures[d]	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[d]	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
		Restaurants, banquet halls and food courts[d]	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
		Casino 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[d]	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Passenger terminals and transportation facilities[d]	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
		Places of worship and other religious services[d]	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink
		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[f]	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, ambulatory care, 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[e]
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
									1 service

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
			MALE	FEMALE	MALE	FEMALE			
		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[c]		1 per room[c]		1 per 15	1 per 100	1 service sink per floor
		Employees in hospitals and nursing homes[b]	1 per 25		1 per 35		—	1 per 100	—
5	Institutional	Visitors in hospitals and nursing homes	1 per 75		1 per 100		—	1 per 500	—
		Prisons[b]	1 per cell		1 per cell		1 per 15	1 per 100	1 service sink
		Reformatories, detention centers, and correctional centers[b]	1 per 15		1 per 15		1 per 15	1 per 100	1 service sink
		Employees in reformitories, detention centers and correctional centers[b]	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[e]
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
		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
					1 per 40 for the				

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
			MALE	FEMALE	MALE	FEMALE			
9.	Shelters	Shelters for day or overnight use	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 40	1 per 100	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.

410.4 Substitution. Where restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants. In other *occupancies* except shelters, where three or more drinking fountains are required, *water dispensers* shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains. In shelters, alternative sources of drinking water such as bottle-supplied water dispensing units shall be permitted to be substituted for 100 percent of the required number of drinking fountains.

Reason: More and more municipalities are being tasked with providing shelter facilities for homeless persons. Some of these shelters are only temporary (180 days or less) because the need only exists in winter months. The existing code requirements are difficult to apply and provide less than adequate services for this population. The proposed requirements comes from experience in providing services in Fort Collins, CO.
This proposal is submitted by the ICC Plumbing/Mechanical/Gas Code Action Committee (PMG CAC). The PMG CAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2020, the PMG CAC has held several virtual meetings open to any interested party. Numerous interested parties attended the committee meetings and offered their input. Related documentation and reports are posted on the PMG CAC website at: https://www.iccsafe.org/products-and-services/i-codes/code-development-process/pmg-code-action-committee-pmgcac/ Reference PMGCAC Working Document Item 27.

Cost Impact: The code change proposal will increase the cost of construction
Adding requirements to the code for shelter facilities (where no requirements existed before) will likely require more fixtures and the associated labor to provide/install than what a municipality might believe as needed for such facilities. In the majority of cases, shelter facilities are temporary and as such, the required plumbing fixtures are also temporary because the vacant buildings chosen for shelters such as a warehouses, large assembly halls , do not have enough permanent fixtures. Thus, the added costs would be for potable rental units as needed.

P22-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The concept is well-supported however, there needs to be a residential row added for this to be in, add the term "homeless" to shelter, and change "bottled-supplied water dispenser" to "bottle filling station". This is not a temporary shelter because everything in Table 403.1 is permanent. (14-0)

P22-21

Individual Consideration Agenda

Public Comment 1:

IPC: TABLE 403.1, 410.4

Proponents: Joseph J. Summers, representing Chair of PMGCAC (pmgcac@iccsafe.org) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

TABLE 403.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
			MALE	FEMALE	MALE	FEMALE			
1	Assembly	Theaters and other buildings for the performing arts and motion pictures[d]	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[d]	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
		Restaurants, banquet halls and food courts[d]	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
		Casino 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[d]	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Passenger terminals and transportation facilities[d]	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
		Places of worship and other religious services[d]	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink
		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[f]	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, ambulatory care, 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[e]
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
									1 service

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	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[c]		1 per room[c]		1 per 15	1 per 100	1 service sink per floor
		Employees in hospitals and nursing homes[b]	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[b]	1 per cell		1 per cell		1 per 15	1 per 100	1 service sink
		Reformatories, detention centers, and correctional centers[b]	1 per 15		1 per 15		1 per 15	1 per 100	1 service sink
		Employees in reformitories, detention centers and correctional centers[b]	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[e]
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
		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
		<u>Homeless shelters for day or overnight use</u>	<u>1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50</u>		<u>1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80</u>		<u>1 per 40</u>	<u>1 per 40</u>	<u>1 service sink</u>

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
			MALE	FEMALE	MALE	FEMALE			
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
~~9.~~	~~Shelters~~	~~Shelters for day or overnight use~~	~~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 40~~	~~1 per 100~~	~~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.

410.4 Substitution . Where restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants. In other *occupancies* except shelters, where three or more drinking fountains are required, *water dispensers* shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains. In shelters, alternative sources of drinking water such as ~~bottle-supplied water dispensing units~~ ~~units~~ bottle filling stations shall be permitted to be substituted for 100 percent of the required number of drinking fountains.

Commenter's Reason: This public comment revises the proposal in accordance with the Committee's directions. The PMGCAC agrees with the changes as they improve the intent for coverage for these needed shelters.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction
The public comment only clarifies the original proposal. The cost impact for the original proposal ("an increase in the cost of construction") remains the same.

Public Comment# 2454

P25-21

Proposed Change as Submitted

Proponents: Emma Gonzalez-Laders, NYS DOS Division of Building Standards and Codes, representing NYS DOS Division of Building Standards and Codes (emma.gonzalez-laders@dos.ny.gov); China Clarke, New York State Dept of State, representing New York State Dept of State (china.clarke@dos.ny.gov); David Collins, The American Institute of Architects, representing The American Institute of Architects (dcollins@preview-group.com)

2021 International Plumbing Code

Revise as follows:

403.1.1 Fixture calculations. To determine the occupant load of each sex, the total occupant load shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the occupant load of each sex in accordance with Table 403.1. Fractional numbers resulting from applying the fixture ratios of Table 403.1 shall be rounded up to the next whole number. For calculations involving multiple *occupancies*, such fractional numbers for each *occupancy* shall first be summed and then rounded up to the next whole number.

Exceptions:

1. The total occupant load shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.
2. Where multiple-user facilities are designed to serve all genders, the minimum fixture count shall be calculated 100 percent, based on total occupant load. In such multiple-user facilities, each fixture type shall be in accordance with ICC A117.1 and each urinal that is provided shall be located in a stall.
3. ~~Distribution of the sexes is not required where single-user water closets and bathing room fixtures are provided in accordance with Section 403.1.2.~~

403.1.2 Single-user toilet and bathing room fixtures. The plumbing fixtures located in single-user toilet and bathing rooms, including family or assisted-use toilet and bathing rooms ~~that are required by Section 1110.2.1 of the International Building Code~~, shall contribute toward the total number of required plumbing fixtures for a building or tenant space, and shall be deducted proportionately from the required gender ratios of Table 403.1. Single-user toilet and bathing rooms, and family or assisted-use toilet rooms and bathing rooms shall be identified as being available for use by all persons regardless of ~~their~~ sex.
The total number of fixtures shall be permitted to be based on the required number of separate facilities or based on the aggregate of any combination of single-user or ~~separate~~ multi-user facilities.

Reason: Exception 3 to Section 2902.1.1 of the 2021 IBC was added during the last code cycle and it indicates that *"distribution of the sexes is not required where single-user water closets and bathing room fixtures are provided in accordance with Section 2902.1.2."* Section 403.1.1 of the 2021 IPC is nearly identical. The section referenced (2902.1.1) pertains to single-user facilities and how their number contributes to the total required fixture counts. Neither Section, however, provides any guidance on how the required gender rations are to be maintained in accordance with Table 2902.1. This ambiguity may lead some code users to assume that the lower ratios can be used, while other code users would assume that the more restrictive requirement should apply (in accordance with Section 102.1). In either scenario, the resulting number of fixtures would be either too low and not serve the needs of facility users or too high and not serve the needs of developers by unreasonably increasing cost.
Also, this exception may suggest that proportionality in the distribution of toilet fixtures by gender is not required. This is contrary to the intent of the proponents, based on conversations with one of them, and also contrary to the intent of the different Table values found in the Plumbing Code and the Building Code as stated in the commentary, which is to provide *"an 'equality of fixture availability' in those particular occupancies"* with *"historically […] long lines of females waiting to use toilet facilities while male facilities had no lines."*

A better way to address the issue of proportionate distribution and how single-user facilities are to be deducted from the total required number of fixtures is to explicitly say so in Section 2902.1.2, and we, therefore, propose that the language *"and shall be deducted proportionately from the required gender ratios of Table 2902.1"* be added to that section.

Additionally, the reference in Section 2902.1.2 of the IBC and Section 403.1.2 of the IPC to *"family or assisted-use toilet and bathing rooms that are required by Section 1110.2.1"* is unnecessary and may incorrectly suggest that ONLY those facilities required by Section 1110.2.1 of the IBC can be counted and *"contribute toward the total number of required plumbing fixtures,"* where we believe that the intent is to have ALL single-user fixtures contribute to those totals, regardless of being required or provided voluntarily, therefore, we propose that the reference to Section 1110.2.1 be deleted.

And, to say "single-user and separated facilities" may incorrectly suggest that single-user facilities could be separated by gender, contrary to the 2nd sentence in the Section. We believe the intent to be for ALL facilities, single- or multi-user, separated or not, to contribute to the total fixture count. Therefore, we propose that the word *"separated"* in the last sentence of the code provision be replaced with the word *"multi-user."*

Cost Impact: The code change proposal will not increase or decrease the cost of construction

This proposal does not eliminate any existing code provisions, nor does it create new provisions. Instead, it provides consistency across related code sections.

P25-21

Public Hearing Results

This proposal includes unpublished errata
In the Committee Action Hearing version of the proposal, in Section 403.1.2, the reference to IBC Section 1109.2.1 was corrected to Section 1110.2.1.

Committee Action: **As Modified**

Committee Modification:

403.1.2Single-user toilet and bathing room fixtures. The plumbing fixtures located in single-user toilet or single-user ~~and~~ bathing rooms, including family or assisted-use toilet and bathing rooms, shall contribute toward the total number of required plumbing fixtures for a building or tenant space~~, and~~ . The number of fixtures in single-user toilets, single-user bathing fixtures and family or assisted-use toilets shall be deducted proportionately from the required gender ratios of Table 403.1. Single-user toilet and bathing rooms, and family or assisted-use toilet rooms and bathing rooms shall be identified as being available for use by all persons regardless of sex.

The total number of fixtures shall ~~be permitted to~~ be based on the required number of separate facilities or based on the aggregate of any combination of single-user or male and female designated ~~multi-user~~ facilities.

Committee Reason: For the modification: The clarifies the section to make sure that requirement covers all facilities. (14-0)
For the proposal As Modified: Exception No. 3 was always out of place. There has always been a problem with how to count the fixtures. This clears up the confusion. (14-0)

P25-21

Individual Consideration Agenda

Public Comment 1:

IPC: 403.1.2

Proponents: Emma Gonzalez-Laders, representing NYS DOS Division of Building Standards and Codes (emma.gonzalez-laders@dos.ny.gov); David Collins, representing The American Institute of Architects (dcollins@preview-group.com); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov) requests As Modified by Public Comment

Further modify as follows:

2021 International Plumbing Code

403.1.2 Single-user toilet and bathing room fixtures . The plumbing fixtures located in single-user toilet or single-user bathing rooms, including family or assisted-use toilet and bathing rooms, shall contribute toward the total number of required plumbing fixtures for a building or tenant space. The number of fixtures in single-user toilets, single-user bathing fixtures and family or assisted-use toilets shall be deducted proportionately from the required gender ratios of Table 403.1. Single-user toilet and bathing rooms, and family or assisted-use toilet rooms and bathing rooms shall be identified as being available for use by all persons regardless of sex.
The total number of fixtures shall be based on the required number of separate facilities or based on the aggregate of any combination of single-user or ~~male and female designated~~ multiple-user facilities.

Commenter's Reason: A seemingly simple word change had an unintended misapplication. The intent of the last sentence is to indicate that all plumbing fixtures available for public use count regardless of whether provided in single- or multi-user facilities and regardless of whether those multi-user facilities are separated by gender or not. As currently written, the wording "male and female designated facilities" would suggest that the fixtures located in multi-user facilities designed to serve all persons regardless of sex should not be counted, which is incorrect and was not the intent of the proponent.
A simple fix to substitute the words "male and female designated" with "multi-user" resolves that unintended misaplication.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction

This proposal is editorial and a matter of clarification. It has no cost implication.

Public Comment# 2403

P26-21

Proposed Change as Submitted

Proponents: Eirene Knott, BRR Architecture, representing Metropolitan Kansas City Chapter of the ICC (eirene.knott@brrarch.com)

2021 International Plumbing Code

Revise as follows:

403.1.1 Fixture calculations. To determine the occupant load of each sex, the total occupant load shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the occupant load of each sex in accordance with Table 403.1. Fractional numbers resulting from applying the fixture ratios of Table 403.1 shall be rounded up to the next whole number. For calculations involving multiple *occupancies*, such fractional numbers for each *occupancy* shall first be summed and then rounded up to the next whole number.

Exceptions:

1. The total occupant load shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.
2. Where multiple-user facilities are designed to serve all genders, the minimum fixture count shall be calculated 100 percent, based on total occupant load, applying the more restrictive fixture requirements to at least 50 percent of the total occupant load. In such multiple-user facilities, each fixture type shall be in accordance with ICC A117.1 and each urinal that is provided shall be located in a stall.
3. Distribution of the sexes is not required where single-user water closets and bathing room fixtures are provided in accordance with Section 403.1.2.

Reason: Based on the language as written, the water closets counts for a sporting arena could be calculated at one per 75 for the first 1,500 and then 1 per 120. What does this do for potty parity that has been a code debate for a number of years? I believe one way to solve for this is to apply the fixture requirements for the female fixture counts for 50 percent of the occupant load.

Cost Impact: The code change proposal will increase the cost of construction
Based on the language in the 2021 IPC, this code change will increase the cost of construction as it will require more fixtures. The increase in fixtures will provide for the potty parity to be more in line with previous fixture count requirements.

P26-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal makes it more difficult to understand what fixture ratio must be applied. (13-1)

P26-21

Individual Consideration Agenda

Public Comment 1:

IPC: 403.1.1

Proponents: Eirene Knott, representing Metropolitan Kansas City Chapter of the ICC (eirene.knott@brrarch.com); Misty Guard, Regulosity LLC, representing Regulosity LLC (misty.guard@regulosity.com) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

403.1.1 Fixture calculations . To determine the occupant load of each sex, the total occupant load shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the occupant load of each sex in accordance with Table

403.1. Fractional numbers resulting from applying the fixture ratios of Table 403.1 shall be rounded up to the next whole number. For calculations involving multiple *occupancies*, such fractional numbers for each *occupancy* shall first be summed and then rounded up to the next whole number.

Exceptions:

1. The total occupant load shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.
2. Where multiple-user facilities are designed to serve all genders, the minimum fixture count shall be calculated 100 percent, based on total occupant load~~, applying the more restrictive fixture requirements to at least 50 percent of the total occupant loadload.~~ . Fixture ratios for water closets and lavatories shall be based on the female fixture requirements unless the occupant load meets Exception 1. In such multiple-user facilities, each fixture type shall be in accordance with ICC A117.1 and each urinal that is provided shall be located in a stall.
3. Distribution of the sexes is not required where single-user water closets and bathing room fixtures are provided in accordance with Section 403.1.2.

Commenter's Reason: The committee stated that the original code language made the fixture ratio confusing; I agree it did. Now it should be clearly noted that the number of fixtures provided must be based on the higher fixture count, which will always be the female fixtures.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction
This code change may very well increase the cost of construction as it will require more fixtures. The increase in fixtures will provide for the potty parity to be more in line with the correct required fixture counts.

Public Comment# 2337

P35-21

Proposed Change as Submitted

Proponents: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Assoc. (BHMA) (jwoestman@kellencompany.com)

2021 International Plumbing Code

Revise as follows:

403.3.6 Door locking. Where a toilet room is provided for the use of multiple occupants, the egress door for the room shall not be lockable from the inside of the room. This section does not apply to family or assisted-use toilet rooms.

Exception: The egress door of a multiple occupant toilet room shall be permitted to be lockable from inside the room where all the following criteria are met:

1. The egress door shall be lockable from the inside of the room only by authorized personnel by the use of a key or other approved means.
2. The egress door shall be readily openable from the egress side with not more than one releasing motion and without the use of a key or special knowledge or effort.
3. The egress door shall be capable of being unlocked from outside the room with a key or other approved means.

Reason: Complementing the requirements in 2021 IBC Section 1010.2.8 regarding locking arrangements in educational occupancies, the proposed exception would facilitate door locking of multiple occupant toilet rooms in emergency situations by authorized personnel. Our BHMA members are recognizing that schools desire the same intruder protection in multiple occupant toilet rooms as classrooms – but the code explicitly does not permit locking of the egress doors of multiple occupant toilet rooms.
Proposed Criteria 1 limits the ability to lock the egress doors of a multiple occupant toilet room to authorized individuals provided with the key or other approved means.

Proposed Criteria 2 is consistent with long standing requirements in the IBC to require doors in the means of egress to, from the egress side, be openable (unlock and unlatch) with not more than one releasing motion and without using a key, or special knowledge or effort.

Proposed Criteria 3 is consistent with locks permitted on classroom doors per IBC Section 1010.2.8.

An additional benefit of this proposed exception is the proposed exception would allow, for example, a male custodian to lock the door when cleaning the women's restroom, and prevent "surprise" use of the restroom.

The proposed exception prevents unauthorized personnel from locking the door from the inside, which meets the original intent of this section.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The exception is "shall be permitted" and non-mandatory. Of course, if building owners choose to install locks on egress doors from multiple occupant toilet rooms, a cost would be incurred.

P35-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposal seems to be all over the map. For example, how can be required for key locking from the inside of the door where the door must be unlockable from the inside of the door without the use of a key? (12-2)

P35-21

Individual Consideration Agenda

Public Comment 1:

IPC: 403.3.6

Proponents: John Woestman, representing Builders Hardware Manufacturers Assoc. (BHMA) (jwoestman@kellencompany.com) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

403.3.6 Door locking . Where a toilet room is provided for the use of multiple occupants, the egress door for the room shall not be lockable from the inside of the room. This section does not apply to family or assisted-use toilet rooms.

Exception: The egress door of a multiple occupant toilet room shall be permitted to be lockable from inside the room where all the following criteria are met:

1. The egress door shall be lockable from the inside of the room only by authorized personnel by the use of a key or other approved means.
2. The egress door shall be readily openable from ~~the egress side with not more than one releasing motion and without the use of a key or special knowledge or efforteffort.~~ the toilet room in accordance with IBC Section 1010.2.
3. The egress door shall be capable of being unlocked from outside the room with a key or other approved means.

Commenter's Reason: The proponent for this proposal failed to inform the committee members of the need and benefits of the proposed revisions, and failed to communicate the similarities of the proposed revisions to existing requirements in the IBC for door locking.
The current IPC requires the egress door of a multiple occupant toilet room to not be lockable from inside the toilet room. For many occupancies, that's appropriate.

However, considering active shooter situations in K-12 schools, for example, there's a real concern that teachers with their students would not have a safe refuge from a shooter in a multi-occupant toilet room if the toilet room door cannot be lockable from inside the room. Picture a kindergarten teacher leading the class to the cafeteria when shots ring out, and the multi-occupant toilet room is the nearest potential place of refuge and safety.

This proposal, improved with the public comment modification, provides appropriate requirements via the proposed exception to 403.3.6 for building owners that wish to provide the ability for authorized personnel to lock the door from the inside of a multi-occupant toilet room. This proposed option is not limited to K-12 schools as the ability for authorized personnel to lock the door from inside of a toilet room may be desired in other occupancies.

The criteria for permitting the egress door of a multi-occupant toilet room to be lockable from inside the room includes:

1. Requiring the use of a key, or other approved means, to lock the door from the inside.

a. This restricts the ability to lock the door from the inside to only those authorized to do so. In a K-12 school, that could be teachers, administrators, and custodians. The provision for "other approved means" would permit, for example, electronic remote locking of doors for a building-wide lockdown.

2. Revising Item 2, and requiring the egress door to be openable from inside the toilet room in accordance with IBC Section 1010.2 – which is a current requirement for egress doors – is repeated here to stress the importance. IBC Section 1010.2 and subsections requires egress doors to be openable with a single motion, and without the use of a key or special knowledge or effort, and includes requirements for hardware height, locks and latches, etc.

a. Door hardware is readily available from multiple manufacturers that is lockable from inside the room only by authorized personnel (by a key, etc.), and unlockable by anybody inside the room without using a key, tool, special knowledge or effort.

3. Requiring the door to the multi-occupant toilet room to be unlockable from outside of the room by a key or other approved means ensures authorized personnel have the ability to gain access to the toilet room, should that need arise.

a. This requirement is consistent with current requirements in the IBC for Group E and Group B occupancies for locks permitted on classrooms, offices, and other occupied rooms per IBC Section 1010.2.8.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
The exception is “shall be permitted” and non-mandatory. Of course, if building owners choose to install locks on egress doors from multiple occupant toilet rooms, a cost would be incurred.

Public Comment# 2797

P37-21 Part I

Proposed Change as Submitted

Proponents: Julius Ballanco, representing Adult Changing Table Committee (JBEngineer@aol.com)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE PLUMBING CODE COMMITEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2021 International Plumbing Code

Add new text as follows:

403.7 Adult changing station.
Where adult changing stations are provided in addition to the requirements of the *International Building Code*, such stations shall be located in accordance with one of the following:

1. The adult changing station shall be installed in a single-user toilet room or bathing room.
2. The adult changing station shall be installed in a family or assisted-use toilet room or bathing room.
3. The adult changing station shall be installed in a toilet room or bathing room with multiple compartments. The adult changing station shall be provided with privacy by a curtain or wall or be installed within a privacy compartment. Where separate facilities are provided for each sex, the adult changing station shall be installed in both toilet rooms or bathing rooms.
4. The adult changing station shall be installed in a separate room.

403.7.1 Lavatory location.
Where an adult changing station is installed in a privacy compartment or separate room, a lavatory shall be provided within that space. The lavatory shall comply with the accessibility requirement of ICC A117.1.

Exception: Where an adult changing station is located in a separate room, a lavatory shall not be required in the room provided that an alcohol-based hand sanitizer dispenser is installed in the room.

403.7.2 Floor drain required.
Toilet rooms and bathing rooms with an adult changing station shall have a floor drain installed.

Reason: The Adult Changing Table Committee of ICC A117.1 developed this code change to address the installation of adult changing stations that are installed on a voluntary basis. There is no mandate within this code change. A companion code change being proposed to Chapter 11 of the Building Code would mandate adult changing stations in certain buildings. This proposed change is consistent with the proposed change to mandate adult changing stations. This proposal will supplement the requirements being proposed to Chapter 11. However, this proposed change can also stand on its own if the proposed change to Chapter 11 is not accepted. If this change is accepted, Chapter 29 of the Building Code would be correlated with the addition of the requirements to the existing sections. If an adult changing station is installed, this code change provides the requirements for public access, cleanliness, and sanitation. The access to an adult changing station is outlined in the first section which lists the rooms in which an adult changing station can be installed. The first two options are obvious in that they would be installed in an individual toilet or bathing room. The third option would allow the changing station to be installed in a men's or ladies room or all gender toilet room having multiple fixtures. Privacy requirements are specified to allow the adult diaper changing to take place out of public view. The fourth option would be a separate room similar to a lactating room in a commercial building or nurses station in a school.
The initial sanitation requirements are specified in the proposed new section 1210.2.3. This section would require surround material similar to the requirement for urinals. It would provide a surface that is readily cleanable and not impacted by moisture.

Every toilet or bathing room has a lavatory. The new requirement would stipulate that when an adult changing station is installed in a privacy compartment or separate room a lavatory would be required for that room to allow for cleanup during and after diaper changing. If there is a separate room without plumbing located in the close proximity, an alcohol-based hand sanitizer dispenser could be used as a substitute for a lavatory.

Since the adult changing station involves the changing of adult diapers, a waste receptacle is required to dispose of the diaper. To minimize the odor from the diaper, the waste receptacle is required to be self-closing. While the Committee considered mandating ventilation for the waste receptacle, it was decided to at a minimum require self closing.

A floor drain is also required to facilitate the washing of the area in the event of an accident during the diaper changing operation. While floor drains are common in toilet rooms and bathing rooms, the Plumbing Code does not mandate the fixture. This section would result in mandating the floor drain when an adult changing station is installed.

It is intended that Section 1210.2.3 be scoped to the IPC committee.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This change is adding optional requirements if someone choses to install an adult changing station. There are no mandates for such an installation in this change. As such, there is no impact to the cost of construction.

P37-21 Part I

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This is a good proposal in principle. However, installing a floor drain in an existing building might be very difficult thus leading to a decision to not install the adult changing table. The exception for allowing hand sanitizer instead of a lavatory is not appropriate for this application. The Committee encourages the proponent to bring this back in a Public Comment. (13-1)

P37-21 Part I

Individual Consideration Agenda

Public Comment 1:

IPC: 403.7, 403.7.1, 403.7.2

Proponents: Julius Ballanco, representing Adult Changing Table Committee (jbengineer@aol.com); Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com); Marsha Mazz, representing United Spinal Association (mmazz@accessibility-services.com); Lawrence Perry, representing self (lperryaia@aol.com); Laurel Wright, representing self (lwwright8481@icloud.com) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

403.7 Adult changing station . Where adult changing stations are provided in addition to ~~the requirements of~~ those requiredby the *International Building Code*, such stations shall be located in accordance with one of the following:

1. The adult changing station shall be installed in a single-user toilet room or bathing room.
2. The adult changing station shall be installed in a family or assisted-use toilet room or bathing room.
3. The adult changing station shall be installed in a toilet room or bathing room with multiple compartments. The adult changing station shall be provided with privacy by a curtain or wall or be installed within a privacy compartment. Where separate facilities are provided for each sex, the adult changing station shall be installed in both toilet rooms or bathing rooms.
4. The adult changing station shall be installed in ~~a separate room.~~ other than a toilet or bathing room.

403.7.1 Lavatory location . Where an adult changing station is installed in a privacy compartment or separate room, a lavatory shall be provided within that space. The lavatory shall comply with the accessibility requirement of ICC A117.1.

Exception: Where an adult changing station is located in ~~a separate room~~ other than a toilet or bathing room, a lavatory shall not be required in the room provided that an alcohol-based hand sanitizer dispenser is installed in the room.

~~**403.7.2 Floor drain required .** Toilet rooms and bathing rooms with an adult changing station shall have a floor drain installed.~~

Commenter's Reason: The Plumbing Code Committee was concerned with the allowance for alcohol based hand sanitizer dispensers in place of a lavatory. E142-21 was approved, which will require a lavatory and a water closet where adult changing tables are required. However, there are many locations, such as school nurse's offices and special education classrooms, that have these tables and do not have a lavatory within the room. Adding the plumbing could be cost prohibitive. Since these requirements are for where tables are provided, this option needs to remain in the exception in Section 402.7.1.In order to clarify that the allowance of alcohol based hand sanitizer dispensers, the term "separate room" is being replaced with "other than a toilet or bathing room." Of course, in toilet or bathing rooms a lavatory will be available. The allowance of alcohol based hand sanitizer dispensers only applies when adult changing tables are provided in these other rooms when not required by the Building Code. Similarly, the Plumbing Code Committee was concerned about a requirement for a floor drain in an existing building when an adult changing station is added. Floor drains are not required in toilet and bathing rooms, therefore, the modification deletes the floor drain associated with an adult changing table.

There was testimony that the first statement was not clear regarding these requirements applying to the adult changing stations that are not mandate by the Building Code. There is a minor change in wording to clarify that the requirements apply when the adult changing station is not required by the Building Code.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction
The removal of a requirement for a floor drain in an existing building will lower the cost of construction.

Public Comment# 2268

P37-21 Part II

Proposed Change as Submitted

Proponents: Julius Ballanco, representing Adult Changing Table Committee (jbengineer@aol.com)

2021 International Building Code

Add new text as follows:

1210.2.3 Adult changing table surround.
Walls and partitions within 2 feet (610 mm) of the adult changing table shall have a smooth, hard, nonabsorbent surface, to a height of not less than 72 inches (1829 mm) above the floor, and except for structural elements, the materials used in such walls shall be of a type that is not adversely affected by moisture.

Reason: The Adult Changing Table Committee of ICC A117.1 developed this code change to address the installation of adult changing stations that are installed on a voluntary basis. There is no mandate within this code change. A companion code change being proposed to Chapter 11 of the Building Code would mandate adult changing stations in certain buildings. This proposed change is consistent with the proposed change to mandate adult changing stations. This proposal will supplement the requirements being proposed to Chapter 11. However, this proposed change can also stand on its own if the proposed change to Chapter 11 is not accepted. If this change is accepted, Chapter 29 of the Building Code would be correlated with the addition of the requirements to the existing sections. If an adult changing station is installed, this code change provides the requirements for public access, cleanliness, and sanitation. The access to an adult changing station is outlined in the first section which lists the rooms in which an adult changing station can be installed. The first two options are obvious in that they would be installed in an individual toilet or bathing room. The third option would allow the changing station to be installed in a men's or ladies room or all gender toilet room having multiple fixtures. Privacy requirements are specified to allow the adult diaper changing to take place out of public view. The fourth option would be a separate room similar to a lactating room in a commercial building or nurses station in a school.
The initial sanitation requirements are specified in the proposed new section 1210.2.3. This section would require surround material similar to the requirement for urinals. It would provide a surface that is readily cleanable and not impacted by moisture.

Every toilet or bathing room has a lavatory. The new requirement would stipulate that when an adult changing station is installed in a privacy compartment or separate room a lavatory would be required for that room to allow for cleanup during and after diaper changing. If there is a separate room without plumbing located in the close proximity, an alcohol-based hand sanitizer dispenser could be used as a substitute for a lavatory.

Since the adult changing station involves the changing of adult diapers, a waste receptacle is required to dispose of the diaper. To minimize the odor from the diaper, the waste receptacle is required to be self-closing. While the Committee considered mandating ventilation for the waste receptacle, it was decided to at a minimum require self closing.

A floor drain is also required to facilitate the washing of the area in the event of an accident during the diaper changing operation. While floor drains are common in toilet rooms and bathing rooms, the Plumbing Code does not mandate the fixture. This section would result in mandating the floor drain when an adult changing station is installed.

It is intended that Section 1210.2.3 be scoped to the IPC committee.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This change is adding optional requirements if someone choses to install an adult changing station. There are no mandates for such an installation in this change. As such, there is no impact to the cost of construction.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The part about "within 2 feet" doesn't indicate which direction. Is it horiontally? (8-6)

Individual Consideration Agenda

Public Comment 1:

IBC: 1210.2.3

Proponents: Julius Ballanco, representing Adult Changing Table Committee (jbengineer@aol.com); Marsha Mazz, representing United Spinal Association (mmazz@accessibility-services.com); Lawrence Perry, representing self (lperryaia@aol.com); Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com); Laurel Wright, representing self (lwwright8481@icloud.com) requests As Modified by Public Comment

Modify as follows:

2021 International Building Code

1210.2.3 Adult changing table surround . Walls and partitions within 2 feet (610 mm) measured horizontally from each end of the adult changing table and to a height of not less than 72 inches (1829 mm) above the floor shall have a smooth, hard, nonabsorbent surface~~, to a height of not less than 72 inches (1829 mm) above the floor,~~ and except for structural elements, the materials used in such walls shall be of a type that is not adversely affected by moisture.

Commenter's Reason: The Plumbing code committee wanted clearer language for where the nonabsorbent surface would be provided. This public comment addresses that concern.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
This change is only a clarification of the original intent.

Public Comment# 2269

P39-21 Part I

Proposed Change as Submitted

Proponents: Julius Ballanco, representing Bradley Corp. (JBENGINEER@aol.com)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IPC COMMITTEE.

2021 International Plumbing Code

Revise as follows:

405.3.4 Water closet compartment. Each water closet utilized by the *public* or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy. Partitions for water closets located in separate gender toilet or bathing rooms shall comply with the Type B security requirements of IAPMO Z124.XX. Partitions for water closets located in all gender toilet rooms shall comply with the Type A security requirements of IAPMO Z124.XX or the water closet shall be located in separate room with a lockable door.

Exceptions:

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.
3. This provision is not applicable to toilet areas located within Group I-3 housing areas.

405.3.5 Urinal partitions. Each urinal utilized by the *public* or employees shall occupy a separate area with walls or partitions to provide privacy. The horizontal dimension between walls or partitions at each urinal shall be not less than 30 inches (762 mm). Partitions for urinals located in separate gender toilet or bathing rooms shall comply with the Type C security requirements of IAPMO Z124.XX. Partitions for urinals located in all gender toilet rooms shall comply with the Type A security requirements of IAPMO Z124.XX or the urinal shall be located in separate room with a lockable door. The walls ~~or partitions~~ shall begin at a height not greater than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. ~~The walls or partitions~~ Walls shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.

Exceptions:

1. Urinal partitions shall not be required in a single occupant or family/assisted-use toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

Add new standard(s) as follows:

IAPMO

IAPMO Group
4755 E. Philadelphia Street
Ontario, CA 91761 USA

Z124.XX-21 Toilet Room Partitions

Reason: This proposed change is a follow up to multiple changes during the last cycle. All gender toilet rooms were added as being permitted in the International Plumbing Code. At the same time, a new requirement regarding privacy from outside the entry or exit door was added to the code. The two proposals are inconsistent since a toilet room for all genders does not need any privacy from outside the entry or exit door since anyone can enter the room. The real concern is the privacy of the user of water closets and urinals. Thus, the outside entry and exit privacy statement is proposed for deletion with an added requirement specifying the privacy of water closets and urinals.
The important aspect of the change is to clarify the level of privacy assured the user of water closets and urinals. The need for privacy has been well established and a part of the Plumbing Code. The new standard being developed, IAPMO Z124.XX identifies privacy requirements for water closets and urinals. There are three levels of privacy identified in the draft of the standard, Type A, Type B, and Type C. Type A privacy requires partitions to prevent visual observation and security of the user. The current draft lists the partitions starting at 4 inches above the floor and extending to a height of 7 feet. The door must be the full height of the partition with both sides of the door sealed to prevent visual observation. The doors must also be lockable from the inside with visual observation on the outside that the compartment is in use.

Type B privacy is equivalent to the common water closet partition that has been used for many years. The doors to the partitions will allow a standard 1/2 inch gap.

Type C privacy are for urinals in separate gender toilet rooms. The partition requirements are equivalent to the current code requirements regarding the size of the partition.

IAPMO Z124.XX also has material requirements for plastic partitions. The IAPMO Z124 series of standards are for plastic plumbing fixtures. Hence, the requirements for plastic partitions are similar to the requirements for plastic shower enclosures. There are also structural loading requirements for plastic partitions. While this new standard has not been finalized by the deadline for code change submittal, the standard will be completed before the publication of the 2024 ICC Codes.

The proposed change will still allow water closets and urinals to be located in separate rooms within the toilet or bathing room. This is included in the privacy requirement for partitions.

The other part of the change is the correlation in the International Building Code. The privacy partition requirements appear in both Chapter 12 and 29. However, the requirements for urinal partitions differs between the two chapters. This change deletes the sections in Chapter 29 while modifying the requirements in Chapter 12 to add the missing statement regarding urinal partition spacing.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This change provides options for providing privacy for water closets and urinals. It also contains material requirements for plastic urinal and water closet partitions. There is no added cost of construction if the design professional and install select the options available currently in the code. If all gender toilet rooms are selected, there could be an increase in the cost of the partitions to provide security, however, the overall cost will be lower by allowing a single room as opposed to two rooms.

Staff Analysis: A review of the standard proposed for inclusion in the code, Z124.XX-21 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The new standard is not yet complete. (14-0)

Individual Consideration Agenda

Public Comment 1:

IPC: 405.3.4, 405.3.5,

Proponents: Julius Ballanco, representing Bradley Corp. (jbengineer@aol.com) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

405.3.4 Water closet compartment . Each water closet utilized by the *public* or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy. Partitions for water closets located in separate gender toilet or bathing rooms shall comply with the Type B security requirements of IAPMO ~~Z124.XX.~~ Partitions for water closets located in all gender toilet rooms shall comply with the Type A security requirements of IAPMO ~~Z124.XX or~~ Z124.10 or the water closet shall be located in separate room with a lockable door.

Exceptions:

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.
3. This provision is not applicable to toilet areas located within Group I-3 housing areas.

405.3.5 Urinal partitions . Each urinal utilized by the *public* or employees shall occupy a separate area with walls or partitions to provide privacy. The horizontal dimension between walls or partitions at each urinal shall be not less than 30 inches (762 mm). Partitions for urinals located in separate gender toilet or bathing rooms shall comply with the Type C security requirements of IAPMO ~~Z124.XX.~~ Z124.10. Partitions for urinals

located in all gender toilet rooms shall comply with the Type A security requirements of IAPMO ~~Z124.XX or~~ Z124.10 or the urinal shall be located in separate room with a lockable door. The walls shall begin at a height not greater than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. Walls shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.

Exceptions:

1. Urinal partitions shall not be required in a single occupant or family/assisted-use toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

,

~~Z124.XX-21~~ Z124.10-21 Toilet Room Partitions

Commenter's Reason: This change was disapproved because the standard was not completed at the time of first hearing. At the deadline for the public comment (July 2), the number has been assigned to the standard and the consensus draft is being balloted. Ballots are due back the second week of July. The standard will be completed within the time limits identified in the ICC procedures. The only modification being made is to add the correct number for the partitions standard.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
The modification proposed is only to add the number for the standard. That does not impact the cost analysis originally presented for the code change.

Staff Analysis: In accordance with Section 3.6.3.1 of ICC Council Policy 28, the new referenced standard IAPMO Z124.XX Toilet Partitions, must be completed and readily available prior to the Public Comment Hearing in order for this public comment to be considered.

Public Comment# 2349

P39-21 Part II

Proposed Change as Submitted

Proponents: Julius Ballanco, representing Bradley Corp. (jbengineer@aol.com)

2021 International Building Code

Revise as follows:

[P] 1210.2.2 Walls and partitions. Walls and partitions within 2 feet (610 mm) of service sinks, urinals and water closets shall have a smooth, hard, nonabsorbent surface, to a height of not less than 4 feet (1219 mm) above the floor, and except for structural elements, the materials used in such walls shall be of a type that is not adversely affected by moisture. Plastic partitions shall comply with IAPMO Z124.XX.

Exception: This section does not apply to the following buildings and spaces:

1. Dwelling units and *sleeping units*.
2. Toilet rooms that are not accessible to the public and that have not more than one water closet.

Accessories such as grab bars, towel bars, paper dispensers and soap dishes, provided on or within walls, shall be installed and sealed to protect structural elements from moisture.

[P] 1210.3 Privacy. Public restrooms shall ~~be visually screened from outside entry or exit doorways to ensure user privacy within the restroom. This provision shall also apply where mirrors would compromise personal privacy. Privacy at~~ provide privacy for the user of water closets and urinals ~~shall be provided~~ in accordance with Sections 1210.3.1 and 1210.3.2.

~~**Exception:** Visual screening shall not be required for single-occupant toilet rooms with a lockable door.~~

[P] 1210.3.1 Water closet compartment. Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy. Partitions for water closets located in separate gender toilet or bathing rooms shall comply with the Type B security requirements of IAPMO Z124.XX. Partitions for water closets located in all gender toilet rooms shall comply with the Type A security requirements of IAPMO Z124.XX or the water closet shall be located in separate room with a lockable door.

Exceptions:

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.
3. This provision is not applicable to toilet areas located within Group I-3 occupancy housing areas.

[P] 1210.3.2 Urinal partitions. Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The horizontal dimension between walls or partitions at each urinal shall be not less than 30 inches (762 mm). Partitions for urinals located in separate gender toilet or bathing rooms shall comply with the Type C security requirements of IAPMO Z124.XX. Partitions for urinals located in all gender toilet rooms shall comply with the Type A security requirements of IAPMO Z124.XX or the urinal shall be located in separate room with a lockable door. The walls ~~or partitions~~ shall begin at a height not more than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. ~~The walls or partitions~~ Walls shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.

Exceptions:

1. Urinal partitions shall not be required in a single-occupant or family or assisted-use toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

Delete without substitution:

~~**[P] 2903.1.4 Water closet compartment.** Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy.~~

~~**Exceptions:**~~

~~1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.~~

2. ~~Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.~~
3. ~~This provision is not applicable to toilet areas located within Group I-3 housing areas.~~

[P] 2903.1.5 Urinal partitions. ~~Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The horizontal dimension between walls or partitions at each urinal shall be not less than 30 inches (762 mm). The walls or partitions shall begin at a height not greater than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.~~

~~Exceptions:~~

1. ~~Urinal partitions shall not be required in a single-occupant or family/assisted-use toilet room with a lockable door.~~
2. ~~Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.~~

Reason: This proposed change is a follow up to multiple changes during the last cycle. All gender toilet rooms were added as being permitted in the International Plumbing Code. At the same time, a new requirement regarding privacy from outside the entry or exit door was added to the code. The two proposals are inconsistent since a toilet room for all genders does not need any privacy from outside the entry or exit door since anyone can enter the room. The real concern is the privacy of the user of water closets and urinals. Thus, the outside entry and exit privacy statement is proposed for deletion with an added requirement specifying the privacy of water closets and urinals.
The important aspect of the change is to clarify the level of privacy assured the user of water closets and urinals. The need for privacy has been well established and a part of the Plumbing Code. The new standard being developed, IAPMO Z124.XX identifies privacy requirements for water closets and urinals. There are three levels of privacy identified in the draft of the standard, Type A, Type B, and Type C. Type A privacy requires partitions to prevent visual observation and security of the user. The current draft lists the partitions starting at 4 inches above the floor and extending to a height of 7 feet. The door must be the full height of the partition with both sides of the door sealed to prevent visual observation. The doors must also be lockable from the inside with visual observation on the outside that the compartment is in use.

Type B privacy is equivalent to the common water closet partition that has been used for many years. The doors to the partitions will allow a standard 1/2 inch gap.

Type C privacy are for urinals in separate gender toilet rooms. The partition requirements are equivalent to the current code requirements regarding the size of the partition.

IAPMO Z124.XX also has material requirements for plastic partitions. The IAPMO Z124 series of standards are for plastic plumbing fixtures. Hence, the requirements for plastic partitions are similar to the requirements for plastic shower enclosures. There are also structural loading requirements for plastic partitions. While this new standard has not been finalized by the deadline for code change submittal, the standard will be completed before the publication of the 2024 ICC Codes.

The proposed change will still allow water closets and urinals to be located in separate rooms within the toilet or bathing room. This is included in the privacy requirement for partitions.

The other part of the change is the correlation in the International Building Code. The privacy partition requirements appear in both Chapter 12 and 29. However, the requirements for urinal partitions differs between the two chapters. This change deletes the sections in Chapter 29 while modifying the requirements in Chapter 12 to add the missing statement regarding urinal partition spacing.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This change provides options for providing privacy for water closets and urinals. It also contains material requirements for plastic urinal and water closet partitions. There is no added cost of construction if the design professional and install select the options available currently in the code. If all gender toilet rooms are selected, there could be an increase in the cost of the partitions to provide security, however, the overall cost will be lower by allowing a single room as opposed to two rooms.

P39-21 Part II

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The new standard is not yet complete. The Committee encourages the proponent to bring back in Public Comment (if the standard is completed) and change "all gender toilet rooms" to "toilet rooms for all persons regardless of sex". (11-3)

Individual Consideration Agenda

Public Comment 1:

IBC: [P] 1210.2.2, [P] 1210.3.1, [P] 1210.3.2

Proponents: Julius Ballanco, representing Bradley Corp. (jbengineer@aol.com) requests As Modified by Public Comment

Modify as follows:

2021 International Building Code

[P] 1210.2.2 Walls and partitions . Walls and partitions within 2 feet (610 mm) of service sinks, urinals and water closets shall have a smooth, hard, nonabsorbent surface, to a height of not less than 4 feet (1219 mm) above the floor, and except for structural elements, the materials used in such walls shall be of a type that is not adversely affected by moisture. ~~Plastic partitions~~ Partitions shall comply with IAPMO ~~Z124.XX.~~ Z124.10 .

Exception: This section does not apply to the following buildings and spaces:

1. Dwelling units and *sleeping units*.
2. Toilet rooms that are not accessible to the public and that have not more than one water closet.

Accessories such as grab bars, towel bars, paper dispensers and soap dishes, provided on or within walls, shall be installed and sealed to protect structural elements from moisture.

[P] 1210.3.1 Water closet compartment . Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy. Partitions for water closets located in separate gender toilet or bathing rooms shall comply with the Type B security requirements of IAPMO ~~Z124.XX.~~ Z124.10. Partitions for water closets located in all gender toilet rooms shall comply with the Type A security requirements of IAPMO ~~Z124.XX~~ Z124.10 or the water closet shall be located in separate room with a lockable door.

Exceptions:

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.
3. This provision is not applicable to toilet areas located within Group I-3 occupancy housing areas.

[P] 1210.3.2 Urinal partitions . Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The horizontal dimension between walls or partitions at each urinal shall be not less than 30 inches (762 mm). Partitions for urinals located in separate gender toilet or bathing rooms shall comply with the Type C security requirements of IAPMO ~~Z124.XX.~~ Z124.10. Partitions for urinals located in all gender toilet rooms shall comply with the Type A security requirements of IAPMO ~~Z124.XX~~ Z124.10 or the urinal shall be located in separate room with a lockable door. The walls shall begin at a height not more than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. Walls shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.

Exceptions:

1. Urinal partitions shall not be required in a single-occupant or family or assisted-use toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

Commenter's Reason: There are two modification proposed. When the code change was submitted, the number for the standard had not yet been assigned. With the assignment of the number, the standard is now identified as IAPMO Z124.10. The second change was the removal of the word "Plastic." The standard addresses partitions constructed of any material. This was an expansion of the standard during the development stage of the standard. The main reason for not accepting this change was because the standard was not completed. At the time of this public comment, the consensus draft standard is out for review. The deadline for comments is the second week of July. Thus, the standard will be completed within the time limits established by ICC procedures.
The Committee also suggested considering changing "all gender toilet rooms" to "toilet rooms for all persons regardless of sex". That change is not

being proposed because the standard uses the term "all gender toilet rooms." To be consistent with the standard, this term is used in the code change. Also, in working with the transgender community, they have indicated a preference for the term "all gender" since this does not rely on identifying "sex." While this may appear innoccuous, all gender is considered more politically correct. It is also used on the signs for these restrooms. Most recently, at Midway Airport in Chicago a sign was added stating "All Gender."

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
The change adding the standard number does not change the cost impact statement originally submitted with the code change.

Staff Analysis: In accordance with Section 3.6.3.1 of ICC Council Policy 28, the new referenced standard IAPMO Z124.XX Toilet Partitions, must be completed and readily available prior to the Public Comment Hearing in order for this public comment to be considered.

Public Comment# 2350

P42-21

Proposed Change as Submitted

Proponents: Erica Spayd, Warby Parker, representing Self

2021 International Plumbing Code

Revise as follows:

410.2 Small occupancies. Drinking fountains shall not be required for an occupant load of ~~15~~ 30 or fewer.

Reason: Drinking fountains are underutilized fixtures that take up valuable space and resources in small occupancies. The California Plumbing Code, which offers a progressive approach to fixture counts, limits the drinking fountain requirement to occupant loads above 30, and serves as a proven test for the success of this proposed revision.
Further, given the increasing rate of vacancy in retail spaces across the country due to the ongoing COVID-19 pandemic, revising cumbersome restrictions like this could allow new businesses to open more quickly and with less expense, contributing positively to our nation's economic recovery.

Bibliography: California Building Code 2019, Section 415.2.

Cost Impact: The code change proposal will decrease the cost of construction
$5,000-$6,000 for occupant loads of 16-30.

P42-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: There is no supporting data for lessening occupants access to drinking water. (13-1)

P42-21

Individual Consideration Agenda

Public Comment 1:

Proponents: Eirene Knott, representing Metropolitan Kansas City Chapter of the ICC (eirene.knott@brrarch.com) requests As Submitted

Commenter's Reason: The committee's reason for disapproval was that there was essentially no justification from the proponent in lessening the occupants access to drinking water.
For those not familiar with the California Plumbing Code, they utilized a separate occupant load factor when determining plumbing fixture counts. For mercantile, they use a value of 200 square feet per person. So to have an occupant load of 30 or fewer would require that a space be no more than 6,000 square feet.

If we apply the occupant load factor of retail to the same size store under the IBC, that same 6,000 square foot retail space would result in an occupant load of 100, which I would agree would be a stretch to not require a drinking fountain.

However, an occupant load of 30 for a retail setting under the IBC would be limited to 1800 square feet, which would be a fairly tiny facility. Under most occupant load conditions, 30 occupants would only require one means of egress, which would imply it is a relatively small space. The California Plumbing Code recognizes this and allows for tenants with an occupant load of 30 or less to not require a drinking fountain.

Bibliography: 2019 California Plumbing Code, Table A and Section 415.2

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction
This would reduce the construction cost as the drinking fountain and plumbing associated with it in a small tenant space could be removed.

P44-21

Proposed Change as Submitted

Proponents: Eirene Knott, BRR Architecture, representing Metropolitan Kansas City Chapter of the ICC (eirene.knott@brrarch.com)

2021 International Plumbing Code

Revise as follows:

410.4 Substitution. Where restaurants or other establishments providing food provide drinking water in a container free of charge, drinking fountains shall not be required in those ~~restaurants~~ establishments. In other *occupancies* where three or more drinking fountains are required, *water dispensers* shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains.

Reason: Many convenience stores offer water free of charge through the use of a beverage dispenser. These stores will also have food available for purchase, which makes them comparable to a restaurant, though it may be grab and go.
These establishments should not be penalized by having to provide an additional drinking fountain when they have the ability to provide water to their customers.

Cost Impact: The code change proposal will decrease the cost of construction
This proposal could decrease the cost of construction as drinking fountains would not need to be provided in an establishment that already offers water free of charge through a beverage dispenser.

P44-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Most convenience stores fall under the 15 persons occupant load. The language is too broad for other applications. This could be abused in large stores. (14-0)

P44-21

Individual Consideration Agenda

Public Comment 1:

IPC: 410.4, 410.4.1 (New), 410.4.2 (New), 410.4.3 (New)

Proponents: Eirene Knott, representing Metropolitan Kansas City Chapter of the ICC (eirene.knott@brrarch.com); Misty Guard, Regulosity LLC, representing Regulosity LLC (misty.guard@regulosity.com) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

410.4 Substitution . ~~Where restaurants or other establishments providing food provide drinking water in a container free of charge, drinking fountains shall not be required in those establishments. In other *occupancies* where three or more drinking fountains are required, *water dispensers* shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains.~~ Drinking fountains are permitted to be substituted per Sections 410.4.1 through 410.4.3 and shall conform to the requirements of Section 403.5.

410.4.1 Restaurants . Where restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants.

410.4.2 Group M Occupancies . Where Group M occupancies provide public beverage dispensing equipment that dispenses water free of charge, drinking fountains shall not be required in those occupancies. Beverage dispensing equipment shall conform to the requirements of Section 420.

410.4.3 Other Occupancies . In other *occupancies* where three or more drinking fountains are required, *water dispensers* shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains.

Commenter's Reason: The committee said that most convenience stores have an occupant load of 15 or less. I don't know where they see convenience stores that small, but the smallest convenience store plan we work with for our clients is at least 3000 square feet, which provides an occupant load of at least 50 people. These convenience stores provide soda fountains which dispense water free of charge. Why do they need to also provide a drinking fountain? In light of Covid-19, most people are now carrying a beverage holder with them, such as a Yeti, and refill it as the opportunity presents. Why do we need to penalize establishments that offer water free of charge which are not classified as a restaurant?
The committee also suggested concern for a situation like having a Starbucks within a Target or Walmart in that the Target or Walmart would not be required to provide the drinking fountains since the Starbucks would meet the proposed exception. Unless that free water is available at all times the Target or Walmart is open, they would not qualify for this exception and would have to provide drinking fountains based on the occupant load of the store.

With the modification in this public comment to reference Section 420, there should be no confusion as to what can be allowed in lieu of a drinking fountain.

By calling out specifically what is permitted in an M occupancy, now the change clearly associates the requirement to be applicable only to that occupancy group.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction
This proposal could decrease the cost of construction as drinking fountains would not need to be provided in places which already offer water free of charge.

Public Comment# 2339

Public Comment 2:

IPC: 410.4, 410.4.1 (New), 410.4.2 (New), 410.4.3 (New)

Proponents: Eirene Knott, representing Metropolitan Kansas City Chapter of the ICC (eirene.knott@brrarch.com); Misty Guard, Regulosity LLC, representing Regulosity LLC (misty.guard@regulosity.com) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

410.4 Substitution . ~~Where restaurants or other establishments providing food provide drinking water in a container free of charge, drinking fountains shall not be required in those establishments. In other *occupancies* where three or more drinking fountains are required, *water dispensers* shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains.~~
Drinking fountains are permitted to be substituted per Sections 410.4.1 through 410.4.1 and shall conform to the requirements of Section 403.5.

410.4.1 Restaurants . Where restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants.

410.4.2 Group M Occupancies . Where Group M occupancies provide public beverage dispensing equipment that dispenses water and a beverage container free of charge, drinking fountains shall not be required in those occupancies.

410.4.3 Other Occupancies . In other *occupancies* where three or more drinking fountains are required, *water dispensers* shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains.

Commenter's Reason: The committee said that most convenience stores have an occupant load of 15 or less. I don't know where they see convenience stores that small, but the smallest convenience store plan we work with for our clients is at least 3000 square feet, which provides an occupant load of at least 50 people. These convenience stores provide soda fountains which dispense water free of charge. Why do they need to also provide a drinking fountain? In light of Covid-19, most people are now carrying a beverage holder with them, such as a Yeti, and refill it as the opportunity presents. Why do we need to penalize establishments that offer water free of charge which are not classified as a restaurant?
The committee also suggested concern for a situation like having a Starbucks within a Target or Walmart in that the Target or Walmart would not be required to provide the drinking fountains since the Starbucks would meet the proposed exception. Unless that free water is available at all times the Target or Walmart is open, they would not qualify for this exception and would have to provide drinking fountains based on the occupant load of the store.

With the modification in this public comment to reference Section 420, there should be no confusion as to what can be allowed in lieu of a drinking fountain.

By calling out specifically what is permitted in an M occupancy, now the change clearly associates the requirement to be applicable only to that

occupancy group.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction
The proposal could decrease the cost of construction as drinking fountains would not need to be provided in places which already offer water free of charge.

Public Comment# 2477

P46-21

Proposed Change as Submitted

Proponents: Jason Shank, ASSE International, representing ASSE International (jshank@plumbers55.com)

2021 International Plumbing Code

Revise as follows:

412.10 Head shampoo sink faucets. Head shampoo sink faucets shall be supplied with hot water that is limited to not more than 120°F (49°C). Each faucet shall have integral check valves to prevent crossover flow between the hot and cold water supply connections. The means for regulating the maximum temperature shall be one of the following:

1. A limiting device conforming to ASSE 1070/ASME A112.1070/CSA B125.70.
2. A water heater conforming to ASSE ~~1082~~ 1084.
3. A temperature-actuated, flow-reduction device conforming to ASSE 1062.

Reason: ASSE 1082 is designed for the following - This standard is for water heaters that control the outlet temperature to specific limits and are installed within a hot water distribution system but not at point-of-use.
Being this code section is in regards to point of use the ASSE 1082 is the wrong application. The correct application is the ASSE 1084 which is designed for the following - Water heaters covered by this standard have a cold water inlet connection, a means of heating the water, a means of controlling the water temperature, a means of limiting the temperature to a maximum of 120 °F (48.9 °C), and have an outlet connection to connect to downstream fixture fittings.
This water heater is intended to supply tempered water at point of use in order to reduce and control the risks of scalding. This water heater is not intended to limit thermal shock. This water heater is not a substitute for an automatic compensative valve complying with ASSE 1016 / ASME A112.1016 / CSA B125.16.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The change still is requiring a TLD.

P46-21

Public Hearing Results

Committee Action: **As Modified**

Committee Modification:

412.10 Head shampoo sink faucets. Head shampoo sink faucets shall be supplied with hot water that is limited to not more than 120°F (49°C). Each faucet shall have integral check valves to prevent crossover flow between the hot and cold water supply connections. The means for regulating the maximum temperature shall be one of the following:

1. A limiting device conforming to ASSE 1070/ASME A112.1070/CSA B125.70.
2. A water heater conforming to ASSE 1082 or 1084.
3. A temperature-actuated, flow-reduction device conforming to ASSE 1062.

Committee Reason: For the modification: An ASSE 1082 water heater is not limited to serving multiple shampoo sinks. (14-0)
For the proposal As Modified: Both types of water heaters are acceptable for the application. (14-0)

P46-21

Individual Consideration Agenda

Public Comment 1:

Proponents: Jason Shank, representing ASSE International (jshank@plumbers55.com) requests As Submitted

Commenter's Reason: P46-21 should be approved as submitted and not modified to include ASSE 1082. The ASSE 1082 and 1084 standards are developed by industry experts using the ANSI process. Both standards were developed by 31 industry experts and was subjected to an ANSI public review period.
The ASSE 1082 – Water Heaters with Integral Temperature Control Devices for Hot Water Distribution Systems has the following scope. The standard is for water heaters that control the outlet temperature to specific limits and are installed within a hot water distribution system but not at point of use. Head shampoo sink faucets are point of use fitting therefore this standard is not appropriate. The ASSE 1082 scope defines the outlet temperature range to be 105 degrees F to **125 degrees F**. However, Section 412.10 of the IPC limits the hot water to a maximum of **120 degrees F**. There are no assurances that products compliant to ASSE 1082 can meet this code requirement.

The ASSE 1084 – Water Heaters with Temperature Limiting Capacity have the following scope.This water heater is intended to supply tempered water at a point of use to reduce and control the risks of scalding. This water heater is not intended to limit thermal shock.While both standards require water heaters to pass the following tests - maximum flow and conditioning test, temperature control test; the 1084 also requires the pressure and temperature variation test. The purpose of the 1084 pressure and temperature variation test is to determine whether the outlet temperature is maintained within a set temperature and to a maximum of 120 degrees when the inlet temperature and pressure are varied. After the initial 5 seconds following the decrease in flow rate, the outlet temperature shall not exceed 120 degrees. During the linear increase in water temperature, the outlet water temperature shall not exceed 120 degrees. The 1082 requires no such test which means there is no proven scald limiting protection to limit the outlet temperature to a maximum of 120 degrees.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
The net effect of the public comment and code change proposal will not add to the cost of construction. The ASSE 1084 listed water heaters will be able to provide hot water with temperature control and scald protection. The installation of the 1082 heater would still require the installation of an ASSE 1070 valve to provide scald protection to the end user.

Public Comment# 2593

P48-21

Proposed Change as Submitted

Proponents: Jason Shank, ASSE International, representing ASSE International

2021 International Plumbing Code

Revise as follows:

412.5 Bathtub and whirlpool bathtub valves. Bathtubs and whirlpool bathtub valves shall have or be supplied by a water-temperature-limiting device that conforms to ASSE 1070/ASME A112.1070/CSA B125.70 or by a water heater complying with ~~ASSE 1082 or~~ ASSE 1084, except where such valves are combination tub/shower valves in accordance with Section 412.3. The water-temperature-limiting device required by this section shall be equipped with a means to limit the maximum setting of the device to 120°F (49°C), and, where adjustable, shall be field adjusted in accordance with the manufacturer's instructions to provide hot water at a temperature not to exceed 120°F (49°C). Access shall be provided to water-temperature-limiting devices that conform to ASSE 1070/ASME A112.1070/CSA B125.70.

Exception: *Access* shall not be required for nonadjustable water-temperature-limiting devices that conform to ASSE 1070/ASME A112.1070/CSA B125.70 and are integral with a fixture fitting, provided that the fixture fitting itself can be accessed for replacement.

Reason: ASSE 1082 is designed for the following - This standard is for water heaters that control the outlet temperature to specific limits and are installed within a hot water distribution system but not at point-of-use.
ASSE 1082 is not for point of use which is what this section of the Code is addressing.

Bibliography: N/A

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This change will still require an TLD.

P48-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: An ASSE 1082 water heater is appropriate for the application. Also, based on action of P46-21. (14-0)

P48-21

Individual Consideration Agenda

Public Comment 1:

Proponents: Jason Shank, representing ASSE International (jshank@plumbers55.com) requests As Submitted

Commenter's Reason: P48-21 should be approved as submitted. The ASSE 1082 and 1084 standards are developed by industry experts using the ANSI process. Both standards were developed by 31 industry experts and was subjected to an ANSI public review period. The ASSE 1082 – Water Heaters with Integral Temperature Control Devices for Hot Water Distribution Systems has the following scope. The standard is for water heaters that control the outlet temperature to specific limits and are installed within a hot water distribution system but not at point of use. Bathtub and whirlpool bathtub valves are point of use fittings and therefore this standard is not appropriate. The ASSE 1082 scope defines the outlet temperature range to be 105 degrees F to **125 degrees F**. However, Section 412.5 of the IPC limits the hot water to a maximum of **120 degrees F**. There are no assurances that products compliant to ASSE 1082 can meet this code requirement.
The ASSE 1084 – Water Heaters with Temperature Limiting Capacity have the following scope.

This water heater is intended to supply tempered water at a point of use to reduce and control the risks of scalding. This water heater is not intended to limit thermal shock.

While both standards require water heaters to pass the following tests - maximum flow and conditioning test, temperature control test; the 1084 also requires the pressure and temperature variation test. The purpose of the 1084 pressure and temperature variation test is to determine whether the outlet temperature is maintained within a set temperature and to a maximum of 120 degrees when the inlet temperature and pressure are varied.

After the initial 5 seconds following the decrease in flow rate, the outlet temperature shall not exceed 120 degrees. During the linear increase in water temperature, the outlet water temperature shall not exceed 120 degrees. The 1082 requires no such test which means there is no proven scald limiting protection to limit the outlet temperature to a maximum of 120 degrees.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
The net effect of the public comment and code change proposal will not add to the cost of construction. The ASSE 1084 listed water heaters will be able to provide hot water with temperature control and scald protection. The installation of the 1082 heater would still require the installation of an ASSE 1070 valve to provide scald protection to the end user.

Public Comment# 2595

P50-21

Proposed Change as Submitted

Proponents: Jason Shank, ASSE International, representing ASSE International

2021 International Plumbing Code

Revise as follows:

423.3 Footbaths and pedicure baths. The water supplied to specialty plumbing fixtures, such as pedicure chairs having an integral foot bathtub and footbaths, shall be limited to not greater than 120ºF (49ºC) by a water-temperature-limiting device that conforms to ASSE 1070/ASME A112.1070/CSA B125.70 or by a water heater complying with ASSE ~~1082~~ 1084.

Reason: ASSE 1082 is designed for the following - This standard is for water heaters that control the outlet temperature to specific limits and are installed within a hot water distribution system but not at point-of-use. Being this code section is in regards to point of use the ASSE 1082 is the wrong application. The correct application is the ASSE 1084 which is designed for the following - Water heaters covered by this standard have a cold water inlet connection, a means of heating the water, a means of controlling the water temperature, a means of limiting the temperature to a maximum of 120 °F (48.9 °C), and have an outlet connection to connect to downstream fixture fittings. This water heater is intended to supply tempered water at point of use in order to reduce and control the risks of scalding. This water heater is not intended to limit thermal shock. This water heater is not a substitute for an automatic compensative valve complying with ASSE 1016 / ASME A112.1016 / CSA B125.16.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

The change still is requiring a TLD.

P50-21

Public Hearing Results

Committee Action: **As Modified**

Committee Modification:

423.3 Footbaths and pedicure baths. The water supplied to specialty plumbing fixtures, such as pedicure chairs having an integral foot bathtub and footbaths, shall be limited to not greater than 120ºF (49ºC) by a water-temperature-limiting device that conforms to ASSE 1070/ASME A112.1070/CSA B125.70 or by a water heater complying with ASSE 1082 or 1084.

Committee Reason: For the modification: An ASSE 1082 water heater can serve multiple pedicure baths. (12-2)
For the proposal As Modified: Action is consistent with actions on P46-21 and P48-21. (12-2)

P50-21

Individual Consideration Agenda

Public Comment 1:

Proponents: Jason Shank, representing ASSE International (jshank@plumbers55.com) requests As Submitted

Commenter's Reason: P50-21 should be approved as submitted and not modified to include ASSE 1082. The ASSE 1082 and 1084 standards are developed by industry experts using the ANSI process. Both standards were developed by 31 industry experts and was subjected to an ANSI public review period.
The ASSE 1082 – Water Heaters with Integral Temperature Control Devices for Hot Water Distribution Systems has the following scope. The standard is for water heaters that control the outlet temperature to specific limits and are installed within a hot water distribution system but not at point of use. Foot baths and pedicure baths are point of use fittings and therefore this standard is not appropriate. The ASSE 1082 scope defines the outlet temperature range to be 105 degrees F to **125 degrees F**. However, Section 423.3 of the IPC limits the hot water to a maximum of **120 degrees F**. There are no assurances that products compliant to ASSE 1082 can meet this code requirement.

The ASSE 1084 – Water Heaters with Temperature Limiting Capacity have the following scope.

This water heater is intended to supply tempered water at a point of use to reduce and control the risks of scalding. This water heater is not intended to limit thermal shock.

While both standards require water heaters to pass the following tests - maximum flow and conditioning test, temperature control test; the 1084 also requires the pressure and temperature variation test. The purpose of the 1084 pressure and temperature variation test is to determine whether the outlet temperature is maintained within a set temperature and to a maximum of 120 degrees when the inlet temperature and pressure are varied. After the initial 5 seconds following the decrease in flow rate, the outlet temperature shall not exceed 120 degrees. During the linear increase in water temperature, the outlet water temperature shall not exceed 120 degrees. The 1082 requires no such test which means there is no proven scald limiting protection to limit the outlet temperature to a maximum of 120 degrees.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
The net effect of the public comment and code change proposal will not add to the cost of construction. The ASSE 1084 listed water heaters will be able to provide hot water with temperature control and scald protection. The installation of the 1082 heater would still require the installation of an ASSE 1070 valve to provide scald protection to the end user.

Public Comment# 2596

P58-21

Proposed Change as Submitted

Proponents: Erin Coffman, Water Systems Council, representing Water Systems Council

2021 International Plumbing Code

Revise as follows:

602.3.1 Sources. Dependent on geological and soil conditions and the amount of rainfall, individual water supplies are of the following types: drilled well, driven well, dug well, bored well, spring, stream, or cistern. Surface bodies of water and land cisterns shall not be sources of individual water supply unless properly treated by approved means to prevent contamination. Individual water supplies shall be constructed and installed in accordance with the applicable state and local laws. Where such laws do not address all of the requirements set forth in NGWA-01, individual water supplies shall comply with NGWA-01 for those requirements not addressed by state and local laws. Pitless adapters, pitless units, and sanitary well caps shall be installed in accordance with the manufacturer's installation instructions and supported in accordance with the building code. Pitless adapters, pitless units, and sanitary well caps intended to supply drinking water shall comply with ASSE 1093/WSC PAS-97.

Add new text as follows:

602.3.6 Well connections.
Pitless adapters, pitless units, and sanitary well caps shall be installed in accordance with the manufacturer's instructions and supported in accordance with the *International Building Code*. Pitless adapters, pitless units, and sanitary well caps intended to supply drinking water shall comply with ASSE 1093/WSC PAS-97.

Revise as follows:

608.18.7 ~~Cover~~ Covers, pitless adapters, pitless units, and sanitary well caps. Potable water wells shall be equipped with a pitless adapters, pitless units, and sanitary well caps or an overlapping watertight cover at the top of the well casing or pipe sleeve. ~~such that contaminated water or other substances are prevented from entering the well through the annular opening at the top of the well casing, wall or pipe sleeve. Covers shall extend downward not less than 2 inches (51 mm) over the outside of the well casing or wall. A dug well cover shall be provided with a pipe sleeve permitting the withdrawal of the pump suction pipe, cylinder or jet body without disturbing the cover. Where pump sections or discharge pipes enter or leave a well through the side of the casing, the circle of contact shall be watertight.~~

Add new text as follows:

608.18.7.1 Pitless adapters, pitless units, and sanitary well caps.
Pitless adapters, pitless units, and sanitary well caps shall comply with ASSE 1093/WSC PAS-97.

608.18.7.2 Covers.
Covers shall be such that contaminated water or other substances are prevented from entering the well through the annular opening at the top of the well casing, wall, or pipe sleeve. Covers shall extend downward not less than 2 inches (51 mm) over the outside of the well casing or wall. A dug well cover shall be provided with a pipe sleeve that allows for the withdrawal of the pump suction pipe, cylinder, or jet body without disturbing the cover. Where pump sections or discharge pipes enter or leave a well through the side of the casing, the circle of contact shall be watertight.

Add new definition as follows:

PITLESS ADAPTER. A device designed to attach to one or more openings through a well casing. Such devices shall be constructed so as to prevent the entrance of contaminants or pollutants into the well or potable water supply through such opening(s) to conduct water from the well, to protect the water from freezing or extremes of temperature, and to provide access to water system parts within the well.

PITLESS UNIT. An assembly that extends the upper end of the well casing from below the frostline to not less than 12 in (305mm) above grade. Such assemblies shall be constructed to prevent the entrance of contaminants or pollutants into the well or potable water supply, to conduct water from the well, to protect the water from freezing or extremes of temperature, and to provide full access to the well and to water system parts within the well. The assembly shall provide a sanitary well cap for the top terminal of the well.

SANITARY WELL CAP. A device that covers and encloses the upper termination of a pitless unit or the well casing and provides protection to the top, exposed portion of the well casing by being tamper resistant, forming a protective cover from the elements, that allows for atmospheric venting of the well, and being resistant to the entry of vermin or contaminants or pollutants.

Add new standard(s) as follows:

ASSE

ASSE International
18927 Hickory Creek Drive, Suite 220
Mokena, IL 60448

WSC

Water Systems Council
1101 30th St. NW - Suite 500
Washington, DC 20007
USA

WSC Water Systems Council.
ASSE 1093/WSC PAS-97 -2019 Performance Requirements for Pitless Adapters, Pitless Units, and Well Caps

Reason: The current code language does not provide requirements for pitless adapters, pitless units, and sanitary well caps. These are components that are critical to water well supply systems. Requirements are necessary for safety aspects and dependable performance standards.

Bibliography: I do not have any.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The equipment that is currently being installed on projects already complies with the standard. Therefore, requiring compliance to the standard doesn't affect the cost of construction.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ASSE 1093-2019/WSC PAS-97(2019) with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P58-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Section 602.3.1 indicates in accordance with the "building code". What building code? Section 602.3.6 indicates that those items need to be supported in accordance with the IBC. The IBC doesn't have anything specific with respect to these items.
All three new definitions have requirements. Definitions should not contain requirements. Section 608.18.7.1 by itself would have been a good proposal. (13-1)

P58-21

Individual Consideration Agenda

Public Comment 1:

IPC: (New), 608.7.1, ASSE Chapter 15 (New)

Proponents: Terry Burger, representing ASSE International; Erin Coffman, representing Water Systems Council (ecoffman@watersystemscouncil.org) requests As Modified by Public Comment

Replace as follows:

2021 International Plumbing Code

PITLESS ADAPTER . A device designed to attach to one or more openings through a well casing. to provide access to water system parts within the well.

PITLESS UNIT. . An assembly that extends the upper end of the well casing from below the frostline to above grade. Its purpose is to prevent the entrance of contaminants or pollutants into the well water supply, to conduct water from the well, to protect the water from freezing or extremes of temperature, and to provide full access to the well and to water system parts within the well.

SANITARY WELL CAP. . A device that covers and encloses the upper termination of a pitless unit or the well casing to provides protection to the top, exposed portion of the well casing.

608.7.1 Private water supplies . Cross connections between a private water supply and a potable public supply shall be prohibited. Pitless

adapters, pitless units, and sanitary well caps shall comply with ASSE 1093/WSC PAS-97.

ASSE

ASSE International
18927 Hickory Creek Drive, Suite 220
Mokena, IL 60448

ASSE 1093/WSC PAS-97 -2019 Performance Requirements for Pitless Adapters, Pitless Units, and Well Caps

Commenter's Reason: The committee voted to disapprove because they stated that the proposal made reference to IBC for which the reference was invalid. And that the definitions had requirement within them. The committee also recommended that this proposal was better placed in Section 608.18.7.1. The committee's comments and reasons have been taken into consideration to this proposal.
The current code language does not provide requirements for pitless adapters, pitless units, and sanitary well caps. These are components that are critical to water well supply systems. Requirements are necessary for safety aspects and dependable performance standards.

We urge membership approval to prevent inappropriate connection methods which might not be safe.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
These components (that comply with the standard) are what has been used for years. Having the code call out the standard isn't going to cost more as these are the same items that have been installed all along.

Public Comment# 2418

P59-21

Proposed Change as Submitted

Proponents: Chris Haldiman, representing Watts Water Technologies (chris.haldiman@wattswater.com)

2021 International Plumbing Code

Revise as follows:

604.8 Water pressure-reducing valve or regulator. Where static water pressure in the water supply piping ~~within a building~~ exceeds 80 psi (552 kPa) ~~static~~, an *approved-type* strainer and ~~water~~ pressure~~-reducing valve~~ regulator conforming to ASSE 1003 or CSA B356 and NSF 61.~~with strainer~~ shall be installed to reduce the pressure in the building water distribution piping to not greater than 80 psi (552 kPa) static. Pressure regulator sizes equal to or greater than 1 1/2 inches (40mm) shall not require a strainer. For line sizes greater than 3 inches {76 mm), an automatic control such as a pressure regulating valve shall be utilized. Such regulators shall control the pressure to water outlets in the building except where otherwise approved by the code official.

Exception: Service lines to sill cocks and outside hydrants, and main supply risers where pressure from the mains is reduced to 80 psi (552 kPa) or less at individual fixtures.

Reason: Adding of "and NSF61" – For consistency purposes when stating the requirements for components being used in potable water distribution systems. An example of this are 608.12, "Where in contact with potable water intended for drinking water, water tanks, coatings for the inside of tanks and liners for water tanks shall conform to NSF 61."
Adding of "For line sizes greater than 3", an Automatic Control (Pressure Regulating) Valve shall be utilized." – For line sizes 3" or larger, Direct Acting Valves are not cost conducive nor the optimized device for this application. Where direct acting regulators will have volume losses and introduce a turbulent flow path, ACV's will sustain

Cost Impact: The code change proposal will increase the cost of construction
This proposal would require the use of automatic pressure regulators for larger piping designs. This would improve the operating conditions of the system and increase safety from pressure fluctuations.

P59-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The reason statement didn't indicate why a regulator larger than 1-1/2 inches isn't required to have a strainer. The beginning of the last sentence repeats what the original section is requiring and is therefore, redundant. The last part of the last sentence appears to allow the code official to override the requirements of the section but offers no advice for the code official to make that decision. There are 4 inch pressure regulators available so this proposal might eliminate some products that are currently available. (14-0)

P59-21

Individual Consideration Agenda

Public Comment 1:

IPC: 604.8

Proponents: Chris Haldiman, representing Watts Water Technologies (chris.haldiman@wattswater.com) requests As Modified by Public Comment

Replace as follows:

2021 International Plumbing Code

604.8 Water pressure~~-reducing valve or regulator~~ control. Where water pressure within a building exceeds 80 psi (552 kPa) static, an ~~*approved*~~ water pressure-reducing valve that complies with ~~conforming to~~ ASSE 1003 or CSA B356 ~~with strainer~~ shall be installed to reduce the pressure in the building water distribution piping to not greater than 80 psi (552 kPa) static. Such valves shall be provided with a strainer and both the valve and the strainer shall comply with NSF 61.

~~**Exception**~~ **Exceptions:**

1. Where the required size of water pressure-reducing valve is not made, an automatic control valve shall be installed provided that the valve complies with NSF 61 and is *approved*.
2. Service lines to sill cocks and outside hydrants, and main supply risers where pressure from the mains is reduced to 80 psi (552 kPa) or less at individual fixtures.

Commenter's Reason: ASSE Standard 1003 currently only includes sizes ½" through 4", and currently the largest size that is certified is 3". Where building water supply piping sizes exceed 4 inches, the code falls short on what to do. For installations that require the supply piping to be larger than 4", and pressure control is required or needed, the use of parallel water pressure-regulator valves may be required. This is not only expensive but requires more space and increased maintenance costs.
The new exception offers another method of pressure control: an automatic control valve. Such valves are currently available in sizes up to 12 inches. This type of valve is available from numerous manufacturers and has been installed in a variety of commercial and industrial applications needing water pressure control in high flow (and low flow) situations. They are cost effective and easy to adjust and service.

The inclusion of strainers in any water system equipped with any type of pressure control valve prevents clogging of internal ports and damage to mechanisms that could render the valve inoperative (i.e., failure to control high pressures.) This is especially important if piping work is performed upstream of the pressure control valve such as when a public utility system experiences a water main breakage that might allow debris to flow into a building water service. Strainers have the added benefit of protecting backflow prevention assemblies that are downstream of the strainers.

Bibliography: None.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
Having an option for a different method for pressure control where the size of the code-required device does not exist, doesn't impact cost. Where building water pressure control is needed to be installed, the code was not clear on what could be used for the larger sizes not currently addressed in the code.

Public Comment# 2700

P61-21 Part I

Proposed Change as Submitted

Proponents: Lisa Reiheld, Viega LLC, representing Viega LLC (lisa.reiheld@viega.us)

THIS IS A 2 PART PROPOSAL. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC-P&M COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2021 International Plumbing Code

Revise as follows:

TABLE 605.3 WATER SERVICE PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D1527; ASTM D2282
Chlorinated polyvinyl chloride (CPVC) plastic pipe	ASTM D2846; ASTM F441; ASTM F442; CSA B137.6
Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC)	ASTM F2855
Copper or copper-alloy pipe	ASTM B42; ASTM B43; ASTM B302
Copper or copper-alloy tubing (Type K, WK, L, WL, M or WM)	ASTM B75; ASTM B88; ASTM B251; ASTM B447
Cross-linked polyethylene (PEX) plastic pipe and tubing	ASTM F876; AWWA C904; CSA B137.5
Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pipe	ASTM F1281; ASTM F2262; CSA B137.10
Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE)	ASTM F1986
Ductile iron water pipe	AWWA C151/A21.51; AWWA C115/A21.15
Galvanized steel pipe	ASTM A53
Polyethylene (PE) plastic pipe	ASTM D2239; ASTM D3035; AWWA C901; CSA B137.1
Polyethylene (PE) plastic tubing	ASTM D2737; AWWA C901; CSA B137.1
Polyethylene/aluminum/polyethylene (PE-AL-PE) pipe	ASTM F1282; CSA B137.9
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F2769; CSA B137.18
Polypropylene (PP) plastic pipe or tubing	ASTM F2389; CSA B137.11
Polyvinyl chloride (PVC) plastic pipe	ASTM D1785; ASTM D2241; ASTM D2672; CSA B137.3
Stainless steel pipe (Type 304/304L)	ASTM A269/A269M; ASTM A312; ASTM A554; ASTM A778
Stainless steel pipe (Type 316/316L)	ASTM A269/A269M; ASTM A312; ASTM A554; ASTM A778
Stainless steel tubing (Type 304/304L)	ASTM A269; ASTM A312; ASTM A554; ASTM A778
Stainless steel tubing (Type 316/316L)	ASTM A269; ASTM A312; ASTM A554; ASTM A778

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

A554-16 Standard Specification for Welded Stainless Steel Mechanical Tubing

Reason: Adding Stainless Steel tubing to account for both pipe and tubing materials. ASTM A554 Standard Specification for Welded Stainless Steel Mechanical Tubing is equivalent to other standards ASTM A269/A269M; ASTM A312; ASTM A778 already included in this table and should be added to increase the options for materials to be used in water service pipe installations.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Adding an additional standard option for stainless steel pipe to be listed to will not increase or decrease the cost of construction. If anything, it has potential to decrease the cost since this increases the number of suppliers of pipe that can be purchased.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ASTM A554-16 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P61-21 Part I

Public Hearing Results

Committee Action: **As Submitted**

Committee Reason: Stainless steel tubing is indicated in several product standards. (13-0)

Individual Consideration Agenda

Public Comment 1:

IPC: TABLE 605.3

Proponents: Lisa Reiheld, representing Viega LLC (lisa.reiheld@viega.us) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

TABLE 605.3 WATER SERVICE PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D1527; ASTM D2282
Chlorinated polyvinyl chloride (CPVC) plastic pipe	ASTM D2846; ASTM F441; ASTM F442; CSA B137.6
Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC)	ASTM F2855
Copper or copper-alloy pipe	ASTM B42; ASTM B43; ASTM B302
Copper or copper-alloy tubing (Type K, WK, L, WL, M or WM)	ASTM B75; ASTM B88; ASTM B251; ASTM B447
Cross-linked polyethylene (PEX) plastic pipe and tubing	ASTM F876; AWWA C904; CSA B137.5
Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pipe	ASTM F1281; ASTM F2262; CSA B137.10
Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE)	ASTM F1986
Ductile iron water pipe	AWWA C151/A21.51; AWWA C115/A21.15
Galvanized steel pipe	ASTM A53
Polyethylene (PE) plastic pipe	ASTM D2239; ASTM D3035; AWWA C901; CSA B137.1
Polyethylene (PE) plastic tubing	ASTM D2737; AWWA C901; CSA B137.1
Polyethylene/aluminum/polyethylene (PE-AL-PE) pipe	ASTM F1282; CSA B137.9
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F2769; CSA B137.18
Polypropylene (PP) plastic pipe or tubing	ASTM F2389; CSA B137.11
Polyvinyl chloride (PVC) plastic pipe	ASTM D1785; ASTM D2241; ASTM D2672; CSA B137.3
Stainless steel pipe (Type 304/304L)	ASTM A269/A269M; ASTM A312; ~~ASTM A554;~~ ASTM A778
Stainless steel pipe (Type 316/316L)	ASTM A269/A269M; ASTM A312; ~~ASTM A554;~~ ASTM A778
Stainless steel tubing (Type 304/304L)	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778
Stainless steel tubing (Type 316/316L)	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778

Commenter's Reason: Based on IPC Committee feedback and additional comments on other proposals, I suggest removing ASTM A554 from this proposal as it is deemed as a mechanical/structural tubing standard. With this modification, there will be consistency across similar tables in the IMC and IRC as well as other tables that were Accepted as Modified by the IPC Committee.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
Removal of this standard will have no impact on the cost of construction.

Public Comment# 2371

P61-21 Part II

Proposed Change as Submitted

Proponents: Lisa Reiheld, Viega LLC, representing Viega LLC (lisa.reiheld@viega.us)

2021 International Residential Code

Revise as follows:

TABLE P2906.4 WATER SERVICE PIPE

	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D1527; ASTM D2282
Chlorinated polyvinyl chloride (CPVC) plastic pipe	ASTM D2846; ASTM F441; ASTM F442/F442M; CSA B137.6
Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC) plastic pipe	ASTM F2855
Copper or copper-alloy pipe	ASTM B42; ASTM B43; ASTM B302
Copper or copper-alloy tubing (Type K, WK, L, WL, M or WM)	ASTM B75/B75M; ASTM B88; ASTM B251; ASTM B447
Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pipe	ASTM F1281; ASTM F2262; CSA B137.10
Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE) pipe	ASTM F1986
Cross-linked polyethylene (PEX) plastic tubing	ASTM F876; AWWA C904; CSA B137.5
Ductile iron water pipe	AWWA C115/A21.15; AWWA C151/A21.51
Galvanized steel pipe	ASTM A53
Polyethylene/aluminum/polyethylene (PE-AL-PE) pipe	ASTM F1282; CSA B137.9
Polyethylene (PE) plastic pipe	ASTM D2104; ASTM D2239; AWWA C901; CSA B137.1
Polyethylene (PE) plastic tubing	ASTM D2737; AWWA C901; CSA B137.1
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F2769; CSA B137.18
Polypropylene (PP) plastic tubing	ASTM F2389; CSA B137.11
Polyvinyl chloride (PVC) plastic pipe	ASTM D1785; ASTM D2241; ASTM D2672; CSA B137.3
Stainless steel (Type304/304L) pipe	ASTM A269; ASTM A312; ASTM A554; ASTM A778
Stainless steel (Type 316/316L) pipe	ASTM A269; ASTM A312; ASTM A554; ASTM A778
Stainless steel (Type304/304L) tubing	ASTM A269; ASTM A312; ASTM A554; ASTM A778
Stainless steel (Type 316/316L) tubing	ASTM A269; ASTM A312; ASTM A554; ASTM A778

2021 International Plumbing Code

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

A554-16 Standard Specification for Welded Stainless Steel Mechanical Tubing

Reason: Adding Stainless Steel tubing to account for both pipe and tubing materials. ASTM A269/A269M Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service and ASTM A554 Standard Specification for Welded Stainless Steel Mechanical Tubing are equivalent to other standards ASTM A312; ASTM A778 already included in this table and should be added to increase the options for materials to be used in water service pipe installations were corrosion resistance is important.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Adding an additional standard options for stainless steel tubing to be listed to will not increase or decrease the cost of construction. If anything, it has potential to decrease the cost since this increases the options to use tubing in lieu of only pipe.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ASTM A554-16 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P61-21 Part II

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The Committee doesn't see the need for this mechanical tubing for water service applications. (7-4)

P61-21 Part II

Individual Consideration Agenda

Public Comment 1:

IRC: TABLE P2906.4

Proponents: Lisa Reiheld, representing Viega LLC (lisa.reiheld@viega.us) requests As Modified by Public Comment

Modify as follows:

2021 International Residential Code

TABLE P2906.4 WATER SERVICE PIPE

	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D1527; ASTM D2282
Chlorinated polyvinyl chloride (CPVC) plastic pipe	ASTM D2846; ASTM F441; ASTM F442/F442M; CSA B137.6
Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC) plastic pipe	ASTM F2855
Copper or copper-alloy pipe	ASTM B42; ASTM B43; ASTM B302
Copper or copper-alloy tubing (Type K, WK, L, WL, M or WM)	ASTM B75/B75M; ASTM B88; ASTM B251; ASTM B447
Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pipe	ASTM F1281; ASTM F2262; CSA B137.10
Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE) pipe	ASTM F1986
Cross-linked polyethylene (PEX) plastic tubing	ASTM F876; AWWA C904; CSA B137.5
Ductile iron water pipe	AWWA C115/A21.15; AWWA C151/A21.51
Galvanized steel pipe	ASTM A53
Polyethylene/aluminum/polyethylene (PE-AL-PE) pipe	ASTM F1282; CSA B137.9
Polyethylene (PE) plastic pipe	ASTM D2104; ASTM D2239; AWWA C901; CSA B137.1
Polyethylene (PE) plastic tubing	ASTM D2737; AWWA C901; CSA B137.1
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F2769; CSA B137.18
Polypropylene (PP) plastic tubing	ASTM F2389; CSA B137.11
Polyvinyl chloride (PVC) plastic pipe	ASTM D1785; ASTM D2241; ASTM D2672; CSA B137.3
Stainless steel (Type304/304L) pipe	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778
Stainless steel (Type 316/316L) pipe	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778
Stainless steel (Type304/304L) tubing	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778
Stainless steel (Type 316/316L) tubing	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778

Commenter's Reason: This public comment addresses the committee's concerns with the suitability of ASTM A554 as a standard for this code and the reason for disapproval was the addition of ASTM A554. Based on Committee feedback and additional comments, this public comment removes ASTM A554 from this proposal as it is deemed as a mechanical/structural tubing standard. With this modification, there will be consistency across similar tables in the IMC and IPC. P61 Part 1 and P62 Part 1 included the addition of ASTM A269 and were approved by the IPC committee.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
Removal of this standard will have no impact on the cost of construction.

Public Comment# 2399

P62-21 Part I

Proposed Change as Submitted

Proponents: Lisa Reiheld, Viega LLC, representing Viega LLC (lisa.reiheld@viega.us)

THIS IS A 2 PART PROPOSAL. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC-P&M COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2021 International Plumbing Code

Revise as follows:

TABLE 605.4 WATER DISTRIBUTION PIPE

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic pipe and tubing	ASTM D2846; ASTM F441; ASTM F442; CSA B137.6
Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC)	ASTM F2855
Copper or copper-alloy pipe	ASTM B42; ASTM B43; ASTM B302
Copper or copper-alloy tubing (Type K, WK, L, WL, M or WM)	ASTM B75; ASTM B88; ASTM B251; ASTM B447
Cross-linked polyethylene (PEX) plastic tubing	ASTM F876; CSA B137.5
Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pipe	ASTM F1281; ASTM F2262; CSA B137.10
Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE)	ASTM F1986
Ductile iron pipe	AWWA C115/A21.15; AWWA C151/A21.51
Galvanized steel pipe	ASTM A53
Polyethylene/aluminum/polyethylene (PE-AL-PE) composite pipe	ASTM F1282
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F2769; CSA B137.18
Polypropylene (PP) plastic pipe or tubing	ASTM F2389; CSA B137.11
Stainless steel pipe (Type 304/304L)	ASTM A269; ASTM A312; ASTM A554; ASTM A778
Stainless steel pipe (Type 316/316L)	ASTM A269; ASTM A312; ASTM A554; ASTM A778
Stainless steel tubing (Type 304/304L)	ASTM A269; ASTM A312; ASTM A554; ASTM A778
Stainless steel tubing (Type 316/316L)	ASTM A269; ASTM A312; ASTM A554; ASTM A778

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

A554-16 Standard Specification for Welded Stainless Steel Mechanical Tubing

Reason: Adding Stainless Steel tubing to account for both pipe and tubing materials. ASTM A229 and ASTM A554 is equivalent to other standards ASTM A312; ASTM A778 already included in this table and should be added to increase the options for materials to be used in water service pipe installations.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Adding an additional standard option for stainless steel pipe to be listed to will not increase or decrease the cost of construction. If anything, it has potential to decrease the cost since this increases the number of suppliers of pipe that can be purchased.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ASTM A554-16 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P62-21 Part I

Public Hearing Results

Committee Action: **As Submitted**

Committee Reason: The addition will provide more options available to the designer. (13-0)

P62-21 Part I

Individual Consideration Agenda

Public Comment 1:

IPC: TABLE 605.4

Proponents: Lisa Reiheld, representing Viega LLC (lisa.reiheld@viega.us) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

TABLE 605.4 WATER DISTRIBUTION PIPE

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic pipe and tubing	ASTM D2846; ASTM F441; ASTM F442; CSA B137.6
Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC)	ASTM F2855
Copper or copper-alloy pipe	ASTM B42; ASTM B43; ASTM B302
Copper or copper-alloy tubing (Type K, WK, L, WL, M or WM)	ASTM B75; ASTM B88; ASTM B251; ASTM B447
Cross-linked polyethylene (PEX) plastic tubing	ASTM F876; CSA B137.5
Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pipe	ASTM F1281; ASTM F2262; CSA B137.10
Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE)	ASTM F1986
Ductile iron pipe	AWWA C115/A21.15; AWWA C151/A21.51
Galvanized steel pipe	ASTM A53
Polyethylene/aluminum/polyethylene (PE-AL-PE) composite pipe	ASTM F1282
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F2769; CSA B137.18
Polypropylene (PP) plastic pipe or tubing	ASTM F2389; CSA B137.11
Stainless steel pipe (Type 304/304L)	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778
Stainless steel pipe (Type 316/316L)	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778
Stainless steel tubing (Type 304/304L)	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778
Stainless steel tubing (Type 316/316L)	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778

Commenter's Reason: Based on IPC Committee feedback and additional comments on other proposals, I suggest removing ASTM A554 from this proposal as it is deemed as a mechanical/structural tubing standard. With this modification, there will be consistency across similar tables in the IMC and IRC as well as other tables that were Accepted as Modified by the IPC Committee.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
Removal of this standard will have no impact on the cost of construction.

Public Comment# 2392

P63-21 Part I

Proposed Change as Submitted

Proponents: Lisa Reiheld, Viega LLC, representing Viega LLC (lisa.reiheld@viega.us)

THIS IS A 2 PART PROPOSAL. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC-P&M COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2021 International Plumbing Code

Revise as follows:

TABLE 605.5 PIPE FITTINGS

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic	ASTM D2468
Cast iron	ASME B16.4
Chlorinated polyvinyl chloride (CPVC) plastic	ASSE 1061; ASTM D2846; ASTM F437; ASTM F438; ASTM F439; CSA B137.6
Copper or copper alloy	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.26; ASME B16.51; ASSE 1061; ASTM F1476; ASTM F1548; ASTM F3226
Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE)	ASTM F1986
Fittings for cross-linked polyethylene (PEX) plastic tubing	ASSE 1061; ASTM F877; ASTM F1807; ASTM F1960; ASTM F2080; ASTM F2098; ASTM F2159; ASTM F2434; ASTM F2735; CSA B137.5
Fittings for polyethylene of raised temperature (PE-RT) plastic tubing	ASSE 1061; ASTM D3261; ASTM F1807; ASTM F2098; ASTM F2159; ASTM F2735; ASTM F2769; CSA B137.18
Gray iron and ductile iron	ASTM F1476; ASTM F1548; AWWA C110/A21.10; AWWA C153/A21.53;
Insert fittings for polyethylene/aluminum/polyethylene (PE-AL-PE) and cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX)	ASTM F1281; ASTM F1282; ASTM F1974; CSA B137.9; CSA B137.10
Malleable iron	ASME B16.3
Metal (brass) insert fittings for polyethylene/aluminum/polyethylene (PE-AL-PE) and cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX)	ASTM F1974
Polyethylene (PE) plastic pipe	ASTM D2609; ASTM D2683; ASTM D3261; ASTM F1055; CSA B137.1
Polypropylene (PP) plastic pipe or tubing	ASTM F2389; CSA B137.11
Polyvinyl chloride (PVC) plastic	ASTM D2464; ASTM D2466; ASTM D2467; CSA B137.2; CSA B137.3
Stainless steel (Type 304/304L)	ASTM A269; ASTM A312; ASTM A554; ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Stainless steel (Type 316/316L)	ASTM A269; ASTM A312; ASTM A554; ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Steel	ASME B16.9; ASME B16.11; ASME B16.28; ASTM F1476; ASTM F1548; ASTM F3226

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

A554-16 Standard Specification for Welded Stainless Steel Mechanical Tubing

Reason: ASTM A269 and A554 are standards for Stainless tubing equivalent with existing ASTM A312 and A778 standards and should be included to allow for additional material standards. ASTM F3226 *Standard Specification for Metallic Press-Connect Fittings for Piping and Tubing Systems* is equivalent to other standards already listed for this material, is included for other materials in this table, and should be added to Steel to increase the options for materials to be used in water supply fitting installations.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Adding an additional standard option for steel pipe fittings to be listed to will not increase or decrease the cost of construction. If anything, it has potential to decrease the cost since this increases the number of suppliers of fittings that can be purchased.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ASTM A554-16 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed standard ASTM A554 is for "ornamental and structural and exhaust applications". This is inappropriate for plumbing piping. (11-2)

P63-21 Part I

Individual Consideration Agenda

Public Comment 1:

IPC: TABLE 605.5

Proponents: Lisa Reiheld, representing Viega LLC (lisa.reiheld@viega.us) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

TABLE 605.5 PIPE FITTINGS

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic	ASTM D2468
Cast iron	ASME B16.4
Chlorinated polyvinyl chloride (CPVC) plastic	ASSE 1061; ASTM D2846; ASTM F437; ASTM F438; ASTM F439; CSA B137.6
Copper or copper alloy	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.26; ASME B16.51; ASSE 1061; ASTM F1476; ASTM F1548; ASTM F3226
Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE)	ASTM F1986
Fittings for cross-linked polyethylene (PEX) plastic tubing	ASSE 1061; ASTM F877; ASTM F1807; ASTM F1960; ASTM F2080; ASTM F2098; ASTM F2159; ASTM F2434; ASTM F2735; CSA B137.5
Fittings for polyethylene of raised temperature (PE-RT) plastic tubing	ASSE 1061; ASTM D3261; ASTM F1807; ASTM F2098; ASTM F2159; ASTM F2735; ASTM F2769; CSA B137.18
Gray iron and ductile iron	ASTM F1476; ASTM F1548; AWWA C110/A21.10; AWWA C153/A21.53;
Insert fittings for polyethylene/aluminum/polyethylene (PE-AL-PE) and cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX)	ASTM F1281; ASTM F1282; ASTM F1974; CSA B137.9; CSA B137.10
Malleable iron	ASME B16.3
Metal (brass) insert fittings for polyethylene/aluminum/polyethylene (PE-AL-PE) and cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX)	ASTM F1974
Polyethylene (PE) plastic pipe	ASTM D2609; ASTM D2683; ASTM D3261; ASTM F1055; CSA B137.1
Polypropylene (PP) plastic pipe or tubing	ASTM F2389; CSA B137.11
Polyvinyl chloride (PVC) plastic	ASTM D2464; ASTM D2466; ASTM D2467; CSA B137.2; CSA B137.3
Stainless steel (Type 304/304L)	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Stainless steel (Type 316/316L)	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Steel	ASME B16.9; ASME B16.11; ASME B16.28; ASTM F1476; ASTM F1548; ASTM F3226

Commenter's Reason: This public comment addresses the committee's concerns with the suitability of ASTM A554 as a standard for this code and the reason for disapproval was the addition of ASTM A554. Based on Committee feedback and additional comments, this public comment removes ASTM A554 from this proposal as it is deemed as a mechanical/structural tubing standard. With this modification, there will be consistency across similar tables in the IMC and IRC. P61 Part 1 and P62 Part 1 included the addition of ASTM A269 and were approved by the committee. ASTM F3226 is already included as a standard for Copper and Stainless materials in this table and should be included for Steel as well as the material is covered in the scope of this standard and is performance tested as other alloys in the standard.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
Removal of this standard will have no impact on the cost of construction.

Public Comment# 2395

NOTE: P63-21 PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P63-21 Part II

Proposed Change as Submitted

Proponents: Lisa Reiheld, Viega LLC, representing Viega LLC (lisa.reiheld@viega.us)

2021 International Residential Code

Revise as follows:

TABLE P2906.6 PIPE FITTINGS

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic	ASTM D2468
Cast iron	ASME B16.4
Chlorinated polyvinyl chloride (CPVC) plastic	ASSE 1061; ASTM D2846; ASTM F437; ASTM F438; ASTM F439; CSA B137.6
Copper or copper alloy	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.26; ASME B16.51; ASSE 1061; ASTM F3226
Cross-linked polyethylene/aluminum/high-density polyethylene (PEX-AL-HDPE)	ASTM F1986
Fittings for cross-linked polyethylene (PEX) plastic tubing	ASSE 1061; ASTM F877; ASTM F1807; ASTM F1960; ASTM F2080; ASTM F2098; ASTM F2159; ASTM F2434; ASTM F2735; CSA B137.5
Gray iron and ductile iron	AWWA C110/A21.10; AWWA C153/A21.53
Malleable iron	ASME B16.3
Insert fittings for Polyethylene/aluminum/polyethylene (PE-AL-PE) and cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX)	ASTM F1281; ASTM F1282; ASTM F1974; CSA B137.9; CSA B137.10
Polyethylene (PE) plastic	ASTM D2609; CSA B137.1
Fittings for polyethylene of raised temperature (PE-RT) plastic tubing	ASSE 1061; ASTM D2683; ASTM D3261; ASTM F1055; ASTM F1807; ASTM F2098; ASTM F2159; ASTM F2735; ASTM F2769; CSA B137.18
Polypropylene (PP) plastic pipe or tubing	ASTM F2389; CSA B137.11
Polyvinyl chloride (PVC) plastic	ASTM D2464; ASTM D2466; ASTM D2467; CSA B137.2; CSA B137.3
Stainless steel (Type 304/304L) pipe	ASTM A269; ASTM A312; ASTM A554; ASTM A778 ; ASTM F3226
Stainless steel (Type 316/316L) pipe	ASTM A269; ASTM A312; ASTM A554; ASTM A778; ASTM F3226
Steel	ASME B16.9; ASME B16.11; ASME B16.28; ASTM F3226

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

A554-16 Standard Specification for Welded Stainless Steel Mechanical Tubing

Reason: ASTM A269 and A554 are proposed Stainless Steel standards that are included in other nationally recognized codes and are commonly used in potable water applications. ASTM F3226 *Standard Specification for Metallic Press-Connect Fittings for Piping and Tubing Systems,* includes Steel and Stainless steel alloy, is currently included for copper and copper alloy in this table, and should be added to the others to increase the options for materials to be used in water supply fitting installations.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
ASTM A269, A554, and F3226 are additional optional standards to which press-connect fittings can be constructed and/or listed to. By providing the additional proposed standards, fittings made from these materials offer additional options for the specifier and/or installer with no additional cost impact as they are optional and not mandatory standard requirements.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ASTM A554-16 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P63-21 Part II

Public Hearing Results

Committee Action: **As Modified**

Committee Modification:

TABLE P2906.6 PIPE FITTINGS	
Stainless steel (Type 304/304L) pipe	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778; ASTM F3226
Stainless steel (Type 316/316L) pipe	ASTM A269; ASTM A312; ~~ASTM A554;~~ ASTM A778; ASTM F3226

Committee Reason: For the modification: The standard is not appropriate for water distribution piping material.
For the proposal as modified: This adds another option for water distribution piping. (11-0)

P63-21 Part II

P68-21 Part I

Proposed Change as Submitted

Proponents: Lisa Reiheld, Viega LLC, representing Viega LLC (lisa.reiheld@viega.us)

THIS IS A 2 PART PROPOSAL. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC-P&M COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2021 International Plumbing Code

Revise as follows:

TABLE 605.7 VALVES

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic	ASME A112.4.14; ASME A112.18.1/CSA B125.1; ASTM F1970; CSA B125.3; IAPMO Z1157; MSS SP-122
Copper or copper alloy	ASME A112.4.14; ASME A112.18.1/CSA B125.1; ASME B16.34; CSA B125.3; IAPMO Z1157; MSS SP-67; MSS SP-80; MSS SP-110; MSS SP-139
Cross-linked polyethylene (PEX) plastic	ASME A112.4.14; ASME A112.18.1/CSA B125.1; CSA B125.3; IAPMO Z1157; NSF 359
Gray iron and ductile iron	AWWA C500; AWWA C504; AWWA C507; IAPMO Z1157; MSS SP-67; MSS SP-70; MSS SP-71; MSS SP-72; MSS SP-78
Polypropylene (PP) plastic	ASME A112.4.14; ASTM F2389; IAPMO Z1157
Polyvinyl chloride (PVC) plastic	ASME A112.4.14; ASTM F1970; IAPMO Z1157; MSS SP-122
Stainless steel (Type 304/304L)	IAPMO Z1157
Stainless steel (Type 316/316L)	IAPMO Z1157

Reason: Adding line items for Stainless steel pipe (Type 304/304L) and Stainless steel pipe (Type 316/316L) to make the table reflective of what is currently available in the market and widely used in commercial applications. Including IAPMO Z1157 *Ball Valves* as an appropriate standard which is equivalent to other standards already included in this table as well as already listed with other materials and should be added to both Stainless steel pipe (Type 304/304L) and Stainless steel pipe (Type 316/316L) to increase the options for valves to be used in water supply installations.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Adding an additional standard option for stainless steel valves to be listed to will not increase or decrease the cost of construction. If anything, it has potential to decrease the cost since this increases the number of suppliers of valves that can be purchased.

P68-21 Part I

Public Hearing Results

Committee Action: **As Submitted**

Committee Reason: The Committee agreed with the published reason statement. (14-0)

P68-21 Part I

Individual Consideration Agenda

Public Comment 1:

IPC: TABLE 605.7

Proponents: Lisa Reiheld, representing Viega LLC (lisa.reiheld@viega.us) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

TABLE 605.7 VALVES

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic	ASME A112.4.14; ASME A112.18.1/CSA B125.1; ASTM F1970; CSA B125.3; IAPMO Z1157; MSS SP-122
Copper or copper alloy	ASME A112.4.14; ASME A112.18.1/CSA B125.1; ASME B16.34; CSA B125.3; IAPMO Z1157; MSS SP-67; MSS SP-80; MSS SP-110; MSS SP-139
Cross-linked polyethylene (PEX) plastic	ASME A112.4.14; ASME A112.18.1/CSA B125.1; CSA B125.3; IAPMO Z1157; NSF 359
Gray iron and ductile iron	AWWA C500; AWWA C504; AWWA C507; IAPMO Z1157; MSS SP-67; MSS SP-70; MSS SP-71; MSS SP-72; MSS SP-78
Polypropylene (PP) plastic	ASME A112.4.14; ASTM F2389; IAPMO Z1157
Polyvinyl chloride (PVC) plastic	ASME A112.4.14; ASTM F1970; IAPMO Z1157; MSS SP-122
Stainless steel (Type 304/304L)	IAPMO Z1157, ASME A112.4.14
Stainless steel (Type 316/316L)	IAPMO Z1157, ASME A112.4.14

Commenter's Reason: Add ASME A112.4.14 *Manually Operated Valves for Use in Plumbing Systems,* to Stainless Steel 304/304L and 316/316L in this table as this standard covers valves in stainless steel as well as other materials already covered by ASME A112.4.14 in this table.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
Adding this standard already included in this table for other materials does not increase or decrease the cost.

Public Comment# 2398

P68-21 Part II

Proposed Change as Submitted

Proponents: Lisa Reiheld, Viega LLC, representing Viega LLC (lisa.reiheld@viega.us)

2021 International Residential Code

Revise as follows:

TABLE P2903.9.4 VALVES

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic	ASME A112.4.14, ASME A112.18.1/CSA B125.1, ASTM F1970, CSA B125.3, MSS SP-122
Copper or copper alloy	ASME A112.4.14, ASME A112.18.1/CSA B125.1, ASME B16.34, CSA B125.3, IAPMO Z1157, MSS SP-67, MSS SP-80, MSS SP-110, MSS SP-139
Gray and ductile iron	ASTM A126, AWWA C500, AWWA C504, AWWA C507, MSS SP-42, MSS SP-67, MSS SP-70, MSS SP-71, MSS SP-72, MSS SP-78
Cross-linked polyethylene (PEX) plastic	ASME A112.4.14, ASME A112.18.1/CSA B125.1, CSA B125.3, IAPMO Z1157, NSF 359
Polypropylene (PP) plastic	ASME A112.4.14, ASTM F2389
Polyvinyl chloride (PVC) plastic	ASME A112.4.14, ASTM F1970, MSS SP-122
Stainless Steel	IAPMO Z1157

Add new standard(s) as follows:

IAPMO

IAPMO Group
4755 E. Philadelphia Street
Ontario, CA 91761-USA

Z1157-2014e1 Ball Valves

Reason: The proposed IAPMO Z1157 ANSI accredited standard covers ball valves NPS-1/8 to NPS-4, with minimum rated working pressures of 125psi at 73°F, intended for use in water supply and distribution systems, and specifies requirements for materials, physical characteristics, performance, testing, and markings. The proposed standard is currently referenced in other nationally recognized codes such as the IPC and will provide the user the opportunity to choose additional valves listed to this standard for these applications.
Stainless steel material is proposed to be added for applications where stainless steel pipe, tubing and fittings are necessary for corrosion resistance. The proposed stainless steel standards are also referenced in other nationally recognized codes and are commonly used for potable water distribution and hydronic applications.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The addition of this standard into the IRC does not increase or decrease the cost of construction, but allows for an additional option for selecting valves that are listed for use in these applications. The inclusion of this standard does not mandate the use of an IAPMO Z1157 listed ball valve, it provides it as an option. Adding Stainless Steel as an option does not impact the cost but provides an additional material option for the specifier and/or installer.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, IAPMO Z1157-2014e1 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P68-21 Part II

Public Hearing Results

Committee Action: **As Submitted**

Committee Reason: The Committee agreed with the published reason statement. (11-0)

P68-21 Part II

Individual Consideration Agenda

Public Comment 1:

IRC: TABLE P2903.9.4

Proponents: Lisa Reiheld, representing Viega LLC (lisa.reiheld@viega.us) requests As Modified by Public Comment

Modify as follows:

2021 International Residential Code

TABLE P2903.9.4 VALVES

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic	ASME A112.4.14, ASME A112.18.1/CSA B125.1, ASTM F1970, CSA B125.3, MSS SP-122
Copper or copper alloy	ASME A112.4.14, ASME A112.18.1/CSA B125.1, ASME B16.34, CSA B125.3, IAPMO Z1157, MSS SP-67, MSS SP-80, MSS SP-110, MSS SP-139
Gray and ductile iron	ASTM A126, AWWA C500, AWWA C504, AWWA C507, MSS SP-42, MSS SP-67, MSS SP-70, MSS SP-71, MSS SP-72, MSS SP-78
Cross-linked polyethylene (PEX) plastic	ASME A112.4.14, ASME A112.18.1/CSA B125.1, CSA B125.3, IAPMO Z1157, NSF 359
Polypropylene (PP) plastic	ASME A112.4.14, ASTM F2389
Polyvinyl chloride (PVC) plastic	ASME A112.4.14, ASTM F1970, MSS SP-122
Stainless Steel	IAPMO Z1157, ASME A112.4.14

Commenter's Reason: Add ASME A112.4.14 *Manually Operated Valves for Use in Plumbing Systems*, to Stainless Steel in this table as the standard covers valves in stainless steel as well as other materials already covered by ASME A112.4.14 in this table.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
Adding this standard already included in this table for other materials does not increase or decrease the cost.

Public Comment# 2400

P85-21

Proposed Change as Submitted

Proponents: Guy McMann, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2021 International Plumbing Code

Revise as follows:

606.1 Location of full-open valves. *Full-open valves* shall be installed in the following locations:

1. On the building water service pipe from the public water supply near the curb.
2. On the water distribution supply pipe at the entrance into the structure.

    2.1. In multiple-tenant buildings, three stories and fewer, where a common water supply piping system is installed to supply other than one- and two-family dwellings, a main shutoff valve shall be provided for each tenant.

3. On the discharge side of every water meter.
4. On the base of every water riser pipe in occupancies other than multiple-family residential *occupancies* that are two stories or less in height and in one- and two-family residential *occupancies*.
5. On the top of every water down-feed pipe in *occupancies* other than one- and two-family residential *occupancies*.
6. On the entrance to every water supply pipe to a dwelling unit, except where supplying a single fixture equipped with individual stops.
7. On the water supply pipe to a gravity or pressurized water tank.
8. On the water supply pipe to every water heater.

Reason: This new language clarifies that this was intended to apply to smaller strip malls and the like. It was not intended to apply to high rise buildings as the text suggests.

Cost Impact: The code change proposal will decrease the cost of construction
This language will eliminate the need for high rise building to have separate shutoffs.

P85-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The choice of 3 stories appears to be arbitrary. There isn't any indication that this exception was originally about strip malls. The committee believes that each tenant space should have a shutoff valve. (11-3)

P85-21

Individual Consideration Agenda

Public Comment 1:

IPC: 606.1

Proponents: Julius Ballanco, representing Self (jbengineer@aol.com); Dan Buuck, representing National Association of Home Builders (dbuuck@nahb.org) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

606.1 Location of full-open valves . *Full-open valves* shall be installed in the following locations:

1. On the building water service pipe from the public water supply near the curb.
2. On the water distribution supply pipe at the entrance into the structure.

    2.1. In multiple-tenant buildings, three stories ~~and~~ or less in height ~~fewer~~, where a common water supply piping system is installed to supply other than one- and two-family dwellings, a main shutoff valve shall be provided for each tenant.

3. On the discharge side of every water meter.
4. On the base of every water riser pipe in occupancies other than multiple-family residential *occupancies* that are two stories or less in height and in one- and two-family residential *occupancies*.
5. On the top of every water down-feed pipe in *occupancies* other than one- and two-family residential *occupancies*.
6. On the entrance to every water supply pipe to a dwelling unit, except where supplying a single fixture equipped with individual stops.
7. On the water supply pipe to a gravity or pressurized water tank.
8. On the water supply pipe to every water heater.

Commenter's Reason: Once the plumbing design is four stories or more in height, there is a change from horizontal to vertical piping as a cost savings measure. When the piping is vertical, it is not possible to provide a separate shut off valve for the entire tenant space. This would add considerable cost to the water piping system. In a vertical piping arrangement, often times the fixture between tenants are back to back. Each fixture has a shut off as does the riser. Hence, there is adequate ability to isolate the water supply to plumbing fixtures.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
This Public Comment merely clarifies the original intent of the change.

Public Comment# 2710

P87-21 Part I

Proposed Change as Submitted

Proponents: Edward R. Osann, Natural Resources Defense Council, representing Natural Resources Defense Council (eosann@nrdc.org); sharon bonesteel, salt river project, representing salt river project (sharon.bonesteel@srpnet.com); David Collins, representing The Preview Group, Inc. (dcollins@preview-group.com); Anthony Floyd, City of Scottsdale, representing City of Scottsdale (afloyd@scottsdaleaz.gov)

THIS IS A 2 PART PROPOSAL. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC-P&M COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2021 International Plumbing Code

Revise as follows:

TABLE 604.4 MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

Portions of table not shown remain unchanged.

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY[b]
Shower head[a,c]	2.0 ~~2.5~~ gpm at 80 psi

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. Shower heads shall comply with USEPA WaterSense Specification for Showerheads.

Add new text as follows:

USEPA

United States Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Add new standard(s) as follows:

USEPA WaterSense Specification for Showerheads Version 1.1, July 26, 2018

Reason: Showerheads operating at 2.0 gpm at 80 psi are commonly available and perform well. The U.S. EPA's WaterSense specification of 2.0 gpm was first adopted in 2010, along with criteria that ensure adequate spray pattern, spray force, and minimum flow at pressures less than 80 psi. Based on the most recent reports of participating manufacturers, more than 10,000 models from over 200 brands currently meet all WaterSense specifications, demonstrating the widespread availability and commercial viability of efficient showerheads. One factor in customer acceptance is the growing use of built-in pressure compensation, by which a showerhead will perform at its rated flow, even in buildings or portions of buildings with low water pressure.
For designers of plumbing systems, it is important to match the building's water distribution system with the anticipated performance of fixture fittings such as showerheads. Plumbing systems designed to meet the 2024 IPC should accommodate the nation's ongoing transition to high-efficiency showerheads. Water, energy, and materials will be saved if plumbing distribution systems are right-sized at the time of construction.

The WaterSense label is easily recognizable, and will allow building officials to easily verify compliance with this provision.

There are significant water, energy, and greenhouse gas savings that would accrue nationwide if all newly installed showerheads met the WaterSense specification beginning in 2025, the earliest practical application of the IPC as modified by this proposal. Even accounting for several states that have already require efficient showerheads, the potential for further savings are substantial. These savings, drawn from the supporting analysis of a November 2020 report by the Appliance Standards Awareness Project, would reach the following:

Estimated Savings from Efficient (2.0 gpm) Showerheads Effective 2025

Annual Savings in 2035

- Electricity (TWh) 4.1
- Nat gas & oil (TBtu) 25.8
- Water (billion gallons) 79.5
- Utility bills (billion 2019 $) 1.9
- CO2 reductions (MMT)
- --- Low-carbon grid scenario 1.9
- --- AEO reference case 2.7

Annual Savings in 2050

- Electricity (TWh) 4.1
- Nat gas & oil (TBtu) 25.8
- Water (billion gallons) 79.5
- Utility bills (billion 2019 $) 2.1
- CO2 reductions (MMT)
- --- Low-carbon grid scenario 1.7
- --- AEO reference case 2.5

Cumulative Savings through 2050

- Energy (Quads) 1.3
- Water (billion gallons) 1,669
- Utility bills (billion 2019 $) 41.4
- CO2 reductions (MMT)
- --- Low-carbon grid scenario 38.4
- --- AEO reference case 54.8

Cost-effectively reducing unnecessary water use is an integral part of the stated purpose of the International Plumbing Code. As noted in Chapter 1 of the 2021 Edition, "101.3 Purpose. The purpose of this code is to establish minimum requirements to provide a reasonable level of safety, health, property protection, and general welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems." Nothing is more fundamental to health, safety, property protection, and general welfare than the maintenance of adequate water supplies. Water-saving technologies, such as showerheads meeting EPA WaterSense criteria, help building occupants save water, energy, and utility bills, while helping to ensure that drinking water supplies are maintained at safe and reliable levels, protecting human health and firefighting capability, as well as environmental resources.

Bibliography: U.S. Environmental Protection Agency, *WaterSense Specification for Showerheads, version 1.1*, July 26, 2018, available at <https://www.epa.gov/watersense/showerheads#Showerhead%20Specification>.
Mauer, J. and deLaski, A., *A Powerful Priority: How Appliance Standards Can Help Meet U.S. Climate Goals and Save Consumers Money,* Appliance Standards Awareness Project and American Council for an Energy-Efficient Economy, November 2020, available at <https://appliance-standards.org/document/report-overview-powerful-priority-how-appliance-standards-can-help-meet-us-climate-goals>.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Showerheads that meet WaterSense criteria are widely available and competitively priced.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, USEPA WaterSense Specification for Showerheads Version 1.1, July 26, 2018 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P87-21 Part I

Public Hearing Results

Committee Action: **As Modified**

Committee Modification:

TABLE 604.4 MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY[b]
Shower head[a,c]	2.0 gpm at 80 psi

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. Shower heads shall comply with all requirements for high-efficiency showerheads in ASME A112.18.1/CSA B125.1 ~~USEPA WaterSense Specification for Showerheads~~.

~~USEPA~~
~~WaterSense Specification for Showerheads Version 1.1, July 26, 2018~~

Committee Reason: For the modification: Referencing the Water Sense standard would be a mistake as that non-consensus standard is likely to ratchet down to lower flow rates. It is better to refer to the requirements for high-efficiency showerheads that are already addressed in the current (consensus) ASME product standard. (8-6)
For the proposal As Modified: The Committee agreed with the published reason statement. (8-7)

P87-21 Part I

Individual Consideration Agenda

Public Comment 1:

Proponents: Matt Sigler, Plumbing Manufacturers International, representing Plumbing Manufacturers International; James Kendzel, representing American Supply Association (jkendzel@asa.net); Dan Buuck, representing National Association of Home Builders (dbuuck@nahb.org) requests Disapprove

Commenter's Reason:

- Definitive studies should be conducted first to better understand the impacts on public health and plumbing system performance before the maximum flow rates for plumbing fixtures and fixture fittings are lowered in the IPC.
- Showerheads with a maximum flow rate of 2.0 gpm are already required in ICC's Green Construction Code (IGCC). Lowering the maximum flow rate of showerheads in the IPC will require the maximum flow rate for showerheads to be lowered in the IGCC without any definitive study being conducted.
- The plumbing fixture and fitting water consumption requirements in the plumbing portion of the IPC are based on federal requirements (Energy Policy Act of 1992), and therefore should remain unchanged until federal requirements are changed.
- There is nothing in Federal Law that prevents a state or local jurisdiction from adopting a 2.0 gpm maximum showerhead requirement. In fact, since the Department of Energy waived in 2010 the Federal preemption, which permits states and local jurisdictions to go lower than federal requirements, several states including California, Colorado, Hawaii, Massachusetts, Nevada, New York, Oregon, Vermont and Washington, and local jurisdictions including Chicago, New York City and Washington D.C., have all chosen to lower the flow rate of showerheads sold and/or installed to 2.0 gpm or less.
- Many regions of the country have water pressure that is much lower than 80 psi, in some areas less than half that pressure. Therefore, consumers in such regions where the incoming water pressure is around 40 psi will be required to use showerheads that produce a maximum flow rate closer to 1.5 gpm than 2.0 gpm. Placing this requirement in the model code does not take those regional differences into consideration and can lead to consumer distrust of water conservation efforts.
- People have strong opinions when it comes to showerhead performance. That, and the fact that they are relatively easy to replace, makes the impact of this change in terms of water savings, fairly minimal. The public will not put up with showerhead performance that does not meet their personal preference, and this will cause headaches for both code enforcement and contractors.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
No change to code.

Public Comment# 2389

P87-21 Part II

Proposed Change as Submitted

Proponents: Edward R. Osann, Natural Resources Defense Council, representing Natural Resources Defense Council (eosann@nrdc.org); Anthony Floyd, City of Scottsdale, representing City of Scottsdale (afloyd@scottsdaleaz.gov); sharon bonesteel, salt river project, representing salt river project (sharon.bonesteel@srpnet.com); David Collins, representing The Preview Group, Inc. (dcollins@preview-group.com)

2021 International Residential Code

Revise as follows:

TABLE P2903.2 MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS[b]

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY
Lavatory faucet	2.2 gpm at 60 psi
Shower head[a,c]	2.0 ~~2.5~~ gpm at 80 psi
Sink faucet	2.2 gpm at 60 psi
Water closet	1.6 gallons per flushing cycle

For SI: 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray shall be considered to be a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. Shower heads shall comply with USEPA WaterSense Specificaiton for Showerheads.

Add new text as follows:

USEPA

United States Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Add new standard(s) as follows:

USEPA United States Environmental Protection Agency.
WaterSense Specification for Showerheads Version 1.1, July 26, 2018

Reason: Showerheads operating at 2.0 gpm at 80 psi are commonly available and perform well. The U.S. EPA's WaterSense specification of 2.0 gpm was first adopted in 2010, along with criteria that ensure adequate spray pattern, spray force, and minimum flow at pressures less than 80 psi. Based on the most recent reports of participating manufacturers, more than 10,000 models from over 200 brands currently meet all WaterSense specifications, demonstrating the widespread availability and commercial viability of efficient showerheads. One factor in customer acceptance is the growing use of built-in pressure compensation, by which a showerhead will perform at its rated flow, even in buildings or portions of buildings with low water pressure.
For designers of plumbing systems, it is important to match the building's water distribution system with the anticipated performance of fixture fittings such as showerheads. Plumbing systems designed to meet the 2024 IRC should accommodate the nation's ongoing transition to high-efficiency showerheads. Water, energy, and materials will be saved if plumbing distribution systems are right-sized at the time of construction.

The WaterSense label is easily recognizable, and will allow building officials to easily verify compliance with this provision.

There are significant water, energy, and greenhouse gas savings that would accrue nationwide if all newly installed showerheads met the WaterSense specification beginning in 2025, the earliest practical application of the IRC as modified by this proposal. Even accounting for several states that have already require efficient showerheads, the potential for further savings are substantial. These savings, drawn from the supporting analysis of a November 2020 report by the Appliance Standards Awareness Project, would reach the following:

Estimated Savings from Efficient (2.0 gpm) Showerheads Effective 2025

Annual Savings in 2035

- Electricity (TWh) 4.1
- Nat gas & oil (TBtu) 25.8
- Water (billion gallons) 79.5
- Utility bills (billion 2019 $) 1.9
- CO2 reductions (MMT)
- --- Low-carbon grid scenario 1.9
- --- AEO reference case 2.7

Annual Savings in 2050

- Electricity (TWh) 4.1
- Nat gas & oil (TBtu) 25.8
- Water (billion gallons) 79.5
- Utility bills (billion 2019 $) 2.1

- CO2 reductions (MMT)
- --- Low-carbon grid scenario 1.7
- --- AEO reference case 2.5

Cumulative Savings through 2050

- Energy (Quads) 1.3
- Water (billion gallons) 1,669
- Utility bills (billion 2019 $) 41.4
- CO2 reductions (MMT)
- --- Low-carbon grid scenario 38.4
- --- AEO reference case 54.8

Cost-effectively reducing unnecessary water use and energy consumption is entirely consistent with the purposes of the International Residential Code. As noted in Chapter 1 of the 2021 Edition, section R101.3 states that the purpose of this code is to establish minimum requirements to advance safety, health, and general welfare through affordability and energy conservation, among other objectives. Nothing is more fundamental to health, safety, and general welfare than the maintenance of adequate water supplies and the reduction of GHG emissions. Energy- and water-saving technologies, such as showerheads meeting EPA WaterSense criteria, help building occupants save water, energy, and utility bills, while helping to ensure that drinking water supplies are maintained at safe and reliable levels, protecting human health and firefighting capability, as well as environmental resources.

Bibliography: U.S. Environmental Protection Agency, *WaterSense Specification for Showerheads, version 1.1*, July 26, 2018, available at <https://www.epa.gov/watersense/showerheads#Showerhead%20Specification>.
Mauer, J. and deLaski, A., *A Powerful Priority: How Appliance Standards Can Help Meet U.S. Climate Goals and Save Consumers Money,* Appliance Standards Awareness Project and American Council for an Energy-Efficient Economy, November 2020, available at <https://appliance-standards.org/document/report-overview-powerful-priority-how-appliance-standards-can-help-meet-us-climate-goals>.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Showerheads that meet WaterSense criteria are widely available and competitively priced.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, USEPA WaterSense Specification for Showerheads Version 1.1, July 26, 2018 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P87-21 Part II

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Saving water is a regional issue. Any potential water savings is likely offset by the user taking a longer shower. The IRC is not a water savings code. The green code is the appropriate place for this. The plumbing community continues to be concerned about lowering the flow of water in both distribution systems and drainage systems without some definitive studies being completed to understand the health impacts and drainage system issues. (11-0)

P87-21 Part II

Individual Consideration Agenda

Public Comment 1:

IRC: TABLE P2903.2, ASME (New),

Proponents: Ed Osann, representing Natural Resources Defense Council (eosann@nrdc.org); Sharon Bonesteel, representing salt river project (sharon.bonesteel@srpnet.com); David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests As Modified by Public Comment

Modify as follows:

TABLE P2903.2 MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS[b]

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY
Lavatory faucet	2.2 gpm at 60 psi
Shower head[a,c]	2.0 gpm at 80 psi
Sink faucet	2.2 gpm at 60 psi
Water closet	1.6 gallons per flushing cycle

For SI: 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray shall be considered to be a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. Shower heads shall comply with all requirements for high-efficiency showerheads in ASME A112.18.1-2020/CSA B125.1-2020 ~~USEPA WaterSense Specificaiton for Showerheads Showerheads.~~ .

ASME ~~USEPA~~

American Society of Mechanical Engineers ~~United States Environmental Protection Agency Ariel Rios Building~~
Two Park Avenue ~~1200 Pennsylvania Avenue, NW~~
New York ~~Washington~~ , NY ~~DC~~ 10016-5990 ~~20460~~

~~USEPA~~ ASME ~~USEPA WaterSense Specification for Showerheads Version 1.1, July 26, 2018~~ United States Environmental Protection Agency . Plumbing Supply Fittings, ASME A112.18.1-2020/CSA B125.1-2020 ~~USEPA WaterSense Specification for Showerheads Version 1.1, July 26, 2018~~

Commenter's Reason: The purpose of this proposal as modified by this comment remains the same as that of the original proposal -- to save a significant amount of energy, as well as water, over the life of new or remodeled residential buildings subject to this code. This modification maintains the proposed maximum flow rate of 2.0 gallons per minute as included in the original proposal.
The revision offered in this public comment changes a footnote to specify that showerhead performance requirements must comply with requirements laid out in the current ASME standard, rather than referencing requirements in the US EPA WaterSense specification for showerheads. The substantive requirements remain the same, since the performance requirements for high-efficiency shower heads in the ASME standard are based upon the WaterSense specification. However, in deference to the preference of the ICC to only refer to consensus-based standards in the code, and because the WaterSense specification is not a consensus-based standard, this change is being made.

It should be noted that these changes are the exact same changes contained in a floor modification of Part I of this proposal approved by the IPC Technical Committee in April. So if this public comment is approved, showerhead proposals pending for both the IPC and the IRC (P87-21 Parts I and II, respectively) will be harmonized.

In rejecting the original proposal, the IRC-P Committee took no notice of the widespread availability of high-efficiency showerheads in the market and their likely future use in new homes being built today. While showerheads are easily swapped out, supply piping and mixing valves are seldom replaced. To better ensure the safe and economical use of a high-efficiency showerhead in the future, it is important to specify high-efficiency at the time of original construction, to allow the plumbing designer to right-size the plumbing supply piping and match the rated flow of the mixing valve with the maximum flow of an efficient showerhead.

Some committee members spoke of "taking away choices" and predicted that showers would take longer. Neither of these opinions are an accurate depiction of the range and performance of high-efficiency showerheads on the market today. As for choice, there are over 11,000 models of showerheads that meet the requirements referenced in this proposal. And while specifying a maximum flow rate of 2.0 gallons per minute, the ASME requirements for high-efficiency showerheads include requirements for spray force, spray pattern, and minimum flow rate, all intended to assure good rinsing performance and a satisfying shower experience for users. Additionally, many showerheads today are available with built-in pressure compensation, to ensure that strong and satisfying flows are available to bathers in dwellings with low water pressure.

This proposal, as modified by public comment, will save energy, water, and money for building owners and occupants for years to come. The only "choice" being "taken away" is the choice of a builder to install an energy-wasting showerhead in a new home -- a showerhead that will receive daily use for a decade or more while the nation undertakes many strenuous measures to slow the pace of climate change and avoid catastrophic global warming. This is one clear step to take to avoid the waste of energy and water and protect the supplies of both for future generations.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
This public comment does not change the substance of the original proposal, only referenced standard. All substantive requirements remain the same. There is no impact on the cost of construction. High-efficiency showerheads are available in over 11,000 models and are competitively priced.

Public Comment 2:

Proponents: Dan Buuck, representing National Association of Home Builders (dbuuck@nahb.org); Matt Sigler, representing Plumbing Manufacturers International; James Kendzel, representing American Supply Association (jkendzel@asa.net) requests Disapprove

Commenter's Reason:

- Many regions of the country have water pressure that is much lower than 80 psi, in some areas less than half that pressure. Therefore, consumers in such regions where the incoming water pressure is around 40 psi will be required to use showerheads that produce a maximum flow rate closer to 1.5 gpm than 2.0 gpm. Placing this requirement in the model code does not take those regional differences into consideration and can lead to consumer distrust of water conservation efforts.
- Definitive studies should be conducted first to better understand the impacts on public health and plumbing system performance before the maximum flow rates for plumbing fixtures and fixture fittings are lowered in the IPC.
- Showerheads with a maximum flow rate of 2.0 gpm are already required in ICC's Green Construction Code (IGCC). Lowering the maximum flow rate of showerheads in the IPC will require the maximum flow rate for showerheads to be lowered in the IGCC without any definitive study being conducted.
- The plumbing fixture and fitting water consumption requirements in the plumbing portion of the IPC are based on federal requirements (Energy Policy Act of 1992), and therefore should remain unchanged until federal requirements are changed.
- There is nothing in Federal Law that prevents a state or local jurisdiction from adopting a 2.0 gpm maximum showerhead requirement. In fact, since the Department of Energy waived in 2010 the Federal preemption, which permits states and local jurisdictions to go lower than federal requirements, several states including California, Colorado, Hawaii, Massachusetts, Nevada, New York, Oregon, Vermont and Washington, and local jurisdictions including Chicago, New York City and Washington D.C., have all chosen to lower the flow rate of showerheads sold and/or installed to 2.0 gpm or less.
- People have strong opinions when it comes to showerhead performance. That, and the fact that they are relatively easy to replace, minimizes the impact of this change in terms of water savings. The public will not put up with showerhead performance that does not meet their personal preference, and this will cause headaches for both code enforcement and contractors.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
No change to code.

P88-21

Proposed Change as Submitted

Proponents: Erin Coffman, representing Water Systems Council

2021 International Plumbing Code

Add new text as follows:

606.5.11 Pressurized potable water storage tanks.
Pressurized potable water tanks shall comply with WSC PST.

Add new standard(s) as follows:

WSC

Water Systems Council
1101 30th St. NW - Suite 500
Washington, D.C. 20007
USA

WSC Water Systems Council.
PST 2000/2016 Standard Pressurized Water Storage Tank

Reason: The current code language does not provide requirements for pressurized potable water storage tanks. These pressurized tanks are critical to water well supply systems. Requirements are necessary for safety aspects and dependable performance standards.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The equipment that is currently being installed on projects already complies with the standard. Therefore, requiring compliance to the standard doesn't affect the cost of construction.

P88-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed text is placed under the incorrect section (606.5 water pressure booster systems) and should be located at 608.12.1. The standard only addresses tanks up to a certain size therefore, the proposed text should reflect that limitation. (14-0)

P88-21

Individual Consideration Agenda

Public Comment 1:

IPC: 606.5.11

Proponents: Terry Burger, representing ASSE International; Erin Coffman, representing Water Systems Council (ecoffman@watersystemscouncil.org) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

~~**606.5.11**~~ **608.12.1 Pressurized potable water storage tanks .** Pressurized potable water tanks shall comply with WSC PST.

Commenter's Reason: The committee voted to disapprove because they stated that the proposal made reference to IBC for which the reference was invalid. And that the definitions had requirement within them. The committee also recommended that this proposal was better placed in Section 608.12. The committee's comments and reasons have been taken into consideration to this proposal.
The current code language does not provide requirements for pressurized potable water storage tanks. These pressurized tanks are critical to

water well supply systems. Requirements are necessary for safety aspects and dependable performance standards.

Bibliography: None

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
This comment simply locates the proposed text to a different location in the code and therefore, does not change the original proposal's cost impact statement justification of no cost impact.

Public Comment# 2419

P102-21

Proposed Change as Submitted

Proponents: John Williams, Chair, representing Healthcare Committee (ahc@iccsafe.org)

2021 International Plumbing Code

Delete and substitute as follows:

~~**609.3 Hot water.** *Hot water* shall be provided to supply all of the hospital fixture, kitchen and laundry requirements. Special fixtures and equipment shall have hot water supplied at a temperature specified by the manufacturer. The hot water system shall be installed in accordance with Section 607.~~

609.3 Water. Water shall be provided in health care facilities in accordance with Section 609.3.1 and 609.3.2.

Add new text as follows:

609.3.1 Hand-washing water.
Hand-washing water shall be provided to all dedicated handwashing stations. Dedicated hand-washing stations shall be permitted to be colder than tempered water.

609.3.2 Hot water.
Hot water shall be provided in accordance with Section 607.

Reason: A major source of infection in the healthcare setting is the presence of waterborn contaminants, including Legionella, C-Difficile, and others that thrive in a certain water temperature. In particular, Leginella thrives in higher temperature water. Recently, outbreaks in New York City and other municipalities have highlighted the need to manage water to prevent contamination. For this reason, ASHRAE 188-2015 was implemented for water management plans in the healthcare setting.
Hand washing sinks in ares such as emergency departments and intensive care units are common, and have been required in the FGI Guidelines for many versions. This proposal seeks to make the allowance for cold hand washing in higher acuity areas at handwashing sinks.

The ASHRAE guideline 12 states “Conditions that are favorable for the amplification of legionellae growth include the presence of other bacteria, amoebae and other protozoan hosts, water temperatures of 25-42°C (77-108°F), stagnation, scale, sediment and biofilms.” Tempered water falls within this breeding area that is dangerous for the sensitive populations in health care facilities. Research has shown that “warm or hot” water have not significant impact on levels of bacterial reduction[1].

Common pathogens such as Escherichia coli, Salmonella typhimurium and Klebsiella pneumonia stay alive at temperatures up to 55°C (131°F) for over ten minutes and Staphylococcus aureus would require at least 50 minutes of exposure at a temperature of 60°C (140°F) to be reduced to an immeasurable level. By comparison, just 30 seconds of skin exposure to water heated to 55°C would cause deep second-degree burns, and water heated to 60°C could be tolerated for less than six seconds before causing serious harm.

Bibliography: 1. Carrico AR, Spoden M, Wallston KA, Vandenbergh MP. The Environmental Cost of Misinformation: Why the Recommendation to Use Elevated Temperatures for Handwashing is Problematic. Int J Consum Stud. 2013;37(4):433-441. doi:10.1111/ijcs.12012

Cost Impact: The code change proposal will decrease the cost of construction
Allowing for cold water decrease the cost for piping for to supply hot water and increase operational safety.

P102-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Water colder than tempered water is as cold as the incoming water supply temperature. The Committee cannot see how such a requirement could apply in every region where the code is used. In some areas, winter time incoming cold water is much too cold to hold one's hands under for needed 20 seconds for proper handwashing. The CDC recommends range of 68-75 degrees F if cold water only is to be used for handwashing. Although the intent of reducing Legionella is understood, where is the actual data to show that there are a significant number of cases coming from handwashing stations? (14-0)

Individual Consideration Agenda

Public Comment 1:

Proponents: John Williams, representing Healthcare Committee (ahc@iccsafe.org) requests As Submitted

Commenter's Reason: The purpose of this change is to allow for maximum amount of handwashing options in a hospital setting, while considering optimal operating performance of systems. In addition to the proven effectiveness of handwashing against COVID-19, other pathogens such as Legionella are a primary concern for healthcare facilities. Water systems are constantly being optimized to In addition, use of higher water temperature increases energy consumption, and therefore having alternate options for handwashing would be beneficial from an environmental standpoint. Even if ABHR is used, it is not recommended for use when hands are heavily soiled or greasy, also per the CDC (Show Me the Science – When & How to Use Hand Sanitizer in Community Settings | Handwashing | CDC). From that article, the "CDC recommends washing hands with soap and water whenever possible because handwashing reduces the amounts of all types of germs and chemicals on hands."
Hospital water systems do not directly reflect outside weather conditions in terms of temperature. Systems generally receive water from municipal mains at about 45 degrees minimum. To combat pathogens such as Legionella, CDC recommendations are to maintain cold water temperature at approximately 68 degrees, based on standard ASHRAE 12-2020. This is achieved by simple circulation of the water through the interior system of the hospital, where indoor air temperatures are maintained. Systems heat water, and also chilled water, to operational temperatures, but water from the cold water tap is not extreme in temperature. This dispels the notion of the "Minnesota Effect," which was a concern in the debate and discussion during the Committee Action Hearings on this code change.

Also, during proper handwashing, use of soap accounts for most of the 20 seconds recommended for hand scrubbing. Hands are only under the water briefly at the beginning, to rinse hands, and then at the end to rinse off the soap. Based on CDC observations, found at Frequent Questions About Hand Hygiene | Handwashing | CDC the effectiveness of the soap is not related to water temperature. Per the CDC, on the topic of use of warm water or cold water for handwashing, "[u]se your preferred water temperature – cold or warm – to wash your hands. Warm and cold water remove the same number of germs from your hands. The water helps create soap lather that removes germs from your skin when you wash your hands. Water itself does not usually kill germs; to kill germs, water would need to be hot enough to scald your hands." Other studies suggest that cold water handwashing is actually more effective than warm water handwashing, including elimination of a number of pathogens as noted in *Quantifying the Effects of Water Temperature, Soap Volume, Lather Time, and Antimicrobial Soap as Variables in the Removal of Escherichia coli ATCC 11229 from Hands* (https://meridian.allenpress.com/jfp/article/80/6/1022/200017/Quantifying-the-Effects-of-Water-Temperature-Soap). In brief, "the results of this study indicate that water temperature is not a critical factor for the removal of transient microorganisms from hands."

Regarding data surrounding Legionella testing, ASHRAE 188-2017 requires a testing program to determine growth of Legionella at cooling towers and domestic water systems. The purpose for testing is to treat the water before the pathogen grows to lethal levels. In 2017, as noted in Legionellosis Report 2017 (pa.gov), the top jurisdictions had a total of 7,458 cases of Legionella. The monumental Legionnaires Disease outbreak of 1976 at the Bellevue Stratford Hotel in Philadelphia had 182 reported cases with 29 deaths, for a 15.9% death rate. There have been more recent outbreaks in 2017 at Lenox Hill Hospital in New York, and in relation to the Flint, MI water crisis in 2019. Water testing programs are instituted throughout the united states to avoid such a catastrophic result, so systems can be properly cleaned before they reach an outbreak level.

The complexities of encouraging handwashing, while mitigating pathogens such as Legionella and COVID-19, are a balance that hospitals face regularly. This change to allow cold handwashing affords another tool to successfully create the safest environment possible.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction
Allowing for cold water decrease the cost for piping for to supply hot water and increase operational safety.

Public Comment# 2572

P103-21

Proposed Change as Submitted

Proponents: Jason Shank, ASSE International, representing ASSE International

2021 International Plumbing Code

Revise as follows:

611.1 Design. Point-of-use reverse osmosis drinking water treatment units shall comply with CSA B483.1 or NSF 58. Drinking water treatment units shall meet the requirements of CSA B483.1, NSF 42, NSF 44, NSF 53 or NSF 62.Commercial and food service water treatment equipment shall comply with ASSE 1087.

Add new standard(s) as follows:

ASSE

ASSE International
18927 Hickory Creek Drive, Suite 220
Mokena, IL 60448

1087-18 Commercial and Food Service Water Treatment Equipment Utilizing Drinking Water

Reason: Commercial water treatment equipment is used in point-of-entry (POE) and point-of-use (POU) applications connected to building plumbing to improve the water quality characteristics of potable water. This standard includes testing requirements for components and complete systems. Electrical compliance is not covered by the standard.
Plumbed water treatment units include any device or component, point-of-entry and point-of-use, that is used in a building to improve the quality of the water. This standard covers all water treatment products that are connected to the building's potable water plumbing system. This standard is not intended to cover water treatment products used for process water or wastewater applications. Examples of water treatment equipment include deionizers, filters, softeners, reverse osmosis assemblies, ultraviolet systems, ozone systems, and distillers.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This proposal is adding another standard to chose from for the application.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ASSE 1087-18 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P103-21

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: This additional requirement would only duplicate what is already required by this code section. This isn't any definition for the term "commercial." (14-0)

P103-21

Individual Consideration Agenda

Public Comment 1:

Proponents: Jason Shank, representing ASSE International (jshank@plumbers55.com) requests As Submitted

Commenter's Reason: P103-21 should be approved as submitted.
The committee voted to disapprove because they stated it will duplicate what is already required by this code section. We would like to bring the following information to the committee's attention.

The scope of NSF 44 covers residential water softeners. This standard cannot be used for commercial water treatment equipment. NSF International has sent letters to AHJs informing them that NSF 44 cannot be used on commercial water softeners greater than 1.25" NPS. The NSF

330 standard defines residential water softener as a system with an 1.25" NPS plumbing connection. All water softeners with plumbing connections greater than 1.25 NPS" are outside the scope of NSF 44. Attached is a letter from Jeremy Brown from NSF International explaining that NSF 44 cannot be used for commercial applications on water softeners with a valve greater than 1.25" NPS. Only referencing NSF 44 in the code creates a conflict because companies cannot be tested or certified to NSF 44 even though the code requires it. The reason ASSE 1087 was developed was to capture commercial water treatment equipment that fell outside the scope of the existing NSF drinking water treatment standards. Without the addition of ASSE 1087 water softeners with plumbing connections greater than 1.25 NPS are not covered by a health and safety standard in the IPC.

The scope of NSF 58 specifically covers point of use reverse osmosis system. Point of entry and commercial reverse osmosis system are not covered in the scope of NSF 58. The reason ASSE 1087 was developed was to capture commercial water treatment equipment that fell outside the scope of the existing NSF drinking water treatment standards. Only referencing NSF 58 in the code creates a conflict because companies cannot test point of entry RO systems to NSF 58 even though the code requires it. Without the addition of ASSE 1087 point of entry RO systems are not covered by a health and safety standard in the IPC.

The scope of NSF 42 and NSF 53 covers residential and commercial modular water filtration systems. NSF defines commercial modular as a system consisting of multiple components attached to a manifold, produced specifically for food service applications, installed by an authorized plumber or authorized agent of the manufacturer, and not intended for use in residential applications. The NSF 42 and 53 standard do not cover commercial water filtration equipment outside commercial modular systems. The reason ASSE 1087 was developed was to capture commercial water treatment equipment that fell outside the scope of the existing NSF drinking water treatment standards. Only referencing NSF 42 and 53 for water filtration equipment creates a conflict because commercial water treatment equipment, other than commercial modular systems, cannot be tested to NSF 42 or 53 even though the code requires it. Without the addition of ASSE 1087 commercial water filters are not covered by a health and safety standard in the IPC.

Based on this information we request the committee to reconsider their action. The additional of the ASSE 1087 standard does not duplicate the existing NSF drinking water treatment standards and provides health and safety testing from water treatment equipment being used in commercial buildings, schools, churches, day cares, etc. Without the ASSE 1087 standard commercial water treatment products may be the only plumbing component that contacts potable water not covered by a health and safety standard.

NSF 44 - 2018

1.2 Scope

The manual, auto-initiated, and demand-initiated regeneration (DIR) residential cation exchange water softeners addressed by this standard are designed for the reduction of specific substances that may be present in drinking water (public or private) considered to be microbiologically safe and of known quality. Systems covered under this standard are intended to reduce hardness affecting the aesthetic quality of water. The established health hazards, barium and radium, are optional performance claims addressed by this Standard. Sytems with manufacturer claims that include components or functions covered uner other NSF or NSF/ANSI Standards or Criteria, shall conform to the applicable requirements therein. Systems covered by this Standard are not intended to be sued with drinking water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

NSF 330 - 2020

3.186.14 residential water softener: (As used in NSF/ANSI 44) A cation exchange water softener that is connected to the water system with conventional plumbing fittings not exceeding 1.25 in NPS (nominal pipe size), that is designed for residential use, and that is regenerated in place. All operations of the regeneration process, which may include maintenance of the water supply to the residence, backwashing brining, rinsing, and returning the system to service, are performed by the manual or automatic controls of the system. Salt brine is used for regeneration.
NSF 58 Scope

1.2 Scope

The point-of-use RO drinking water treatment systems addressed by the Standard are designed to be used for the reduction of specific substances that may be present in drinking water (pubic or private) considered to be microbiologically safe and of known quality. Systems covered by the Standard are intended for reduction of total dissolved solids (TDS) and other contaminants specified herein. They may be chemical or particulate (including filterable cysts) in nature. It is recognized that a system may be effective in controlling one or more of these contaminants, but systems are not required to control all, however, TDS testing is required. Systems with manufacturer claims that include components or functions covered under other NSF or NSF/ANSI Standards or Criteria shall conform to the applicable requirements therein. Systems covered by the Standard are not intended to be used with drinking water that is microbiologically

NSF 42 Scope

1.2 Scope

The point-of-use (POU) and point-of-entry (POE) systems addressed by this Standard are designed to be used for the reduction of specific substances that may be present in drinking water (public or private) considered to be microbiologically safe and of known quality. Systems covered under this Standard are intended to address one or more of the following: reduce substances affecting the aesthetic quality of the water, add chemicals for scale control, or limit microbial growth in the system (basteriostatic). Substances may be soluble or particulate in nature. It is recognized that a system may be effective in controlling one or more of these substances but is not required to control all. Systems with manufacturer claims that include components or functions covered under other NSF or NSF/ANSI standards or Criteria shall conform to the applicable requirements therein. Filter systems covered by the Standard are not intended to be used with drinking water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

NSF 53 Scope

1.2 Scope

The point-of-use and point-of-entry systems addressed by this Standard are designed to be used for the reduction of specific substances that may be present in drinking water (pubic or private) considered to be microbiologically safe and of known quality. Systems covered under this Standard are intended to reduce substances that are considered established or potential health hazards. They may be chemical or particulate (including filterable cysts) in nature. It is recognized that a system may be effective in controlling one or more of these contaminants, but systems are not required to control all. Systems with manufacturer claims that include components or functions covered under other NSF or NSF/ANSI Standards or Criteria shall conform to the applicable requirements therein. Systems covered by the Standard are not intended to be used with drinking water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

NSF 330 – Commercial modular system definition

3.35 commercial modular system: A system consisting of multiple components attached to a manifold, produced specifically for food service applications, installed by an authorized plumber or authorized agent of the manufacturer, and not intended for use in residential applications.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction This proposal is adding another standard to choose from for the application.

Public Comment# 2597

P111-21

Proposed Change as Submitted

Proponents: Brian Helms, Charlotte Pipe and Foundry, representing Charlotte Pipe and Foundry (brian.helms@charlottepipe.com)

2021 International Plumbing Code

Revise as follows:

702.6
Chemical waste drainage system
. A chemical wastedrainage system , including its vent system, shall be completely ~~separated~~ independent from the sanitary drainage system. Separate drainage systems for chemical waste and vent pipes shall conform to one of the standards indicated in Table 702.6. The chemical waste shall be treated in accordance with Section 803.2 before discharging to the sanitary drainage system. ~~Separate drainage systems for chemical wastes and vent pipes shall be of an *approved* material that is~~ Chemical waste drainage system pipe and fitting materials shall be resistant to temperature, corrosion and degradation for the concentrations of chemicals involved per manufacturer recommendations.

901.3
Chemical waste drainage vent systems
. The vent system for a chemical waste drainage system shall be independent of ~~the sanitary vent system and shall terminate separately~~ any sanitary drainage vent system. The termination of a chemical waste drainage vent system shall be through the roof to the outdoors or to an air admittance valve that complies with ASSE 1049. Air admittance valves for chemical waste drainage systems shall be constructed of one of the materials ~~*approved* in accordance with Section~~ listed in table 702.6 and shall be tested for chemical resistance in accordance with ASTM F1412.

Add new text as follows:

TABLE 702.6 CHEMICAL WASTE DRAINAGE SYSTEM PIPE AND FITTINGS

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC)	ASTM F2618
Borosilicate glass	ASTM C1053
High silicon iron	ASTM A518/A518M
Polypropylene (PP)	ASTM F1412
Polyvinylidene flouride (PVDF)	ASTM F1673

902.1.1 Chemical waste drainage system vents.
The pipe and fitting materials for a chemical waste drainage vent system shall be in accordance with Section 702.6. The methods utilized for construction and installation of such venting system shall be in accordance with the pipe and fitting manufacturers' instructions.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

F2618-19	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Fittings for Chemical Waste Drainage Systems
A518/A518M-99(2018)	Standard Specification for Corrosion-Resistant High-Silicon Iron Castings

Reason: Chemical waste drainage applications are very different from sanitary drainage applications regulated in Chapter 7. Chemical waste drainage applications can vary in complexity and may be included projects ranging from K-12 chemistry labs to biomedical facilities. Many chemical waste drainage applications require pipe and fitting systems that have both higher temperature capability and resistance to a variety of chemicals and substances that typical DWV are not suitable for. Pipe and fitting materials that are manufactured to standards for chemical waste drainage applications are specifically designed to convey waste that may be detrimental to DWV and other non-pressure systems and that may be harmful to the health and safety of the public.
The code currently provides very specific direction on allowable materials for sanitary drainage systems but is not as specific for chemical waste in 702.6. Currently, the code states that these systems have to be separated from the sanitary system in section 702.6 and even gives direction on system design in section 803.2, but is very vague on what materials are acceptable for chemical waste applications.

Section 702.6 currently requires an "approved" material for chemical waste systems. By definition in Chapter 2, "approved" means that the material should be "acceptable to the code official." This proposal removes this statement as well as the responsibility of the official to determine whether the materials used are suitable for both temperature and chemical resistance requirements that can be unique to each project. Instead this proposal replaces this language with the addition of a table that includes ALL piping systems manufactured to standards specifically for chemical waste drainage and that are also third party listed for these applications for easy enforcement of the code.

Since no single piping system is chemically resistant to every chemical and substance that man has made, manufacturers recommendations regarding chemical resistance, temperature capability and installation should be referenced by the installer or designer when choosing a material for chemical waste drainage. References to manufacturers recommendations have been included in this proposal.

This proposal also adds new text for chemical waste drainage system vents as well. Materials used for venting chemical waste drainage systems are exposed to the same chemicals and substances (in gas form) that the drainage system is and should be held to the same requirements.

The current requirements for chemical waste drainage systems are too vague and unenforceable. This code change proposal clarifies the code requirements by revising section 702.6 and adding a table for allowable materials for chemical waste drainage applications. In addition, it revises section 901.3 and adds new text for chemical waste vent materials.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This code change proposal will not increase or decrease the cost of construction because it is intended to clarify allowable, third party certified products appropriate for chemical waste drainage applications.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ASTM A518/A518M-99(2018) and ASTM F2618-19 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P111-21

Public Hearing Results

Committee Action: **As Modified**

Committee Modification:

TABLE 702.6 CHEMICAL WASTE DRAINAGE SYSTEM PIPE AND FITTINGS

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC)	ASTM F2618
Borosilicate glass	ASTM C1053
High silicon iron	ASTM A518/A518M
~~Polypropylene (PP)~~ Polyolefin	ASTM F1412, CSA B181.3
Polyvinylidene fluoride (PVDF)	ASTM F1673, CSA B181.3

Committee Reason: For the modification: The CSA standard (already in the reference standards chapter) is also applicable to these products. Polyolefin is a broader term for these products.
For the proposal as modified: The Committee agreed that this a needed addition to the code to help the the code official approve piping waste piping. However, the Committee requests that the proponent bring this back back in public comment to change the phrase "resistant to temperature" to "suitable for the temperature of the waste." (14-0)

P111-21

Individual Consideration Agenda

Public Comment 1:

IPC: 702.6, 901.3, TABLE 702.6, 902.1.1

Proponents: Brian Helms, representing Charlotte Pipe and Foundry (brian.helms@charlottepipe.com) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

702.6 Chemical waste drainage system . A chemical waste drainage system, including its vent system, shall be completely independent from the sanitary drainage system. Separate drainage systems for chemical waste and vent pipes shall conform to one of the standards indicated in Table 702.6. The chemical waste shall be treated in accordance with Section 803.2 before discharging to the sanitary drainage system. Chemical waste drainage system pipe and fitting materials shall be resistant to ~~temperature,~~ corrosion and degradation for the concentrations of chemicals involved per manufacturer recommendations.

901.3 Chemical waste ~~drainage vent~~ drainage vent systems . The vent system for a chemical waste drainage system shall be independent of any sanitary drainage vent system. The termination of a chemical waste drainage vent system shall be through the roof to the outdoors or to an air admittance valve that complies with ASSE 1049. Air admittance valves for chemical waste drainage systems shall be constructed of one of the materials listed in table 702.6 and shall be tested for chemical resistance in accordance with ASTM F1412.

TABLE 702.6 CHEMICAL WASTE DRAINAGE SYSTEM PIPE AND FITTINGS

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC)	ASTM F2618
Borosilicate glass	ASTM C1053
High silicon iron	ASTM A518/A518M
Polyolefin	ASTM F1412, CSA B181.3
Polyvinylidene flouride (PVDF)	ASTM F1673, CSA B181.3

902.1.1 Chemical waste drainage system vents . The pipe and fitting materials for a chemical waste drainage vent system shall be in accordance with Section 702.6. The methods utilized for construction and installation of such venting system shall be in accordance with the pipe and fitting manufacturers' instructions.

Commenter's Reason: During the Committee Action Hearings, Vice Chair Gregg Gress expressed concern regarding the use of the phrase, "resistant to temperature". This phrase has been removed per his recommendation. A material's temperature capability is included in the manufacturers recommendations, which is already included in the proposal.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
The public comment as well the original proposal and modification will not increase or decrease the cost of construction.

Public Comment# 2461

P129-21 Part I

Proposed Change as Submitted

Proponents: Joanne Carroll, Subtegic Group Inc., representing HammerHead Trenchless (jcarroll@subtegic.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC-P&M COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2021 International Plumbing Code

Add new definition as follows:

CURED-IN-PLACE PIPE. A plastic piping system of a particular design with a wall structure which is uniquely defined for each diameter and wall thickness combination, produced from a specific textile tube saturated with a specific thermosetting resin and installed by a specific process used to rehabilitate damaged or deteriorated pipe in-place by insertion of the cured-in-place pipe material within the existing pipe.

Revise as follows:

718.1 General ~~Cure-in-place.~~ This section shall govern the rehabilitation of building sewers and buried building drains using cured-in-place pipe. ~~Sectional cure-in-place rehabilitation of *building sewer* piping and sewer service lateral piping shall be in accordance with ASTM F2599. Main and lateral cure-in-place rehabilitation of *building sewer* and sewer service lateral pipe and their connections to the main sewer pipe shall be in accordance with ASTM F2561. Hydrophilic rings or gaskets in cure-in-place rehabilitation of *building sewer* piping and sewer service laterals shall be in accordance with ASTM F3240 to ensure water tightness and elimination of ground water penetration.~~

Add new text as follows:

718.2 Applicability.
The rehabilitation of existing building sewers and buried building drains shall be limited to gravity piping 3 inches (76 mm) in diameter and larger. The rehabilitated pipe shall meet the drainage load requirements of the existing piping.

718.3 Pre-installation requirements.
Prior to commencement of the rehabilitation, the existing piping sections to be rehabilitated shall be cleaned to remove solid debris and deposits that will interfere with the installation and finished quality of the cured-in-place pipe. After the cleaning process has occurred and water has been flushed through the system, the piping shall be inspected internally by a recorded video camera survey.

718.3.1 Pre-installation inspection.
The existing piping shall be inspected internally by a recorded video camera survey. The survey shall include notations of the cleanouts and fitting locations, the length and the approximate depth of the existing piping.

718.4 Permitting.
Prior to permit issuance, the code official shall review and evaluate the pre-installation recorded video camera survey to determine if the existing piping is able to be rehabilitated with cured-in-place pipe in accordance with the proposed cured-in-place pipe system's third-party certification showing conformance to NSF 14, applicable installation requirements of referenced standards and this code.

718.5 Prohibited applications.
Where review of the pre-installation recorded video camera survey reveals that the existing piping is not installed correctly or defects exist that prevent the insertion and expansion of the cured-in-place pipe material, rehabilitation with cured-in-place pipe shall not be permitted until the defective portions of piping have been repaired with pipe and fittings in accordance with this code. Defects include, but are not limited to, back grade or insufficient slope.

718.6 Rehabilitation materials.
The cured-in-place pipe materials shall be manufactured in compliance with applicable standards and certified as required in Section 303. Cured-in-place pipe specimens for testing shall consist of a specific textile tube and specific resin system manufactured at a specific thickness. The cured-in-place pipe materials shall be third-party listed and labeled.

718.7 Installation.
The installation of cured-in-place pipe materials shall be performed in accordance with the current listing as required in 718.6, manufacturer's installation instructions, this code and applicable referenced standards including ASTM F1216, ASTM F1743, ASTM F2599, or ASTM F2561. Hydrophilic o-rings or gaskets used in cured-in-place pipe shall be in accordance with ASTM F3240.

718.7.1 Material data report.
The installer shall record the data as required by the cured-in-place pipe manufacturer and applicable standards. The recorded data shall include but is not limited to the location of the project, cured-in-place pipe tube and resin type with batch and lot numbers, amount of product installed and conditions of the installation. A copy of the data report shall be provided to the code official prior to final approval.

718.8 Post-installation recorded video camera survey.

The completed, rehabilitated piping system shall be inspected internally by a recorded video camera survey. The video survey shall be submitted to the code official prior to finalization of the permit. The video survey shall be reviewed and evaluated to provide verification that terminations of the cured-in-place pipe are smooth so as not to interfere with flow or collect debris, and that the cured-in-place pipe has been installed forming a tight interference fit to the existing pipe, and that no infiltration of groundwater, obstruction of flow or other defects exist which adversely affect the piping system in compliance with all laws and other provisions of this code. Any defects identified shall be repaired or replaced as approved by the authority having jurisdiction in accordance with applicable standards and this code.

718.9 Certification.
A certification shall be provided in writing to the code official, from the permit holder, that the cured-in-place pipe has been installed in accordance with the current listing required in Section 718.6, manufacturer's installation instructions, the applicable standards and this code.

718.10 Approval.
Upon verification of compliance with the requirements of Sections 718.1 through 718.9, the code official shall approve the installation.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

F1216 - 16	Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
F1743 - 17	Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)

Reason:
Proposal IPC

The proposal adds requirements for cured-in-place pipe materials and detailed installation and quality management practices for the specialized rehabilitation of existing piping that will provide not only clarity but improve efficiencies for code officials and those providing administration and enforcement of the code. Acceptance of this proposal will also remove confusion in the industry surrounding the use of cured-in-place pipe for the rehabilitation of building sewers and buried building drains. Adding specific requirements consistent with format of prior sections for specialized construction (Sections 716 and Section 717) this revision makes the section user friendly while providing clear requirements for the enforcement and use of cured-in-place pipe.

Proposal IRC

There are instances where under slab and buried piping requires replacement or repair and excavation is difficult or even impossible. The proposal adds a new section to the IRC consistent with a proposal to revise the existing Section 718 in the IPC. The section provides instruction on the rehabilitation of existing buried sewer piping by the cured-in-place pipe trenchless method. This trenchless method provides for the rehabilitation or renewal of existing deteriorated pipe with minimal or no excavation. The proposal includes requirements for cured-in-place pipe materials and detailed installation and quality management practices for the specialized rehabilitation of existing piping that will provide clear and efficient enforcement for those providing administration and enforcement of the code. Consistent with format of prior sections for specialized construction in the IPC (Sections 716 and Section 717) this revision makes the section user friendly while providing clear requirements for the enforcement and use of cured-in-place pipe.

Cost Impact: The code change proposal will decrease the cost of construction
The code change proposal will decrease the cost of construction by allowing more materials that are compliant with the code to be considered while improving quality of the work through the requirements for materials and verification of performance by certification through an approved agency. The requirement for certification of materials will increase choices and may offer cost savings.

Staff Analysis: A review of the standards proposed for inclusion in the code, ASTM F1216 –16 and ASTM F1743 - 17 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P129-21 Part I

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed new standard contains a significant amount of permissive language. The new definition is confusing. (14-0)

Individual Consideration Agenda

Public Comment 1:

IPC: 202 (New), 718.1 (New) , 718.2 (New), 718.3 (New), 718.4 (New), 718.5 (New), 718.6 (New), 718.6.1 (New), 718.7 (New), 718.8 (New)

Proponents: Joanne Carroll, representing HammerHead Trenchless (jcarroll@subtegic.com) requests As Modified by Public Comment

Replace as follows:

2021 International Plumbing Code

CURED-IN-PLACE PIPE . A plastic piping system used to rehabilitate damaged or deteriorated pipe in-place by insertion of the cured-in-place pipe material within the existing pipe.

718.1 General ~~Cure in place.~~ This section shall govern the rehabilitation of building sewers and buried building drains using cured-in-place pipe.~~Sectional cure-in-place rehabilitation of *building sewer* piping and sewer service lateral piping shall be in accordance with ASTM F2599. Main and lateral cure-in-place rehabilitation of *building sewer* and sewer service lateral pipe and their connections to the main sewer pipe shall be in accordance with ASTM F2561. Hydrophilic rings or gaskets in cure-in-place rehabilitation of *building sewer* piping and sewer service laterals shall be in accordance with ASTM F3240 to ensure water tightness and elimination of ground water penetration.~~

718.2 Applicability . The rehabilitation of existing building sewers and buried building drains shall be limited to gravity piping 3 inches (76 mm) in diameter and larger. The rehabilitated pipe shall meet the drainage load requirements of the existing piping.

718.3 Pre-installation requirements . Prior to commencement of the rehabilitation, the existing piping sections to be rehabilitated shall be cleaned to remove solid debris and deposits that will interfere with the installation and finished quality of the cured-in-place. A recorded video camera survey made by the installer shall document pre-installation pipe condition and include notations of the cleanouts and fitting locations, the length, and the approximate depth of the existing piping.

718.4 Prohibited applications . Cured-in-place pipe shall not be permitted until defects that prevent the insertion and expansion of the cured-in-place pipe material have been repaired with pipe and fittings in accordance with this code. Defects include, but are not limited to, back grade or insufficient slope.

718.5 Rehabilitation materials. . The cured-in-place pipe materials shall be manufactured in compliance with applicable standards and certified as required in Section 303. The cured-in-place pipe materials shall be third-party listed and labeled.

718.6 Installation. . The installation of cured-in-place pipe materials shall be performed in accordance with the current listing as required in Section 718.5, manufacturer's installation instructions, this code and applicable referenced standardsincluding ASTM F2599and ASTM F2561. Hydrophilic o-rings or gaskets used in cured-in-place pipe shall be in accordance with ASTM F3240.

718.6.1 Material data report. . The installer shall record the data as required by the cured-in-place pipe manufacturer and applicable standards. A copy of the data report shall be provided as required by the code official

718.7 Post-installation requirements. . Terminations of the cured-in-place pipe shall be smooth so as not to interfere with flow or collect debris and the cured-in-place pipe shall have formed a tight interference fit to the existing pipe. Infiltration of groundwater, obstruction of flow or other defects which adversely affect the piping system shall not be permitted. Defects shall be repaired or replaced as approved by the code official in accordance with applicable standards and this code. A recorded video camera survey shall be made by the installer of the completed cured-in-place pipe installation as required by the code official.

718.8 Certification. . As required by the code official, a certification shall be provided bythe permit holder to the code official that the cured-in-place pipe has been installed in accordance with the current listing required in Section 718.5, manufacturer's installation instructions, the applicable standards and this code.

Commenter's Reason: The public comment is made in consideration of the committee's comments by providing a simplified definition, removal of proposed ASTM standards until such time as the permissive language is removed through the ongoing ASTM process, and edits intended to provide clarity within the code making visible the key components of construction when installing cured-in-place pipe.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction
The net effect of the public comment and code change proposal will decrease the cost of construction by allowing more materials that are code compliant and offering competitive alternatives.

Public Comment 2:

IPC: SECTION 202, 718.1, 718.2, 718.3, 718.3.1, 718.4, 718.5, 718.6, 718.7, 718.7.1, 718.8, 718.9, 718.10,

Proponents: Sidney Cavanaugh, representing IPS Corp. (sidneycavanaugh@yahoo.com) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

CURED-IN-PLACE PIPE . ~~A plastic piping system of a particular design with a wall structure which is uniquely defined for each diameter and wall thickness combination, produced from a specific textile tube saturated with a specific thermosetting resin and installed by a specific process used to rehabilitate damaged or deteriorated pipe in-place by insertion of the cured-in-place pipe material within the existing.~~ A thermoset resin saturated into an absorbent textile tube pressed against an inner pipe wall and cured to form a new pipe within a pipe.

718.1 General . This section shall govern the rehabilitation of building sewers, sewer service lateral piping and their connection to the main sewer.~~and buried building drains using cured-in-place pipe.~~ Sectional cured-in-place rehabilitation of building sewer piping and sewer service lateral piping shall be in accordance with ASTM F2599. Main and lateral cure-in-place rehabilitation of building sewer and sewer service lateral pipe and their connection to the main sewer pipe shall be in accordance with ASTM F2561. Hydrophilic rings or gaskets shall be used in cure-in-place rehabilitation of building sewer piping and sewer service laterals and they shall be in accordance with ASTM F3240 to ensure water tightness and elimination of ground water penetration.

718.2 ~~Applicability~~ Pre-installation requirements and inspection. . ~~The rehabilitation of existing building sewers and buried building drains shall be limited to gravity piping 3 inches (76 mm) in diameter and larger. The rehabilitated pipe shall meet the drainage load requirements of the existing piping.~~ Prior to commencement of the rehabilitation, the existing piping sections to be rehabilitated shall be cleaned to remove solid debris and deposits that will interfere with the installation and finished quality of the cured-in-place pipe. After the cleaning process has occurred and water has been flushed through the system the piping shall be inspected internally by a recorded video camara survey. The survey shall include notations of the cleanouts and fitting locations, the length and approximate depth of the existing piping.

~~**718.3 Pre-installation requirements.**~~
~~Prior to commencement of the rehabilitation, the existing piping sections to be rehabilitated shall be cleaned to remove solid debris and deposits that will interfere with the installation and finished quality of the cured-in-place pipe. After the cleaning process has occurred and water has been flushed through the system, the piping shall be inspected internally by a recorded video camera survey.~~

~~**718.3.1 Pre-installation inspection.**~~
~~The existing piping shall be inspected internally by a recorded video camera survey. The survey shall include notations of the cleanouts and fitting locations, the length and the approximate depth of the existing piping.~~

~~718.4~~ 718.2.1 Permitting . ~~Prior to permit issuance, the~~ The code official shall review and evaluate the pre-installation recorded video camera survey to determine if the existing piping is able to be rehabilitated with cured-in-place pipe ~~in accordance with the proposed cured-in-place pipe~~ system's third-party certification showing conformance to ~~NSF 14,~~ applicable installation requirements of referenced standards ~~and this code~~ in Section 718.1.

~~718.5~~ 718.2.2 Prohibited applications . Where review of the pre-installation recorded video camera survey reveals that the existing piping is not installed correctly or defects exist that prevent the insertion and expansion of the cured-in-place pipe material, rehabilitation with cured-in-place pipe shall not be permitted until the defective portions of piping have been repaired with pipe and fittings in accordance with this code. Defects include, but are not limited to, back grade or insufficient slope.

~~718.6~~ 718.3 Rehabilitation materials . The cured-in-place pipe materials shall be manufactured in compliance with applicable standards and certified as required in Section 303. ~~Cured-in-place pipe specimens for testing shall consist of a specific textile tube and specific resin system manufactured at a specific thickness.~~ The cured-in-place pipe materials shall be third-party listed and labeled.

~~**718.7 Installation.**~~
~~The installation of cured-in-place pipe materials shall be performed in accordance with the current listing as required in 718.6, manufacturer's installation instructions, this code and applicable referenced standards including ASTM F1216, ASTM F1743, ASTM F2599, or ASTM F2561. Hydrophilic o-rings or gaskets used in cured-in-place pipe shall be in accordance with ASTM F3240.~~

~~718.7.1~~ 718.4 Material data report . The installer shall record the data as required by the cured-in-place pipe manufacturer and applicable standards. The recorded data shall include but is not limited to the location of the project, cured-in-place pipe tube and resin type with batch and lot numbers, amount of product installed and conditions of the installation. A copy of the data report shall be provided to the code official prior to final approval.

~~**718.8 Post-installation recorded video camera survey.**~~
~~The completed, rehabilitated piping system shall be inspected internally by a recorded video camera survey. The video survey shall be submitted to the code official prior to finalization of the permit. The video survey shall be reviewed and evaluated to provide verification that terminations of the cured-in-place pipe are smooth so as not to interfere with flow or collect debris, and that the cured-in-place pipe has been installed forming a tight~~

~~interference fit to the existing pipe, and that no infiltration of groundwater, obstruction of flow or other defects exist which adversely affect the piping system in compliance with all laws and other provisions of this code. Any defects identified shall be repaired or replaced as approved by the authority having jurisdiction in accordance with applicable standards and this code.~~

~~**718.9 Certification.**~~
~~A certification shall be provided in writing to the code official, from the permit holder, that the cured-in-place pipe has been installed in accordance with the current listing required in Section 718.6, manufacturer's installation instructions, the applicable standards and this code.~~

~~**718.10 Approval .** Upon verification of compliance with the requirements of Sections 718.1 through 718.9, the code official shall approve the installation.~~

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~~F1216 - 16~~	~~Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube~~

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~~F1743 - 17~~	~~Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)~~

Commenter's Reason: It is very important to have a correct definition in the code which is already included in appropriate standards for Cured-In-Place pipe. The one suggested comes directly from ASTM F3240. It is also important to retain the current wording used in the 2021 edition of the IPC Section 718.1 with only minimal change which clarifies the content of the Section and underlines the importance of hydrophilic rings and gaskets used in cure-in-place pipe rehabilitation. Finally, the modification offered tries to organize and save the important items/parts of the original proposal which include critical pre inspection and post inspection components as well as material certification/confirmation requirements.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
This public comment clarifies the intent of the original proposal and does not require additional labor or materials that would impact the proposal's original claim of decreasing cost of construction.

Public Comment# 2538

P129-21 Part II

Proposed Change as Submitted

Proponents: Joanne Carroll, Subtegic Group Inc., representing HammerHead Trenchless (jcarroll@subtegic.com)

2021 International Residential Code

Add new definition as follows:

CURED-IN-PLACE PIPE. A plastic piping system of a particular design with a wall structure which is uniquely defined for each diameter and wall thickness combination, produced from a specific textile tube saturated with a specific thermosetting resin and installed by a specific process used to rehabilitate damaged or deteriorated pipe in-place by insertion of the cured-in-place pipe material within the existing pipe.

Add new text as follows:

P3012
Rehabilitation of Underground Building Sewers and Building Drains by the Cured-In-Place Pipe Method

P3012.1 General.
This section shall govern the rehabilitation of building sewers and buried building drains using cured-in-place pipe.

P3012.2 Applicability.
The rehabilitation of existing building sewers and buried building drains shall be limited to gravity piping 3 inches (76 mm) in diameter and larger. The rehabilitated pipe shall meet the drainage load requirements of the existing piping.

P3012.3 Pre-installation requirements.
Prior to commencement of the rehabilitation, the existing piping sections to be rehabilitated shall be cleaned to remove solid debris and deposits that will interfere with the installation and finished quality of the cured-in-place pipe. After the cleaning process has occurred and water has been flushed through the system, the piping shall be inspected internally by a recorded video camera survey.

P3012.3.1 Pre-installation inspection.
The existing piping shall be inspected internally by a recorded video camera survey. The survey shall include notations of the clean outs and fitting locations, the length and the approximate depth of the existing piping.

P3012.4 Permitting.
Prior to permit issuance, the code official shall review and evaluate the pre-installation recorded video camera survey to determine if the existing piping is able to be rehabilitated with cured-in-place pipe in accordance with the proposed cured-in-place pipe system's third-party certification showing conformance to NSF 14, applicable installation requirements of referenced standards and this code.

P3012.5 Prohibited applications.
Where review of the pre-installation recorded video camera survey reveals that the existing piping is not installed correctly or defects exist that prevent the insertion and expansion of the cured-in-place pipe material, rehabilitation with cured-in-place pipe shall not be permitted until the defective portions of piping have been repaired with pipe and fittings in accordance with this code. Defects include, but are not limited to, back grade or insufficient slope.

P3012.6 Rehabilitation materials.
The cured-in-place pipe materials shall be manufactured in compliance with applicable standards and certified as required in Section 303. Cured-in-place pipe specimens for testing shall consist of a specific textile tube and specific resin system manufactured at a specific thickness. The cured-in-place pipe materials shall be third-party listed and labeled.

P3012.7 Installation.
The installation of cured-in-place pipe materials shall be performed in accordance with the current listing as required in P3012.6, manufacturer's installation instructions, this code and applicable referenced standards including ASTM F1216, ASTM F1743, ASTM F2599, or ASTM F2561. Hydrophilic o-rings or gaskets used in cured-in-place pipe shall be in accordance with ASTM F3240.

P3012.7.1 Material data report.
The installer shall record the data as required by the cured-in-place pipe manufacturer and applicable standards. The recorded data shall include but is not limited to the location of the project, cured-in-place pipe tube and resin type with batch and lot numbers, amount of product installed and conditions of the installation. A copy of the data report shall be provided to the code official prior to final approval.

P3012.10 Approval.
Upon verification of compliance with the requirements of Sections P3012.1 through P3012.9, the code official shall approve the installation.

P3012.8 Post-installation recorded video camera survey.
The completed, rehabilitated piping system shall be inspected internally by a recorded video camera survey. The video survey shall be submitted to the code official prior to finalization of the permit. The video survey shall be reviewed and evaluated to provide verification that terminations of the cured-in-place pipe are smooth so as not to interfere with flow or collect debris, and that the cured-in-place pipe has been installed forming a tight interference fit to the existing pipe, and that no infiltration of groundwater, obstruction of flow or other defects exist which adversely affect the piping system in compliance with all laws and other provisions of this code. Any defects identified shall be repaired or replaced as approved by the authority having jurisdiction in accordance with applicable standards and this code.

P3012.9 Certification.
A certification shall be provided in writing to the code official, from the permit holder, that the cured-in-place pipe has been installed in accordance with the current listing required in Section P3012.6, manufacturer's installation instructions, the applicable standards and this code.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

F1216-16	Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
F1743 - 17	Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)
F2599-20	Standard Practice for Sectional Repair of Damaged Pipe By Means of an Inverted Cured-In-Place Liner
F2561-20	Standard Practice for Rehabilitation of a Sewer Service Lateral and Its Connection to the Main Using a One Piece Main and Lateral Cured-in-Place Liner
F3240-19e1	Standard Practice for Installation of Seamless Molded Hydrophilic Gaskets (SMHG) for Long-Term Watertightness of Cured-in-Place Rehabilitation of Main and Lateral Pipelines

Reason: There are instances where under slab and buried piping requires replacement or repair and excavation is difficult or even impossible. The proposal adds a new section to the IRC consistent with a proposal to revise the existing Section 718 in the IPC. The section provides instruction on the rehabilitation of existing buried sewer piping by the cured-in-place pipe trenchless method. This trenchless method provides for the rehabilitation or renewal of existing deteriorated pipe with minimal or no excavation. The proposal includes requirements for cured-in-place pipe materials and detailed installation and quality management practices for the specialized rehabilitation of existing piping that will provide clear and efficient enforcement for those providing administration and enforcement of the code. Consistent with format of prior sections for specialized construction in the IPC (Sections 716 and Section 717) this revision makes the section user friendly while providing clear requirements for the enforcement and use of cured-in-place pipe.

Cost Impact: The code change proposal will decrease the cost of construction
The code change proposal will decrease the cost of construction by allowing more materials that are compliant with the code to be considered while improving quality of the work through the requirements for materials and verification of performance by certification through an approved agency. The requirement for certification of materials will increase choices and may offer cost savings.

Staff Analysis: A review of the standards proposed for inclusion in the code, ASTM F1216 –16, ASTM F1743-17. ASTM F2599-20, ASTM F2561-20 and F3240-19e1 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P129-21 Part II

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The ASTM F1216 standard has permissive language. The requirements leave the decision as to whether the application is a good candidate for the method, to the code official but offers no criteria to make that determination. Although this is a great solution that is needed, there doesn't seem to be much actual support to local code officials from manufacturers of the products. There is an incorrect code section reference: Section P2609.3 should be P2609.4. (11-0)

P129-21 Part II

Individual Consideration Agenda

Public Comment 1:

IRC: (New), P3012, P3012.1, P3012.2, P3102.3 (New), P3012.4 (New), P3012.5 (New), P3012.6 (New), P3012.6.1 (New), P3012.7 (New), P3012.8 (New),

Proponents: Joanne Carroll, representing HammerHead Trenchless (jcarroll@subtegic.com) requests As Modified by Public Comment

Replace as follows:

2021 International Residential Code

CURED-IN-PLACE PIPE . A plastic piping system used to rehabilitate damaged or deteriorated pipe in-place by insertion of the cured-in-place pipe material within the existing pipe.

P3012
Rehabilitation of Underground Building Sewers and Building Drains by the Cured-In-Place Pipe Method

P3012.1 General . This section shall govern the rehabilitation of building sewers and buried building drains using cured-in-place pipe.

P3012.2 Applicability . The rehabilitation of existing building sewers and buried building drains shall be limited to gravity piping 3 inches (76 mm) in diameter and larger. The rehabilitated pipe shall meet the drainage load requirements of the existing piping.

P3102.3 Pre-installation requirements. . Prior to commencement of the rehabilitation, the existing piping sections to be rehabilitated shall be cleaned to remove solid debris and deposits that will interfere with the installation and finished quality of the cured-in-place. A recorded video camera survey made by the installer shall document pre-installation pipe condition and include notations of the cleanouts and fitting locations, the length, and the approximate depth of the existing piping.

P3012.4
Prohibited applications
. Cured-in-place pipe shall not be permitted until defects that prevent the insertion and expansion of the cured-in-place pipe material have been repaired with pipe and fittings in accordance with this code. Defects include, but are not limited to, back grade or insufficient slope.

P3012.5 Rehabilitation materials . The cured-in-place pipe materials shall be manufactured in compliance with applicable standards and certified as required in Section 303. The cured-in-place pipe materials shall be third-party listed and labeled.

P3012.6 Installation. . The installation of cured-in-place pipe materials shall be performed in accordance with the current listing as required in Section P3012.5, manufacturer's installation instructions, this code and applicable referenced standards including ASTM F2599 and ASTM F2561. Hydrophilic o-rings or gaskets used in cured-in-place pipe shall be in accordance with ASTM F3240.

P3012.6.1 Material data report. . The installer shall record the data as required by the cured-in-place pipe manufacturer and applicable standards. A copy of the data report shall be provided as required by the building official.

P3012.7 Post-installation requirements . Terminations of the cured-in-place pipe shall be smooth so as not to interfere with flow or collect debris and the cured-in-place pipe shall have formed a tight interference fit to the existing pipe. Infiltration of groundwater, obstruction of flow or other defects which adversely affect the piping system shall not be permitted. Defects shall be repaired or replaced as approved by the building official in accordance with applicable standards and this code. A recorded video camera survey shall be made by the installer of the completed cured-in-place pipe installation as required by the building official.

P3012.8 Certification . As required by the building official, a certification shall be provided by the permit holder to the building official that the cured-in-place pipe has been installed in accordance with the current listing required in Section P3012.5, manufacturer's installation instructions, the applicable standards and this code.

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F2599-20	Standard Practice for Sectional Repair of Damaged Pipe By Means of an Inverted Cured-In-Place Liner

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F2561-20	Standard Practice for Rehabilitation of a Sewer Service Lateral and Its Connection to the Main Using a One Piece Main and Lateral Cured-in-Place Liner

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Commenter's Reason: The public comment is made in consideration of the committee's comments by providing a simplified definition, removal of proposed ASTM standards containing permissive language until such time as the permissive language is removed through the ongoing ASTM process, and edits intended to provide clarity within the code making visible the key components of construction when installing cured-in-place pipe.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction
The net effect of the public comment and code change will decrease the cost of construction by allowing more materials that are code compliant and offering competitive alternatives.

Public Comment# 2853

Public Comment 2:

IRC: SECTION 202, P3012, P3012.1, P3012.2, P3012.3, P3012.3.1, P3012.4, P3012.5, P3012.6, P3012.7, P3012.7.1, P3012.10, P3012.8, P3012.9,

Proponents: Sidney Cavanaugh, representing IPS Corp. (sidneycavanaugh@yahoo.com) requests As Modified by Public Comment

Modify as follows:

2021 International Residential Code

CURED-IN-PLACE PIPE . ~~A plastic piping system of a particular design with a wall structure which is uniquely defined for each diameter and wall thickness combination, produced from a specific textile tube saturated with a specific thermosetting resin and installed by a specific process used to rehabilitate damaged or deteriorated pipe in-place by insertion of the cured-in-place pipe material within the existing.~~ A thermoset resin saturated into an absorbent textile tube pressed against an inner pipe wall and cured to form a new pipe within a pipe.

P3012

Rehabilitation of Underground Building Sewers~~, and Building Drains~~ Drains by the Sewer Service Lateral Piping and Their Connection to the Main Sewer by the Cured-In-Place Pipe Method

P3012.1 General . ~~This section shall govern the rehabilitation of building sewers and buried building drains using cured-in-place pipe.~~ This section shall govern the rehabilitation of building sewers, sewer service lateral piping, and their connection to the main sewer. Sectional cured-in-place rehabilitation of building sewer piping and sewer service lateral piping shall be in accordance with ASTM F2599. Main and lateral cure-in-place rehabilitation of building sewer and sewer service lateral pipe and their connection to the main sewer pipe shall be in accordance with ASTM F2561. Hydrophilic rings or gaskets shall be used in cure-in-place rehabilitation of building sewer piping and sewer service laterals and they shall be in accordance with ASTM F3240 to ensure water tightness and elimination of ground water penetration.

P3012.2 ~~Applicability~~ Pre-installation requirements and inspection. . ~~The rehabilitation of existing building sewers and buried building drains shall be limited to gravity piping 3 inches (76 mm) in diameter and larger. The rehabilitated pipe shall meet the drainage load requirements of the existing piping.~~ Prior to commencement of the rehabilitation, the existing piping sections to be rehabilitated shall be cleaned to remove solid debris and deposits that will interfere with the installation and finished quality of the cured-in-place pipe. After the cleaning process has occurred and water has been flushed through the system the piping shall be inspected internally by a recorded video camara survey. The survey shall include notations of the cleanouts and fitting locations, the length and approximate depth of the existing piping.

~~**P3012.3 Pre-installation requirements.**~~
~~Prior to commencement of the rehabilitation, the existing piping sections to be rehabilitated shall be cleaned to remove solid debris and deposits that will interfere with the installation and finished quality of the cured-in-place pipe. After the cleaning process has occurred and water has been flushed through the system, the piping shall be inspected internally by a recorded video camera survey.~~

~~**P3012.3.1 Pre-installation inspection.**~~
~~The existing piping shall be inspected internally by a recorded video camera survey. The survey shall include notations of the clean outs and fitting locations, the length and the approximate depth of the existing piping.~~

~~**P3012.4**~~ **P3012.2.1 Permitting .** ~~Prior to permit issuance,~~ the code official shall review and evaluate the pre-installation recorded video camera survey to determine if the existing piping is able to be rehabilitated with cured-in-place pipe ~~in accordance with the proposed cured-in-place pipe~~ system's third-party certification showing conformance to ~~NSF 14~~, applicable installation requirements of referenced standards ~~and this code~~ in Section P3012.1.

~~**P3012.5**~~ **P3012.2.2 Prohibited applications .** Where review of the pre-installation recorded video camera survey reveals that the existing piping is not installed correctly or defects exist that prevent the insertion and expansion of the cured-in-place pipe material, rehabilitation with cured-in-place pipe shall not be permitted until the defective portions of piping have been repaired with pipe and fittings in accordance with this code. Defects

include, but are not limited to, back grade or insufficient slope.

~~**P3012.6**~~ **P3012.3 Rehabilitation materials .** The cured-in-place pipe materials shall be manufactured in compliance with applicable standards and certified as required in Section 303. ~~Cured-in-place pipe specimens for specimens for testing shall consist of a specific textile tube and specific resin system manufactured at a specific thickness.~~ The cured-in-place pipe materials shall be third-party listed and labeled.

~~**P3012.7 Installation.**~~
~~The installation of cured-in-place pipe materials shall be performed in accordance with the current listing as required in P3012.6, manufacturer's installation instructions, this code and applicable referenced standards including ASTM F1216, ASTM F1743, ASTM F2599, or ASTM F2561. Hydrophilic o-rings or gaskets used in cured-in-place pipe shall be in accordance with ASTM F3240.~~

~~**P3012.7.1**~~ **P3012.4 Material data report .** The installer shall record the data as required by the cured-in-place pipe manufacturer and applicable standards. The recorded data shall include but is not limited to the location of the project, cured-in-place pipe tube and resin type with batch and lot numbers, amount of product installed and conditions of the installation. A copy of the data report shall be provided to the code official prior to final approval.

~~**P3012.10 Approval.**~~
~~Upon verification of compliance with the requirements of Sections P3012.1 through P3012.9, the code official shall approve the installation.~~

~~**P3012.8 Post-installation recorded video camera survey.**~~
~~The completed, rehabilitated piping system shall be inspected internally by a recorded video camera survey. The video survey shall be submitted to the code official prior to finalization of the permit. The video survey shall be reviewed and evaluated to provide verification that terminations of the cured-in-place pipe are smooth so as not to interfere with flow or collect debris, and that the cured-in-place pipe has been installed forming a tight interference fit to the existing pipe, and that no infiltration of groundwater, obstruction of flow or other defects exist which adversely affect the piping system in compliance with all laws and other provisions of this code. Any defects identified shall be repaired or replaced as approved by the authority having jurisdiction in accordance with applicable standards and this code.~~

~~**P3012.9 Certification.**~~
~~A certification shall be provided in writing to the code official, from the permit holder, that the cured-in-place pipe has been installed in accordance with the current listing required in Section P3012.6, manufacturer's installation instructions, the applicable standards and this code.~~

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~~F1216-16~~	~~Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube~~

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~~F1743 - 17~~	~~Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)~~

Commenter's Reason: This modification attempts to save the important parts of the original proposal and to be consistent with existing wording in the IPC. Unfortunately at this time both ASTM F1216 and ASTM F1743 contain non mandatory wording not in compliance with ICC policy.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
This public comment clarifies the intent of the original proposal and does not require additional labor or materials that would impact the proposal's original claim of decreasing cost of construction.

Public Comment# 2786

P133-21 Part I

Proposed Change as Submitted

Proponents: Gary Duren, representing self (codecompliance1@aol.com)

THIS IS A 2 PART PROPOSAL. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC-P&M COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2021 International Plumbing Code

Add new definition as follows:

SANITARY WASTE VALVE. A device conforming to ASME A112.18.8 used as an alternate to a water-filled tubular waste trap that provides protections of the property from foul air in the sewer.

Add new text as follows:

1003.1 General.
Sanitary waste valve shall be permitted to be installed as an alternate to the liquid seal tubular traps required in Section 1002. Sanitary waste valves shall conform to ASME A112.18.8,

1003.2 Installation.
Sanitary waste valves shall be installed in accordance with the requirements of this section and the manufacturer's instructions.

1003.3 Where permitted.
Sanitary waste valves shall be permitted to be installed as an alternate to 1 1/4 inch (32 mm) and 1 1/2 inch (38mm) tubular traps. Where a sanitary waste valve is installed on the outlet of a food waste grinder, the device shall be installed in the vertical orientation.

1003.4 Location.
Sanitary waste valves shall be permitted to be installed as an alternate where tubular traps are required for sinks, lavatories, laundry trays, tubs, showers or similar fixtures. Sanitary waste valves shall not be used on urinals. Sanitary waste valves shall be provided with access.

Add new standard(s) as follows:

ASME

American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990

ANSI/ASME A112.18.8-2020 Sanitary Waste Valves for Plumbing Drainage Systems

Reason: PURPOSE
This group of code changes is being introduced to improve the efficacy of the drain waste and vent system by providing a more sanitary option to the ancient practice of requiring water reservoir p-traps as the exclusive method of preventing sewer gas from entering occupied spaces. Public health and safety is thereby improved by allowing an alternate solution which reduces the risk of foul odor and disease spreading via the DWV system. The cost of construction is not negatively impacted.

BACKGROUND

Foul air routinely enters the occupied building space when p-traps lose their water seal. Such losses are a serious area of public health concern since in recent years important research has been published that directly links the spread of harmful pathogens via the DWV piping system. The research demonstrates that there are essentially two primary means by which harmful pathogens are spread in occupied building spaces via the *conventional* water-reservoir-trap-based DWV system:

1. Evaporation, lack of use or over/under-pressure conditions caused by the routine discharge of a water closet depletes the water level within the trap to a point where waste water is aerosolized and released into the air currents present in buildings.[*Gormley et al*]

2. Water reservoirs within traps have been shown to spread pathogens via "biological slime" creeping up the drainage pipes into the adjacent sinks.[*Mathers, et al*]

The age old mantra of the Plumbing Industry is: "Plumbers Protect the Health of the Nation". If this is true, now it is time to introduce an alternative to the ancient water reservoir traps into the code. ANSI/ASME A112.18.8 -2020 compliant Sanitary Waste Valves (SWV) provide an effective alternate to 1-1/4" and 1-1/2" tubular water reservoir p-traps.

Since SWV's *do not* retain water or other waste they are inherently more sanitary than water filled p-traps. The ASME A112.18.8-2020 Standard has been strengthened following comments at previous code cycles and now provides a 100% higher level of protection against sewer gas intrusion than is provided by water filled tubular traps currently required.

Complete copies of the latest research referenced abpve and additional educational materials are available at *PlumbingResearchGroup.org*

Proponent respectfully requests that the Committee improve the efficacy of the UPC by permitting the use of ANSI/ASME A112.18.8-20 compliant sanitary waste valves as an alternate to accessible tubular traps and improve the plumbing code. In support of this request, please consider the following statements:

SUPPORTING STATEMENT

Sanitary Waste Valves Intended for Use as an Alternate to 1-1/4 and 1-1/2 Tubular P-traps.

It is clearly the intent of the plumbing code that there is a water seal at every plumbing fixture outlet. The exclusive water reservoir sealing that the code currently requires has inherent physical limitations against pressure fluctuations within the DWV system. The most significant pressure fluctuations occur within the waste system upon the discharge of one or more water closets. It is well known and documented that water traps are subject to failure (full or partial loss of the two inch water seal) due to excessive positive or negative pressure excursions and also loss of the water seal can and routinely does occur due to evaporation especially in conditions of low use or high ambient temperature.

When considering acceptance of an alternate a code official must determine that the alternate meets the intent of the current code, by demonstrating equivalency in terms of strength, effectiveness, safety, and performance: Sanitary Waste Valves comply with the code in the following ways

1. A Sanitary Waste Valve conforming to ANSI/ASME A112.18.8 is equal in strength to conventional tubular water traps since the material requirements of ASTM F409 are part of the standard.

The strength of a trap is determined by the materials used in construction and by its resistance to pressure fluctuations in the sanitary drainage system produced by flowing water.

2. A Sanitary Waste Valve conforming to ANSI/ASME A112.18.8 is more effective than a conventional tubular trap in terms of sanitation and over/under-pressure resistance.

Water traps not only retain water, they retain waste solids and other potentially dangerous bacteriological, fungal and viral pathogens. They are in effect miniature septic systems. Depending on the frequency of use and the location of the trap these solids may decay or harmful pathogens can breed, multiply and spread to surrounding areas. In food prep sinks this may cause food contamination and/or food-borne illness to occur.

A Sanitary Waste Valve is not a trap since by definition it does not significantly retain liquid (water) or foreign particles so there is not the same scope to provide a breeding ground for potentially dangerous bacteriological and harmful viral pathogens. Since a Sanitary Waste Valve has a greater resistance against pressures excursions the effectiveness of its sealing ability is greater and thereby safer over a conventional water reservoir trap, even in the fixture it serves is infrequently or never used.

3. A Sanitary Waste Valve conforming to ANSI/ASME A112.18.8 is actually safer than a conventional tubular trap in that conventional traps are subject to loss of water seal by evaporation or siphonage and the SWV is not.

Studies by Professor JA Swaffield *et al* of Heriot-Watt University, Edinburgh, Scotland have shown how the SARS virus was spread in 2003 throughout Amoy Gardens, a high-rise residential structure located in Hong Kong. Part of the causal effect was the failure of water traps due to evaporation, and/or losses from pressure excursions. A Sanitary Waste Valve is not subject to evaporation. A Sanitary Waste Valve is much more

effective than a water trap in resisting positive and negative pressure fluctuations.

4. A Sanitary Waste Valve that conforms to ANSI/ASME A112.18.8 performance is at a minimum equal to a tubular trap in regard to reliability, connectivity, material durability and flow capacity.

The referenced Standard contains prescriptive requirements to insure that a compliant/listed Sanitary Waste Valve meets the flow capacity and material requirements of conventional code-required 1-1/4 and 1-1/2 tubular traps. Specifically the Standard requires that the Sanitary Waste Valve must reliably and repeatedly withstand a 4" water gage back-pressure test, which is significantly beyond the capability of a fully replenished p-trap

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This is only a option that is not mandated by the code and as such, there is impact to construction cost.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ASME A112.18.8-2020 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P133-21 Part I

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The Committee is not necessarily against this technology used in certain applications. The proposed definition doesn't describe what the device is. Use of the term "foul air" doesn't seem to be necessary or understandable by everyone. The text is proposed to be located in an inappropriate section of the code. (14-0)

P133-21 Part I

Individual Consideration Agenda

Public Comment 1:

IPC: SECTION 202, 1003.1, 1003.2, 1003.3, 1003.4

Proponents: Gary Duren, representing self (codecompliance1@aol.com) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

SANITARY WASTE VALVE . A device incorporating a bladder or checking member that provides sealing function and protection against sewer gas intrusion used as an alternate to a water filled plastic tubular p-trap. ~~conforming to ASME A112.18.8 used as an alternate to a water-filled tubular waste trap that provides protections of the property from foul air in the sewer.~~

1003.1 General . Sanitary waste valve shall be permitted to be installed as an alternate to the liquid seal plastic tubular traps required in Section 1002. Sanitary waste valves shall ~~conform to~~ comply with ASME A112.18.8,

1003.2 Installation . Sanitary waste valves shall be installed in accordance with the requirements of this section and the manufacturer's instructions.

1003.3 Where permitted . Sanitary waste valves shall be permitted to be installed as an alternate to 1 1/4 inch (32 mm) and 1 1/2 inch (38mm) plastic tubular traps. Where a sanitary waste valve is installed on the outlet of a food waste grinder, the device shall be installed in the vertical orientation.

1003.4 Location . Sanitary waste valves shall be permitted to be installed as an alternate where tubular traps are required for sinks, lavatories, laundry trays, tubs~~,~~ or showers ~~or similar fixtures. Sanitary waste valves shall not be used on urinals. urinals.~~ Access to Sanitary waste valves shall be provided ~~with access.~~

Commenter's Reason: The IPC Code Change Committee encouraged the proponent to come back with modifications to correct flaws in the original proposal. The proposed mod addresses the Committee concerns and as such is in a position to be approved as modified by this public comment. Specifically the proposed definition has been updated. and the proposal is more technically correct. It is now clear that it is not the intent of this proposal to permit a SWV as an alternated where metallic p-traps are currently required.
The technical research papers show that there are 2 modes of disease transmission that may occur via the sanitary system and water filled p-traps. Sanitary Wastes Valves clearly provide a safer alternative to a water filled trap. Nothing in this proposal mandates anything. The proposal does provide a good alternate that meets a tough performance standard where water filled p-traps have no such standard.

Bibliography: Please see Mather's et al and Gormely et al

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
There is no change in the cost impact as this alternative method is not mandatory.

Public Comment# 2748

P133-21 Part II

Proposed Change as Submitted

Proponents: Gary Duren, representing self (codecompliance1@aol.com)

2021 International Residential Code

Add new definition as follows:

SANITARY WASTE VALVE. A device conforming to ASME A112.18.8 used as an alternative to a water-filled tubular waste trap that provides protections of the property from foul air in the sewer.

Add new text as follows:

P3202
SANITARY WASTE VALVES

P3202.1 General.
Sanitary waste valve shall be permitted to be installed as an alternate to the liquid seal tubular traps required in Section P3201. Sanitary waste valves shall conform to ASME A112.18.8.

P3202.2 Installation.
Sanitary waste valves shall be installed in accordance with the requirements of this section and the manufacturer's instructions.

P3202.3 Where permitted.
Sanitary waste valves shall be permitted to be installed as an alternate to 1 1/4 inch (32 mm) and 1 1/2 inch (38 mm) tubular traps. Where a sanitary waste valve is installed on the outlet of a food waste grinder, the device shall be installed in the vertical orientation.

P3202.4 Location.
Sanitary waste valves shall be permitted to be installed as an alternate where tubular traps are required for sinks, lavatories, laundry trays, tubs showers or similar fixtures. Sanitary waste valves shall not be used on urinals. Sanitary waste valves shall be accessible.

Add new standard(s) as follows:

ASME

American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990

ANSI/ASME A112.18.8 - 2020 Sanitary Waste Valves for Plumbing Drainage Systems

Reason: 2021 PROPOSED CHANGES TO IRC PLUMBING CODE
This group of code changes is being introduced to improve the efficacy of the drain waste and vent system by providing a more sanitary option to the ancient practice of requiring water reservoir p-traps as the exclusive method of preventing sewer gas from entering occupied spaces. Public health and safety is thereby improved by allowing an alternate solution which reduces the risk of foul odor and disease spreading via the DWV system. The cost of construction is not negatively impacted.

BACKGROUND

Foul air routinely enters the occupied building space when p-traps lose their water seal. Such losses are a serious area of public health concern since in recent years important research has been published that directly links the spread of harmful pathogens via the DWV piping system. The research demonstrates that there are essentially two primary means by which harmful pathogens are spread in occupied building spaces via the *conventional* water-reservoir-trap-based DWV system:

1. Evaporation, lack of use or over/under-pressure conditions caused by the routine discharge of a water closet depletes the water level within the trap to a point where waste water is aerosolized and released into the air currents present in buildings.[*Gormley et al]*

2. Water reservoirs within traps have been shown to spread pathogens via "biological slime" creeping up the drainage pipes into the adjacent sinks.[*Mathers, et al*]

The age old mantra of the Plumbing Industry is: "Plumbers Protect the Health of the Nation". If this is true, now it is time to introduce an alternative to the ancient water reservoir traps into the code. ANSI/ASME A112.18.8 -2020 compliant Sanitary Waste Valves (SWV) provide an effective alternate to 1-1/4" and 1-1/2" tubular water reservoir p-traps.

Since SWV's *do not* retain water or other waste they are inherently more sanitary than water filled p-traps. The ASME A112.18.8-2020 Standard has been strengthened following comments at previous code cycles and now provides a 100% higher level of protection against sewer gas intrusion than is provided by water filled tubular traps currently required.

Complete copies of the latest research referenced abpve and additional educational materials are available at *PlumbingResearchGroup.org*

Proponent respectfully requests that the Committee improve the efficacy of the UPC by permitting the use of ANSI/ASME A112.18.8-20 compliant sanitary waste valves as an alternate to accessible tubular traps and improve the plumbing code. In support of this request, please consider the following statements:

SUPPORTING STATEMENT

Sanitary Waste Valves Intended for Use as an Alternate to 1-1/4 and 1-1/2 Tubular P-traps.

It is clearly the intent of the plumbing code that there is a water seal at every plumbing fixture outlet. The exclusive water reservoir sealing that the code currently requires has inherent physical limitations against pressure fluctuations within the DWV system. The most significant pressure fluctuations occur within the waste system upon the discharge of one or more water closets. It is well known and documented that water traps are subject to failure (full or partial loss of the two inch water seal) due to excessive positive or negative pressure excursions and also loss of the water seal can and routinely does occur due to evaporation especially in conditions of low use or high ambient temperature.

When considering acceptance of an alternate a code official must determine that the alternate meets the intent of the current code, by demonstrating equivalency in terms of strength, effectiveness, safety, and performance: Sanitary Waste Valves comply with the code in the following ways:

1. A Sanitary Waste Valve conforming to ANSI/ASME A112.18.8 is equal in strength to conventional tubular water traps since the material requirements of ASTM F409 are part of the standard. - The strength of a trap is determined by the materials used in construction and by its resistance to pressure fluctuations in the sanitary drainage system produced by flowing water.

2. A Sanitary Waste Valve conforming to ANSI/ASME A112.18.8 is more effective than a conventional tubular trap in terms of sanitation and over/under-pressure resistance. - Water traps not only retain water, they retain waste solids and other potentially dangerous bacteriological, fungal and viral pathogens. They are in effect miniature septic systems. Depending on the frequency of use and the location of the trap these solids may decay or harmful pathogens can breed, multiply and spread to surrounding areas. In food prep sinks this may cause food contamination and/or food-borne illness to occur. - A Sanitary Waste Valve is not a trap since by definition it does not significantly retain liquid (water) or foreign particles so there is not the same scope to provide a breeding ground for potentially dangerous bacteriological and harmful viral pathogens. Since a Sanitary Waste Valve has a greater resistance against pressures excursions the effectiveness of its sealing ability is greater and thereby safer over a conventional water reservoir trap, even in the fixture it serves is infrequently or never used.

3. A Sanitary Waste Valve conforming to ANSI/ASME A112.18.8 is actually safer than a conventional tubular trap in that conventional traps are subject to loss of water seal by evaporation or siphonage and the SWV is not. - Studies by Professor JA Swaffield *et al* of Heriot-Watt University, Edinburgh, Scotland have shown how the SARS virus was spread in 2003 throughout Amoy Gardens, a high-rise residential structure located in Hong Kong. Part of the causal effect was the failure of water traps due to evaporation, and/or losses from pressure excursions. A Sanitary Waste Valve is not subject to evaporation. A Sanitary Waste Valve is much more effective than a water trap in resisting positive and negative pressure fluctuations.

4. A Sanitary Waste Valve that conforms to ANSI/ASME A112.18.8 performance is at a minimum equal to a tubular trap in regard to reliability, connectivity, material durability and flow capacity. - The referenced Standard contains prescriptive requirements to insure that a compliant/listed Sanitary Waste Valve meets the flow capacity and material requirements of conventional code-required 1-1/4 and 1-1/2 tubular traps. Specifically the Standard requires that the Sanitary Waste Valve must reliably and repeatedly withstand a 4" water gage back-pressure test, which is significantly beyond the capability of a fully replenished p-trap

Cost Impact: The code change proposal will not increase or decrease the cost of construction
There is no negative cost impact associated with this proposal

P133-21 Part II

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: There are some parts of the proposal that are not written in code language format. This seems to violate sections that require

venting and liquid-filled traps. The Committee believes this could be a device to install in addition to a liquid-filled trap. Testimony was given indicating that most failures of these devices are caused by installation issues. (11-0)

P133-21 Part II

Individual Consideration Agenda

Public Comment 1:

IRC: SECTION 202, P3202.1, P3202.3, P3202.4

Proponents: Gary Duren, representing self (codecompliance1@aol.com) requests As Modified by Public Comment

Modify as follows:

2021 International Residential Code

SANITARY WASTE VALVE . A device incorporating a bladder or checking member that provides sealing function and protection for the property against sewer gas intrusion used as an alternate to a water filled plastic tubular p-trap. ~~conforming to ASME A112.18.8 used as an alternative to a water-filled tubular waste trap that provides protections of the property from foul air in the sewer.~~

P3202.1 General . ~~Sanitary waste valve shall be permitted to be installed as an alternate to the liquid seal tubular traps required in Section P3201.~~ Sanitary waste valves shall comply with ~~conform to~~ ASME A112.18.8.

P3202.3 Where permitted . Sanitary waste valves shall be permitted to be installed as an alternate to 1 1/4 inch (32 mm) and 1 1/2 inch (38 mm) plastic tubular traps. Where a sanitary waste valve is installed on the outlet of a food waste grinder, the device shall be installed in the vertical orientation.

P3202.4 Location . Sanitary waste valves shall be permitted to be installed as an alternate where tubular traps are required for sinks, lavatories, laundry trays, tubs or showers . ~~or similar fixtures. Sanitary~~ Access to sanitary waste valves shall ~~not~~ be provided accessible ~~used on urinals~~.

Commenter's Reason: The IRC Plumbing/Mechanical Committee failed to exercise it's due diligence by failing to read and be familiar with the supporting technical research documentation referenced in the reason statement. The technical research papers demonstrate how disease may be spread by the sanitary drainage system vis water filled p-traps. The committee also cited perceived conflicts with the mandatory venting requirements of the code notwithstanding the fact that the proposal DOES NOT include any exception or exemption statements related to venting. The proposed definition has been modified in accordance with the Committee reason statement and the additional mods correct technical flaws in the original proposal. This proposal does not mandate anything but does provide a more healthy and sanitary alternative for users and designers and should be approved as modified.

Bibliography: Mathers et al and Gormely et al

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
There is no change in the cost impact as this alternative method is not mandatory.

Public Comment# 2755

P147-21 Part I

Proposed Change as Submitted

Proponents: Edward R. Osann, Natural Resources Defense Council, representing Natural Resources Defense Council (eosann@nrdc.org); CJ Lagan, representing LIXIL (cj.lagan@lixil.com); albert rubin, representing self (rubin@ncsu.edu); Sharon Bonesteel, representing salt river project (sharon.bonesteel@srpnet.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE PLUMBING CODE COMMITTEE. PART II WILL BE HEARD BY THE RESIDENTIAL PLUMBING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2021 International Plumbing Code

Add new text as follows:

APPENDIX G
NON-SEWERED SANITATION SYSTEMS

SECTION G101
GENERAL

G101.1 Applicability.
The provisions of this chapter shall apply to the installation of non-sewered sanitation systems.

G101.2 System requirements.
Non-sewered sanitation systems shall comply with ANSI/CAN/IAPMO/ISO 30500.

SECTION G102
DEFINITIONS

G102.1 General.
For purposes of this Appendix, the following definitions shall apply:

CONDITIONED SPACE. An area, room, or space normally occupied by humans that is heated or cooled by equipment.

NON-SEWERED SANITATION SYSTEM. A prefabricated integrated sewage treatment unit that is not connected to a public sewer or private sewage disposal system.

SECTION G103
INSTALLATION

G103.1 General.
The installation of non-sewered sanitation systems shall be in accordance with the manufacturer's installation instructions and with Section G103.2 through Section G103.7.

G103.2 Operating conditions.
A non-sewered sanitation system in either a conditioned or unconditioned space shall be installed where the ambient temperature, ambient humidity, and atmospheric pressure are within the ranges indicated in the manufacturer's installation instructions or product *listing* .

G103.3 Clearances for servicing and maintenance.
A non-sewered sanitation system shall be located to allow access and clearance for service and maintenance. Unless otherwise specified by the manufacturer's installation instructions, not less than 30 inches in depth, width, and height of working space shall be provided at any access panel.

G103.4 Backflow prevention.
A potable water supply connected to a non-sewered sanitation system shall be protected from backflow in accordance with Section 608 of this code.

G103.5 Effluent storage.
Any container or vessel for the storage of effluent discharged from a non-sewered sanitation system and not integral to such system shall be installed in accordance with Section 1301.9 of this code.

G103.6 Systems utilizing a combustion process.
A non-sewered sanitation system utllizing a combustion process shall comply with the *International Mechanical Code* or *International Fuel Gas Code.*

Exception: A non-sewered sanitation system *listed* for unvented use.

G103.7 Connection to plumbing drainage system.
Unless the code official determines otherwise, a non-sewered sanitation system shall not be required to be connected to the sanitary drainage system of the building or premises.

SECTION G104
OPERATION AND MAINTENANCE MANUALS

G104.1 Operation and maintenance manual.
Non-sewered sanitation systems shall be provided with a manufactuer's operation and maintenance manual.

SECTION G105
USE OF EFFLUENT AND SOLID WASTE

G105.1 System output.
The use or disposal of all substances exiting a non-sewered sanitation system shall be in accordance with the authority having jurisdiction.

G106.1
REFERENCE STANDARDS

G106.1 General.
See Table G106.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, the standard title, and the section or sections of this appendix that reference the standard.

TABLE G106.1 REFERENCE STANDARDS.

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
ANSI/CAN/IAPMO/ISO 30500-2019	Non-sewered sanitation systems - Prefabricated integrated treatment units - General Safety and performance requirements for design and testing	AG101.2

Reason: This proposal covers the essential considerations that a building official must assess when a non-sewered sanitation system (NSSS) as defined herein is installed in a building. Designed for operation without a sewer connection and, in many cases, without a dedicated water supply, NSSSs are anticipated to meet critical public health needs in areas with limited water and wastewater infrastructure, water supply constraints, and/or unfavorable soils for traditional on-site disposal methods. In the U.S., over 20% of the population relies on an on-site wastewater system. And even today, a portion of our population does not have access to fully functioning sanitation, largely due to lack of affordable infrastructure or to challenging site conditions.
In 2011, the Bill & Melinda Gates Foundation launched the "Reinvent the Toilet Challenge" to bring new technology to bear to achieve sustainable sanitation solutions. The target is a factory-built device that provides complete and effective treatment of human sanitary waste, unconnected to any sewer or drainage network and with minimal inputs of energy and water. Eight teams received Foundation support to develop prototypes for lab testing, field trials, and commercialization. Among these initial devices, three broad pathways for treatment technology have emerged -- electro-chemical, biological, and combustion -- and in some cases, combinations of these in the same device. Manufacturers have been involved in these efforts, and LIXIL (owner of the American Standard brand) and other companies are working to develop compliant systems for both domestic and international installations. It is the general preference of manufacturers to design and market systems that are compliant with published codes and standards, rather than one-off compliance reviews by individual jurisdictions.

To facilitate commercialization of hi-tech toilets and their acceptance by state and national regulatory bodies, an ISO standard was adopted in 2018 to establish the key performance attributes of NSSSs. Standard 30500, *Non-sewered sanitation systems - Prefabricated integrated treatment units - General safety and performance requirements for design and testing*, sets performance requirements for solid and liquid outputs, odor, noise, air emissions, materials, safety, marking, and ergonomics, together with relevant test procedures for measuring the attainment of these requirements. This ISO standard was adopted in identical form as a U.S. and Canadian national standard in 2019, designated as ANSI/CAN/IAPMO/ISO 30500:2019.

This proposal addresses the considerations that must be taken into account by building officials regarding the placement and installation of NSSSs in buildings. The proposal would permit (but not require) the installation of a NSSS listed to the ISO standard, and provide an exception to the general requirement in the IPC that sanitation devices be connected to the building drainage system, unless a connection is required by the AHJ. Certain key protections, such as backflow prevention, proper ventilation of combustion-based units, and proper siting of storage tanks (if any) external to the unit are each specified in the proposal. Considerations of the use and disposal of outputs of the system are specifically referred to an AHJ, which most likely will be a health department.

Criteria for the functioning of the unit for its intended purpose are established by the ISO standard and do not need to be repeated in plumbing code language. It should be noted that the ISO standard was developed by an international group of scientists, engineers, and regulators to assure the

highest levels of treatment would apply to all outputs (air, water, and solids) from the device. The performance-based standards allow a variety of technologies to be applied, so long as key metrics are achieved. The microbiological reduction requirements for solid and liquid waste are based on the quantitative microbial risk assessment (QMRA) method recognized by the World Health Organization for this purpose. The requirements of the standard mimic the highest quality standards imposed by regulatory agencies on waste-derived materials destined for reuse. The standard's test procedures are rigorous (both lab and field tests are required), and the proposal allows only NSSSs listed to the standard to be approved for installation under this appendix.

With "Reinvented Toilets" meeting the 30500 standard now on the cusp of commercialization, the arrival of such toilets at job sites across the country can reasonably be expected by the time this code update is published and adopted by states and localities, e.g., 2025. Clear code language will accelerate the availability of safe sanitation for people who lack it today. While much is still unknown about the cost, maintenance, and reliability of NSSSs, or even the business model for their installation and servicing, forward-looking communities and jurisdictions with acute sanitation needs will want to be prepared for the safe installation and use of this promising new technology as it enters the market. This proposal lays out the necessary groundwork for code officials to inspect and approve their installation, set out in an appendix available for voluntary adoption by state and local code bodies.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The proposal creates an appendix for voluntary adoption, and thus poses no additional costs on construction built to the base code. In jurisdictions where it is adopted, the proposal authorizes, but does not require, installation of a non-sewered sanitation device, as defined. Builders remain free to install less expensive sanitary ware if they so choose. First costs of an NSSD are expected to be higher than a conventional flush toilet, but may reduce sewer connection charges. NSSDs may also allow construction on sites that might otherwise be unbuildable due to lack of sewer infrastructure or site conditions unsuitable for conventional on-site systems.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ANSI/CAN/IAPMO/ISO 30500-2019 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P147-21 Part I

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: In Section G103.6, the exception appears to allow combustion appliances that are nonvented to not comply with the other I-Codes that cover combustion appliances. That doesn't make sense and is not safe. The language in Section G103.7 makes no logical sense. (8-6)

P147-21 Part I

Individual Consideration Agenda

Public Comment 1:

IPC: G103.6, G103.7

Proponents: Ed Osann, representing Natural Resources Defense Council (eosann@nrdc.org); Sun Kim, representing Sun kim (sun.kim@gatesfoundation.org); CJ Lagan, representing LIXIL (cj.lagan@lixil.com) requests As Modified by Public Comment

Modify as follows:

2021 International Plumbing Code

G103.6 Systems utilizing a combustion process . A non-sewered sanitation system utllizing a combustion process shall comply with the *International Mechanical Code* or *International Fuel Gas Code.*

~~**Exception:** A non-sewered sanitation system *listed* for unvented use.~~

G103.7 Connection to plumbing drainage system . ~~Unless the code official determines otherwise, a~~ A non-sewered sanitation system shall not be required to be connected to the sanitary drainage system of the building or premises.

Commenter's Reason: The amendments in this public comment are responding to the two areas of concern raised by the IPC Technical Committee. The Committee invited the proponents to come back with a public comment with two fixes:
* remove the exemption for certain combustion-based products from the requrirements of the Mechanical Code; and

* remove the reference to an official's discretion regarding the connection of an RT to a building drainage system.

The proponents of the original proposal agree with these recommendations. The changes proposed in this public comment do exactly that -- they cure the two objections raised by the IPC committee. In fact, a companion proposal (P147-21 Part II) to establish the same appendix in the International Residential Code was revised during the Technical Committee Hearing through a floor modification containing these two specific changes and was approved by the IRC Plumbing/Mechanical Committee.

Since this public comment simply provides the requested clarifications, all of the substantive points of need and justification in the original reason statement remain fully applicable here.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
Since this public comment simply provides two narrow clarifications requested by the IPC Technical Committee, the cost impact statement in the original proposal remains fully applicable here. It will neither increase nor decrease the cost of construction.

Public Comment# 2561

NOTE: P147-21 PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P147-21 Part II

Proposed Change as Submitted

Proponents: Edward R. Osann, Natural Resources Defense Council, representing Natural Resources Defense Council (eosann@nrdc.org); CJ Lagan, representing LIXIL (cj.lagan@lixil.com); albert rubin, North Carolina State University, representing self (rubin@ncsu.edu)

2021 International Residential Code

Add new text as follows:

APPENDIX AX
NON-SEWERED SANITATION SYSTEMS

SECTION AX101
GENERAL

AX101.1 Applicability.
The provisions of this chapter shall apply to the installation of non-sewered sanitation systems.

AX101.2 System requirements.
Non-sewered sanitation systems shall comply with ANSI/CAN/IAPMO/ISO 30500.

SECTION AX102
DEFINITIONS

AX102.1 General.
For purposes of this chapter, the following definitions shall apply.

Conditioned Space. An area, room, or space normally occupied and being heated or cooled for human habitation by any equipment.

Non-Sewered Sanitation System. A prefabricated integrated sewage treatment unit that is not connected to a public sewer or private sewage disposal system.

SECTION AX103
INSTALLATION

AX103.1 General.
The installation of non-sewered sanitation systems shall be in accordance with the manufacturer's installation instructions and with Section AX103.2 through AX103.7.

AX103.2 Operating conditions.
A non-sewered sanitation system in either a conditioned or unconditioned space shall be installed where the ambient temperature, ambient humidity, and altitude (atmospheric pressure) are in accordance with the manufacturer's installation instructions or product listing.

AX103.3 Clearances for servicing and maintenance.
A non-sewered sanitation system shall be located to permit access and sufficient clearance for service and maintenance. Unless otherwise specified by the manufacturer's installation instructions, not less than 30 inches in depth, width, and height of working space shall be provided at any access panel.

AX103.4 Backflow prevention.
A domestic water supply connection to a non-sewered sanitation system shall be protected in accordance with Section P2902 of this code.

AX103.5 Effluent storage.
Any container or vessel for the storage of effluent discharged from a non-sewered sanitation system and not integral to such system shall be installed in accordance with Section P2910.9 of this code.

AX103.6 Systems employing combustion.
A non-sewered sanitation system employing combustion shall comply with the mechanical code.

Exception: A non-sewered sanitation system listed for unvented use.

AX103.7 Connection to plumbing system not required.
Unless the Authority Having Jurisdiction determines otherwise, a non-sewered sanitation system is not required to be connected to the sanitary drainage system of the building or premises.

SECTION AX104
MANUAL REQUIRED

AX104.1 Operation and maintenance manual.
Non-sewered sanitation systems shall have an operation and maintenance manual provided by the manufacturer.

AX105 System output.
The use or disposal of all substances exiting the non-sewered sanitation system shall be determined by the Authority Having Jurisdiction.

AX106.1 General.
See Table AX106.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, the standard title, and the section or sections of this appendix that reference the standard.

TABLE AX106.1 REFERENCE STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
ANSI/CAN/IAPMO/ISO 30500-2019	Non-sewered sanitation systems - Prefabricated integrated treatment units - General Safety and performance requirements for design and testing	AX101.2

Reason: This proposal covers the essential considerations that a building official must assess when a non-sewered sanitation system (NSSS) as defined herein is installed in a building. Designed for operation without a sewer connection and, in many cases, without a dedicated water supply, NSSSs are anticipated to meet critical public health needs in areas with limited water and wastewater infrastructure, water supply constraints, and/or unfavorable soils for traditional on-site disposal methods. In the U.S., over 20% of the population relies on an on-site wastewater system. And even today, a portion of our population does not have access to fully functioning sanitation, largely due to lack of affordable infrastructure or to challenging site conditions.
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This proposal addresses the considerations that must be taken into account by building officials regarding the placement and installation of NSSSs in buildings. The proposal would permit (but not require) the installation of a NSSS listed to the ISO standard, and provide an exception to the general requirement in the code that sanitation devices be connected to the building drainage system, unless a connection is required by the AHJ. Certain key protections, such as backflow prevention, proper ventilation of combustion-based units, and proper siting of storage tanks (if any) external to the unit are each specified in the proposal. Considerations of the use and disposal of outputs of the system are specifically referred to an AHJ, which most likely will be a health department.

Criteria for the functioning of the unit for its intended purpose are established by the ISO standard and do not need to be repeated in plumbing code language. It should be noted that the ISO standard was developed by an international group of scientists, engineers, and regulators to assure the highest levels of treatment would apply to all outputs (air, water, and solids) from the device. The performance-based standards allow a variety of technologies to be applied, so long as key metrics are achieved. The microbiological reduction requirements for solid and liquid waste are based on the quantitative microbial risk assessment (QMRA) method recognized by the World Health Organization for this purpose. The requirements of the standard mimic the highest quality standards imposed by regulatory agencies on waste-derived materials destined for reuse. The standard's test procedures are rigorous (both lab and field tests are required), and the proposal allows only NSSSs listed to the standard to be approved for installation under this appendix.

With "Reinvented Toilets" meeting the 30500 standard now on the cusp of commercialization, the arrival of such toilets at job sites across the country can reasonably be expected by the time this code update is published and adopted by states and localities, e.g., 2025. Clear code language will accelerate the availability of safe sanitation for people who lack it today. While much is still unknown about the cost, maintenance, and reliability of NSSSs, or even the business model for their installation and servicing, forward-looking communities and jurisdictions with acute sanitation needs will want to be prepared for the safe installation and use of this promising new technology as it enters the market. This proposal lays out the necessary groundwork for code officials to inspect and approve their installation, set out in an appendix available for voluntary adoption by state and local code bodies.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The proposal creates an appendix for voluntary adoption, and thus poses no additional costs on construction built to the base code. In jurisdictions where it is adopted, the proposal authorizes, but does not require, installation of a non-sewered sanitation device, as defined. Builders remain free to install less expensive sanitary ware if they so choose. First costs of an NSSD are expected to be higher than a conventional flush toilet, but may reduce sewer connection charges. NSSDs may also allow construction on sites that might otherwise be unbuildable due to lack of sewer infrastructure or site conditions unsuitable for conventional on-site systems.

Staff Analysis: A review of the standard(s) proposed for inclusion in the code, ANSI/CAN/IAPMO/ISO 30500-2019 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 20, 2021.

P147-21 Part II

Public Hearing Results

Committee Action: **As Modified**

Committee Modification:

AX103.6 Systems employing combustion.
A non-sewered sanitation system employing combustion shall comply with the mechanical code.

~~**Exception:** A non-sewered sanitation system listed for unvented use.~~

AX103.7 Connection to plumbing system not required. ~~Unless the Authority Having Jurisdiction determines otherwise, a~~ A non-sewered sanitation system is not required to be connected to the sanitary drainage system of the building or premises.

Committee Reason: For the modification: Some extraneous language needed removed and the exception was found to be in conflict with the mechanical and fuel gas sections of the code.
For the proposal as modified: This is a good addition to the appendix of the code as there are some remote areas where septic systems are not possible. The language provides guidance to the code official to be able to work with the local health authority for using this method. (11-0)

P147-21 Part II