

IPC



cdpACCESS

## **2021 GROUP A PROPOSED CHANGES TO THE I-CODES**

April 11 – May 5, 2021  
Virtual Committee Action Hearings

First Printing

Publication Date: March 2021

Copyright © 2021

By

International Code Council, Inc.

ALL RIGHTS RESERVED. This 2021-2022 Code Development Cycle, Group A (2021 Proposed Changes to the 2021 *International Codes* is a copyrighted work owned by the International Code Council, Inc. Without advanced written permission from the copyright owner, no part of this book may be reproduced, distributed, or transmitted in any form or by any means, including, without limitations, electronic, optical or mechanical means (by way of example and not limitation, photocopying, or recording by or in an information storage retrieval system). For information on permission to copy material exceeding fair use, please contact: Publications, 4051 West Flossmoor Road, Country Club Hills, IL 60478 (Phone 1-888-422-7233).

Trademarks: "International Code Council," the "International Code Council" logo are trademarks of the International Code Council, Inc.

PRINTED IN THE U.S.A.

# 2021 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL PLUMBING CODE

## ***PLUMBING CODE COMMITTEE***

**James M. Pappas, CBO, Chair**  
Senior Plans Examiner (MEP)  
City of Scottsdale  
Scottsdale, AZ

**Gregg Gress, Vice Chair**  
Retired  
North Judson, IN

**Joseph Ackroyd, PE, CFM**  
Assistant Commissioner, Technical Affairs and  
Code Development  
New York City Department of Buildings  
New York, NY

**Michael Cudahy**  
Codes and Regulations  
Plastic Pipe and Fittings Association (PPFA)  
Glen Ellyn, IL

**Mark Fasel**  
Manager of Codes & Standards  
Viega LLC  
Broomfield, CO

**Scott J. Friesen, PE**  
Principal Consultant  
Ivey Engineering, Inc.  
San Diego, CA

**Brian Hageman**  
Associate Principal, Plumbing Discipline Lead  
Mazzetti  
San Francisco, CA

**McKenzie W. James**  
Chief Plumbing Inspector  
City of Portland, Oregon  
Portland, OR

**Walt Krzyzanowski**  
Executive Director  
Union Affiliated Contractors, Local #690  
Warminster, PA

**Ramiro D. Mata**  
Sr. Director of Technical and Regulatory Affairs  
American Society of Plumbing Engineers  
Mentor, OH

**Glen Ratliff**  
Building Inspector  
Jefferson County  
Golden, CO

**James A. Richardson, Jr.**  
Plumbing Inspection Supervisor  
City of Columbus (Ohio)  
Columbus, OH

**Matt Sigler**  
Technical Director  
Plumbing Manufacturers International  
Orlando, FL

**George Schluter**  
**Rep:** National Association of Home Builders  
GWS Inc.  
North Kansas City, MO

**Charles White**  
**Rep:** Plumbing Heating and Cooling Contractors  
Assoc.  
VP Regulatory Affairs  
PHCC-National Association  
Falls Church, VA

**Staff Secretariat:**  
**Fred Grable, PE**  
Senior Staff Engineer - Plumbing  
International Code Council  
Central Regional Office  
Country Club Hills, IL

# TENTATIVE ORDER OF DISCUSSION 2021 PROPOSED CHANGES TO THE INTERNATIONAL PLUMBING CODE

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some P code change proposals may not be included on this list, as they are being heard by another committee.

## **IPSDC**

PSD1-21

## **IPC**

P1-21

P2-21

P3-21

FS47-21 Part IV

P4-21

P5-21 Part I

P5-21 Part II

P6-21 Part I

P7-21

P8-21

P9-21

P10-21

P11-21

P12-21

P13-21

P14-21

P15-21

P16-21

P17-21 Part I

P18-21

P19-21

P20-21

P21-21

P22-21

P23-21

G44-21 Part III

G3-21 Part III

P24-21 Part I

P24-21 Part II

P25-21

P26-21

P27-21

P28-21

P38-21

P29-21

P30-21

P31-21

P32-21

P33-21

P34-21

P35-21

P36-21

P37-21 Part I

P37-21 Part II

P39-21 Part I

P39-21 Part II

P49-21

P40-21

P41-21

P42-21

P43-21

P44-21

P45-21 Part I

P45-21 Part II

P46-21

P47-21

P48-21

P50-21

P51-21

P93-21

P94-21

P95-21

P92-21

P100-21

P52-21

P53-21 Part I

P54-21 Part I

P55-21

P56-21

P57-21

P58-21

P59-21

P60-21

P61-21 Part I

P62-21 Part I

P63-21 Part I

P64-21 Part I

P65-21

P74-21 Part I

P76-21 Part I

P117-21 Part I

P67-21

P68-21 Part I

P75-21 Part I

P85-21

P86-21

P87-21 Part I

P88-21

P89-21

P90-21

P91-21

P96-21 Part I

P97-21

P98-21

P99-21

P101-21

P102-21

P103-21

P106-21

P107-21

P108-21

P135-21

P136-21

P138-21

P139-21

P140-21 Part I

P142-21

P143-21 Part I

P144-21

P111-21

P120-21 Part I

P124-21

P66-21

P69-21

P70-21

P71-21

P72-21

P73-21

P7-21

P78-21

P79-21

P80-21

P81-21

P82-21

P83-21

P84-21

P104-21

P105-21

P109-21

P110-21

P112-21

P113-21

P114-21

P115-21

P116-21

P118-21

P119-21

P121-21

P122-21

P123-21

P125-21

P126-21

P127-21

P128-21

P137-21

P141-21

P129-21 Part I

P130-21

P131-21  
P132-21  
P133-21 Part I  
P134-21  
    P146 21  
    G1-21 Part IV  
    PC15-21  
P147-21 Part I

# P1-21

IPC: SECTION 202, 709.1, TABLE 709.1, TABLE 709.1(2) (New)

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**

<b>FIXTURE TYPE</b>	<b>DRAINAGE FIXTURE UNIT VALUE AS LOAD FACTORS</b>	<b>MINIMUM SIZE OF TRAP (inches)</b>
Automatic clothes washers, commercial <sup>a, g</sup>	3	2
Automatic clothes washers, residential <sup>g</sup>	2	2
<del>Bathroom group as defined in Section 202 (1.6 gpf water closet)<sup>f</sup></del>	<del>5</del>	<del>—</del>
<del>Bathroom group as defined in Section 202 (water closet flushing greater than 1.6 gpf)<sup>f</sup></del>	<del>6</del>	<del>—</del>
Bathtub <sup>b</sup> (with or without overhead shower or whirlpool attachments)	2	1½
Bidet	1	1¼
Combination sink and tray	2	1½
Dental lavatory	1	1¼
Dental unit or cuspidor	1	1¼
Dishwashing machine <sup>c</sup> , domestic	2	1½
Drinking fountain	½	1¼
Emergency floor drain	0	2
Floor drains <sup>h</sup>	2 <sup>h</sup>	2
Floor sinks	Note h	2
Kitchen sink, domestic	2	1½
Kitchen sink, domestic with food waste disposer, dishwasher or both	2	1½
Laundry tray (1 or 2 compartments)	2	1½
Lavatory	1	1¼
Shower (based on the total flow rate through showerheads and body sprays) flow rate:		
5.7 gpm or less	2	1½
Greater than 5.7 gpm to 12.3 gpm	3	2
Greater than 12.3 gpm to 25.8 gpm	5	3
Greater than 25.8 gpm to 55.6 gpm	6	4
Service sink	2	1½
Sink	2	1½
Urinal	4	Note d
Urinal, 1 gallon per flush or less	2 <sup>e</sup>	Note d
Urinal, nonwater supplied	½	Note d
Wash sink (circular or multiple) each set of faucets	2	1½
Water closet, flushometer tank, public or private	4 <sup>e</sup>	Note d
Water closet, private (1.6 gpf)	3 <sup>e</sup>	Note d
Water closet, private (flushing greater than 1.6 gpf)	4 <sup>e</sup>	Note d
Water closet, public (1.6 gpf)	4 <sup>e</sup>	Note d
Water closet, public (flushing greater than 1.6 gpf)	6 <sup>e</sup>	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**

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

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 Statement:** 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.

## **P2-21**

IPC: 202 (New), TABLE 604.4

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

### **2021 International Plumbing Code**

**Add new definition as follows:**

**BODY SPRAY.** A shower device for spraying water onto a bather from other than the overhead position.

**Revise as follows:**

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

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY <sup>b</sup>
Body spray (total per shower enclosure)	2.5 gpm at 80 psi
Lavatory, private	2.2 gpm at 60 psi
Lavatory, public (metering)	0.25 gallon per metering cycle
Lavatory, public (other than metering)	0.5 gpm at 60 psi
Shower head <sup>a</sup>	2.5 gpm at 80 psi
Sink faucet	2.2 gpm at 60 psi
Urinal	1.0 gallon per flushing cycle
Water closet	1.6 gallons per flushing cycle

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.

**Reason Statement:** In December 2020, DOE issued a definition of body spray. The proposed definition is consistent with the DOE definition. The only statement not included is that a body spray is not a showerhead. However, that statement is not needed in the code. With the addition of body spray, the water conservation requirements are added to Table 604.4. The allowable amount of water for the body sprays in a shower enclosure is consistent with the flow rate for a showerhead. The body sprays will provide the same level of water conservation as a showerhead with this change.

**Bibliography:** <https://www.energy.gov/sites/prod/files/2020/12/f81/showerheads-final-rule.pdf>

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. A body spray is an optional plumbing fixture that may be installed. As an optional fixture there is no added or reduced cost of construction.

## P3-21

IPC: SECTION 202

**Proponents:** Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

### 2021 International Plumbing Code

**Revise as follows:**

**COPPER ALLOY.** A homogenous mixture of two or more metals alloy where the principle in which copper is the primary component ~~is copper~~  
, such as brass and bronze.

**Reason Statement:** The proposal will uniform the definition with ISPSC and gives an example.

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

---

P3-21

# P4-21

IPC: 202 (New)

**Proponents:** Richard Grace, representing Virginia Plumbing and Mechanical Inspectors Association (VPMIA) and Virginia Building and Code Officials Association (VBCOA) (richard.grace@fairfaxcounty.gov)

## 2021 International Plumbing Code

**Add new definition as follows:**

**SERVICE SINK.** A general purpose sink exclusively intended to be used for facilitating the cleaning of a building or tenant space.

**Reason Statement:** The only specific physical characteristic currently defining a service sink is that it shall have a minimum 1-1/2 inch trap per Table 709.1. This requirement is the same as a "kitchen sink" and "sink" in Table 709.1. As a result the code does not appear to prohibit the use of a kitchen sink to be designated as the minimum fixture service sink. To alleviate the possibility of sinks, which may be used for dishwashing, food preparation or handwashing, from being appropriated for building cleaning and associated caustic products, the definition indicates the service sink as a specific fixture "exclusively" intended for building cleaning.

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

This code change should not increase the cost of construction unless a project had intended to use a kitchen sink or other hand sink as the intended service sink.

---

P4-21

# P5-21 Part I

IPC: SECTION 202, (New)

**Proponents:** Sarah Rice, representing The Preview Group (srice@preview-group.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 IBC-GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

## 2021 International Plumbing Code

Revise as follows:

**TOILET FACILITY.** A room or space that contains not less than one water closet and one lavatory.

**Multiple-user toilet facility.** A toilet facility intended to be used by multiple occupants. Such facilities have more than one water closet and one lavatory. Each water closet is located in its own compartment that is created by vertical partitions.

**Single-user toilet facility** A toilet facility intended to be used by a single occupant and that contains not less than one water closet and one lavatory.

Add new definition as follows:

**FAMILY OR ASSISTED-USE TOILET FACILITY.** A room separate from other toilet facilities intended to be used by either sex, families and those needing assisted care having; an independent entrance, not less than one adult-height water closet, one adult-height lavatory, and no more than one urinal, one child height water closet and one child height lavatory.

**FAMILY OR ASSISTED-USE BATHING ROOM.** A room separate from other bathing rooms intended to be used by either sex, families and those needing assisted care having; an independent entrance, no less than one shower or bathtub, one adult-height water closet and one adult-height lavatory, and no more than one urinal, one child height water closet and one child height lavatory.

---

P5-21 Part I

# P5-21 Part II

IBC: 202 (New)

**Proponents:** Sarah Rice, representing The Preview Group (srice@preview-group.com)

## 2021 International Building Code

Add new definition as follows:

**TOILET FACILITY.** A room or space that contains not less than one water closet and one lavatory.

**FAMILY OR ASSISTED-USE TOILET FACILITY.** A room separate from other toilet facilities intended to be used by either sex, families and those needing assisted care having: an independent entrance, not less than one adult-height water closet, one adult-height lavatory, and no more than one urinal, one child height water closet and one child height lavatory.

**FAMILY OR ASSISTED-USE BATHING ROOM.** A room separate from other bathing rooms intended to be used by either sex, families and those needing assisted care having: an independent entrance, no less than one shower or bathtub, one adult-height water closet and one adult-height lavatory, and no more than one urinal, one child height water closet and one child height lavatory.

**Reason Statement:** This is a companion code change to one being submitted to the IBC for Section 202

Currently the IPC and IBC have so many terms for so many different types of toilet rooms that I have come to refer to it as Dysfunctional Toilet Terminology. It is an issue that has the potential to impact almost every code in the ICC family of codes, but primarily in the IPC and IBC. I am going to start this discussion by venting my frustration regarding the terminology disconnect there is in the I-Codes with regard to plumbing fixture types and requirements.

Somewhere along the road to sorting this out someone thought the answer was to create the term "toilet facility" – but I beg to differ. The IPC definition is:

**TOILET FACILITY.** A room or space that contains not less than one water closet and one lavatory. (IPC Chapter 2)

But if it was the intent of the plumbing code to require any space that has the term "toilet facility" to have a minimum of 1 WC & 1 lavatory, then why is that not stated in Chapter 4 of the IPC and Chapter 29 of the IBC – and NOT just within the definition–. But that horse has left the building so let's move on.

But if you read the definition of Toilet Facility closely it is not saying that only a single WC and a single lavatory is allowed in a "room," but rather to be a Toilet Facility there must be at least one WC and one lavatory - it is not prohibiting the placement of any other type of plumbing fixture from that room. OK, so I get that, but if this is the description of Toilet Facility then what is to be in a room that has one of the following names:

- Family-toilet room
- Assisted-use toilet room
- Multi-user user facilities
- single-user toilet facilities
- single user bathing rooms (403.1.2)
- family or assisted-use toilet and bathing rooms (403.1.2)f
- Family or assisted-use toilet facilities
- What is a "bathing room" anyway? It is not a defined term.

The start to the end I propose is with the acceptance of the definition being proposed in this code change. With the incorporation of the the proposed terms there is a start to making it easier for the code user to know what types of fixtures are to be in each type of "space."

The new terms "Single user toilet facility" and "Multi-user toilet facility" are intended to distinguish when the code speaks to a toilet facility intended to be used by a single person vs one with multiple sets of plumbing fixtures.

The new terms "FAMILY OR ASSISTED-USE TOILET FACILITY" and "FAMILY OR ASSISTED-USE BATHING ROOM" are not really new at all. The terms are found in both the IPC and IBC but are not given any context in which they should be applied. The definitions incorporate the intended function of the spaces along with the number and types of fixtures they should contain. These are based upon the language found IBC Section 1110.2.1.2 for FAMILY OR ASSISTED-USE TOILET FACILITY and in Section 1110.2.1.3 for FAMILY OR ASSISTED-USE BATHING ROOM.

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

This is a correlation and clarification of definitions between the IPC and IBC. Clarifications and correlations do not impact material or labor costs and therefore have no impact on the cost of construction.





# P6-21 Part I

IPC: 305.6, 305.6.1 (New)

**Proponents:** Joseph J. Summers, Chair of the PMGCAC, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

**THIS IS A 4 PART CODE CHANGE. PART I WILL BE HEARD BY THE PLUMBING CODE COMMITTEE. PART II WILL BE HEARD BY THE RESIDENTIAL PLUMBING CODE COMMITTEE. PART III WILL BE HEARD BY THE MECHANICAL CODE COMMITTEE. PART IV WILL BE HEARD BY THE FUEL GAS CODE COMMITTEE.**

**SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.**

## 2021 International Plumbing Code

**Revise as follows:**

**305.6 Protection against physical damage.** In concealed locations where piping, other than cast iron or galvanized steel, is installed through holes or notches in studs, joists, rafters or similar members less than  $1\frac{1}{4}$  inches (32 mm) from the nearest edge of the member, the pipe shall be protected by steel shield plates. ~~Such shield plates shall have a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage).~~ Such plates shall cover the area of the pipe where the member is notched or bored, and shall extend not less than 2 inches (51 mm) above sole plates and below top plates.

**Add new text as follows:**

**305.6.1 Shield plates.** Shield plates shall be of steel material having a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage).

---

P6-21 Part I

# P6-21 Part II

IRC: P2603.2.1.1 (New), P2603.2.1, M1308.2.1, M1308.2.2

**Proponents:** Joseph J. Summers, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org)

## 2021 International Residential Code

**Add new text as follows:**

**P2603.2.1.1 Shield plates.** Shield plates shall be of steel material having a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage).

**P2603.2.1 Protection against physical damage.** In concealed locations, where piping, other than cast-iron or galvanized steel, is installed through holes or notches in studs, joists, rafters or similar members less than 1<sup>1</sup>/<sub>4</sub> inches (31.8 mm) from the nearest edge of the member, the pipe shall be protected by steel shield plates. Such shield plates shall have a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 Gage). Such plates shall cover the area of the pipe where the member is notched or bored, and shall extend not less than 2 inches (51 mm) above sole plates and below top plates.

**Revise as follows:**

**M1308.2.1 Piping through bored holes or notches.** Where *piping* is installed through holes or notches in framing members and is located less than ~~1<sup>1</sup>/<sub>2</sub> inches (38 mm)~~ 1 1/4 inches (32 mm) from the framing member face to which wall, ceiling or floor membranes will be attached, the pipe shall be protected by shield plates that cover the width of the pipe and the framing member and that extend 2 inches (51 mm) to each side of the framing member. Where the framing member that the piping passes through is a bottom plate, bottom track, top plate or top track, the shield plates shall cover the framing member and extend 2 inches (51 mm) above the bottom framing member and 2 inches (51 mm) below the top framing member.

**M1308.2.2 Piping in other locations.** Where piping is located within a framing member and is less than ~~1<sup>1</sup>/<sub>2</sub> inches (38 mm)~~ 1 1/4 inches (32 mm) from the framing member face to which wall, ceiling or floor membranes will be attached, the piping shall be protected by shield plates that cover the width and length of the piping. Where piping is located outside of a framing member and is located less than 1<sup>1</sup>/<sub>2</sub> inches (38 mm) from the nearest edge of the face of the framing member to which the membrane will be attached, the piping shall be protected by shield plates that cover the width and length of the piping.

---

P6-21 Part II

# P6-21 Part III

IMC: 305.5.1 (New), 305.5, 504.8, 504.8.1 (New), 1109.3.1, 1109.3.1.1 (New)

**Proponents:** Joseph J. Summers, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org)

## 2021 International Mechanical Code

**Add new text as follows:**

**305.5.1 Shield plates.** Shield plates shall be of steel material having a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage).

**Revise as follows:**

**305.5 Protection against physical damage.** In concealed locations where piping, other than cast-iron or steel, is installed through holes or notches in studs, joists, rafters or similar members less than ~~1 1/2 inches (38 mm)~~ 1 1/4 inches (32 mm) from the nearest edge of the member, the pipe shall be protected by shield plates. Protective steel shield plates ~~having a minimum thickness of 0.0575 inch (1.463 mm) (No. 16 gage)~~ shall cover the area of the pipe where the member is notched or bored, and shall extend not less than 2 inches (51 mm) above sole plates and below top plates.

**504.8 Protection required against physical damage.** Protective shield plates shall be placed where nails or screws from finish or other work are likely to penetrate the clothes dryer exhaust duct. Shield plates shall be placed on the finished face of all framing members where there is less than 1 1/4 inches (32 mm) between the duct and the finished face of the framing member. Protective shield plates shall ~~be constructed of steel, have a thickness of 0.062 inch (1.6 mm) and~~ extend not less than 2 inches (51 mm) above sole plates and below top plates.

**Add new text as follows:**

**504.8.1 Shield plates.** Shield plates shall be of steel material having a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage).

**Revise as follows:**

**1109.3.1 Pipe protection Protection against physical damage.** In addition to the requirements of Section 305.5, aluminum, copper and steel tube used for Group A2L and B2L refrigerants and located in concealed locations where tubing is installed in studs, joists, rafters or similar member spaces, and located less than ~~1 1/2 inches (38 mm)~~ 1 1/4 inches (32 mm) from the nearest edge of the member, shall be continuously protected by shield plates. Protective steel shield plates ~~having a minimum thickness of 0.0575 inch (1.46 mm) (No. 16 gage)~~ shall cover the area of the tube plus the area extending not less than 2 inches (51 mm) beyond both sides of the tube.

**Add new text as follows:**

**1109.3.1.1 Shield plates.** Shield plates shall be of steel material having a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage).

P6-21 Part III

# P6-21 Part IV

IFGC: 404.7.1, 404.7.2

**Proponents:** Joseph J. Summers, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org)

## 2021 International Fuel Gas Code

Revise as follows:

**404.7.1 Piping through holes or notches.** Where *piping* is installed through holes or notches in framing members and the *piping* is located less than ~~1 1/2 inches (38 mm)~~ 1 1/4 inches (32 mm) from the framing member face to which wall, ceiling or floor membranes will be attached, the pipe shall be protected by shield plates that cover the width of the pipe and the framing member and that extend not less than 4 inches (102 mm) to each side of the framing member. Where the framing member that the *piping* passes through is a bottom plate, bottom track, top plate or top track, the shield plates shall cover the framing member and extend not less than 4 inches (102 mm) above the bottom framing member and not less than 4 inches (102 mm) below the top framing member.

**404.7.2 Piping installed in other locations.** Where the *piping* is located within a framing member and is less than ~~1 1/2 inches (38 mm)~~ 1 1/4 inches (32 mm) from the framing member face to which wall, ceiling or floor membranes will be attached, the *piping* shall be protected by shield plates that cover the width and length of the *piping*. Where the *piping* is located outside of a framing member and is located less than 1 1/2 inches (38 mm) from the nearest edge of the face of the framing member to which the membrane will be attached, the *piping* shall be protected by shield plates that cover the width and length of the *piping*.

**Reason Statement:** The safest place to install piping is in the middle of the wall. But in a typical 3-1/2 inch stud wall, even a 1/2-inch pipe (5/8-inch OD) ends up slightly nearer than the requisite 1-1/2 inch setback from either edge. Depending on enforcement, installers are often required to put shield plates on both sides of the stud. This makes no sense. By simply reducing the setback from 1-1/2 inches to 1-1/4 inches, both 1/2-inch and 3/4-inch piping can be safely installed in the center of the wall without triggering the need for shield plates on both sides. This encourages quality workmanship instead of penalizing it. The pipes are still safely out of range of drywall screws up to 1-1/2 inches long. This proposal is consistent with the National Electrical Code, which specifies a 1-1/4 inch setback from the edge of a stud. It is also consistent with the IRC, which also specifies a 1-1/4 inch setback. Note that the Uniform Plumbing Code allows a 1-inch distance before a shield plate is required. This proposal will bring consistency to the I-Codes.

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 12.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. Reducing the distance from the face of the stud for where shield plates are required could result in *fewer* plates needed for a project. The need for fewer plates would reduce cost of construction but that cost reduction would be insignificant.

P6-21 Part IV

# P7-21

IPC: 305.8 (New), 305.8.1 (New), 305.8.2 (New)

**Proponents:** CRAIG MCKEE, Huckabee, INC, representing Huckabee, Inc (cmckee@huckabee-inc.com)

## 2021 International Plumbing Code

Add new text as follows:

**305.8 Expansive Soil.** Where expansive soil is identified but not removed under foundations, plumbing shall be protected in accordance with Section 305.8.1 or 305.8.2.

**305.8.1 Non-Isolated Foundations.** Under foundations with slabs that are structurally supported by a subgrade, it shall be permitted for plumbing to be buried.

**305.8.2 Isolated Foundations.** Under foundations with a slab or framing that structurally spans over an under-floor space which isolates the slab from the effects of expansive soil swelling and shrinking, the plumbing system shall be suspended so that piping, fittings, hangers and supports are isolated, by adequate void space, from the effects of expansive soil swelling and shrinking.

To protect the void space, soil shall be sloped, benched or retained in accordance with an approved design methodology.

It shall not be permitted for the piping, fittings, hangers and supports below the slab or below the framing to be in contact with soil or any assemblage of materials that is in contact with soil within the active zone. It shall not be permitted for a slab and plumbing to be lifted as an assembly to create the void space unless the under-floor space has a crawl space with access to allow inspection and repair of plumbing after lifting.

Exception: It shall be permitted for the piping, fittings, hangers, and supports below the slab or below the framing to be in contact with structural elements of the foundation that are designed to resist the effects of expansive soil swelling and shrinking.

Organic materials shall not be used for hangers, supports and soil retention systems. Materials subject to corrosion shall not be used for hangers, supports and soil retention systems unless protected in an approved manner.

Where piping transitions to a buried condition beyond the perimeter of the foundation, an adequately flexible fittings shall be provided in the piping system to accommodate the effects of expansive soil swelling and shrinking.

**Reason Statement:** Currently, the IPC does not explicitly require protection of plumbing hangers and supports from expansive soil. In some instances, millions of dollars of damages per facility to plumbing have been caused by expansive soil. This proposed change would require protection of plumbing, hangers, and supports from expansive soil under buildings to avoid these cases. Refer to the attached 14 page document for additional supporting information.

**Cost Impact:** The code change proposal will increase the cost of construction  
Generally speaking, the following are estimated cost impacts:

- There will be no cost increase or decrease for buildings where there is no expansive soil or expansive soil is removed.
- There will be no cost increase or decrease for buildings where there is expansive soil but the foundation is a slab-on-ground.
- There will be no cost increase or decrease for buildings where there is expansive soil with a foundation over a crawl space, suspended and isolated utilities and flexible expansion joints at the transitions where plumbing becomes buried.
- There will be no cost increase or decrease for buildings where there is expansive soil with a foundation over carton voidforms, suspended and isolated utilities and flexible expansion joints at the transitions where plumbing becomes buried.
- There might possibly be a minor cost decrease, less than approximately 0.1% of the total initial cost of construction for example, for buildings where there is expansive soil with a foundation over carton voidforms, and the original design included proprietary systems that claim to provide a void but actually can impose loads onto the plumbing, hangers and/or supports, and where flexible expansion joints are not included at the transitions.
- There will be a relatively minor increase in the initial construction cost, less than approximately 0.1% of the total initial cost of construction for example, for buildings where there is expansive soil with a foundation over a crawl space, and the original design included a few areas with buried utilities and no flexible expansion joints at the transitions. However, for many cases there will be a reduction in maintenance costs that will more than offset the initial construction cost increase.
- There will be a definite increase in the initial construction cost, possibly approximately 1% of the total initial cost of construction for example, for buildings where there is expansive soil with a slab-on-void foundation, and the original design included buried utilities. However, for many cases there will be a reduction in maintenance costs that will more than offset the initial construction cost increase.

# P8-21

IPC: 305.8 (New), 305.8.1 (New), 305.8.2 (New)

**Proponents:** Robert Nicholas, representing Structural Engineer Association of Texas (Robert@DiEngineers.com)

## 2021 International Plumbing Code

Add new text as follows:

**305.8 Expansive Soil.** Where expansive soil is identified but not removed under foundations, plumbing shall be protected in accordance with Section 305.8.1 or 305.8.2.

**305.8.1 Non-Isolated Foundations.** Under foundations with slabs that are structurally supported by a subgrade, it shall be permitted for plumbing to be buried.

**305.8.2 2 Isolated Foundations.** Under foundations with a slab or framing that structurally spans over an under-floor space which isolates the slab from the effects of expansive soil swelling and shrinking, the plumbing shall be suspended so that plumbing, hangers and supports are isolated by adequate voidspace, from the effects of expansive soil swelling and shrinking.

To protect the voidspace, soil shall be sloped, benched or retained in accordance with an approved design methodology. It shall not be permitted for the plumbing, hangers and supports below the slab or below the framing to be in contact with soil or any assemblage of materials that is in contact with soil within the active zone. It shall not be permitted for a slab and plumbing to be lifted as an assembly to create the voidspace unless the under-floor space is a crawlspace with access to allow inspection of plumbing after lifting.

Materials subject to decay shall not be used for hangers, supports and soil retention systems. Materials subject to corrosion shall not be used for hangers, supports and soil retention systems unless protected in an approved manner.

Where plumbing transitions to a buried condition beyond the perimeter of the foundation, an adequately flexible expansion joint shall be provided in the plumbing.

**Reason Statement:** Currently, the IPC does not explicitly require protection of piping, fittings, hangers, and supports from expansive soil. In some instances, millions of dollars of damages per facility to plumbing have been caused by expansive soil. This proposed change would require protection of piping, fittings, hangers, and supports from expansive soil under buildings to avoid these cases. Refer to the attached 14 page supporting document.

**Cost Impact:** The code change proposal will increase the cost of construction  
Generally speaking, the following are estimated cost impacts:

- There will be no cost increase or decrease for buildings where there is no expansive soil or expansive soil is removed.
- There will be no cost increase or decrease for buildings where there is expansive soil but the foundation is a slab-on-ground. There will be no cost increase or decrease for buildings where there is expansive soil with a foundation over a crawl space, suspended and isolated utilities and flexible expansion joints at the transitions where plumbing becomes buried.
- There will be no cost increase or decrease for buildings where there is expansive soil with a foundation over carton void forms, suspended and isolated utilities and flexible expansion joints at the transitions where plumbing becomes buried.
- There might possibly be a minor cost decrease, less than approximately 0.1% of the total initial cost of construction for example, for buildings where there is expansive soil with a foundation over carton void forms, and the original design included proprietary systems that claim to provide a void but actually can impose loads onto the plumbing, hangers and/or supports, and where flexible expansion joints are not included at the transitions.
- There will be a relatively minor increase in the initial construction cost, less than approximately 0.1% of the total initial cost of construction for example, for buildings where there is expansive soil with a foundation over a crawl space, and the original design included a few areas with buried utilities and no flexible expansion joints at the transitions. However, for many cases there will be a reduction in maintenance costs that will more than offset the initial construction cost increase.
- There will be a definite increase in the initial construction cost, possibly approximately 1% of the total initial cost of construction for example, for buildings where there is expansive soil with a slab-on-void foundation, and the original design included buried utilities. However, for many cases there will be a reduction in maintenance costs that will more than offset the initial construction cost increase.

# P9-21

IPC: 306.2.4 (New)

**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 Statement:** 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 3<sup>rd</sup> 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

## **P10-21**

IPC: TABLE 308.5

**Proponents:** Pennie L Feehan, Pennie L Feehan Consulting, representing Copper Development Association (penniefeehan@me.com)

### **2021 International Plumbing Code**

Revise as follows:



**TABLE 308.5  
HANGER SPACING**

Portions of table not shown remain unchanged.

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
Acrylonitrile butadiene styrene (ABS) pipe	4	10 <sup>b</sup>
Aluminum tubing	10	15
<del>Brass pipe</del>	<del>10</del>	<del>10</del>
Cast-iron pipe	5 <sup>a</sup>	15
Chlorinated polyvinyl chloride (CPVC) pipe and tubing, 1 inch and smaller	3	10 <sup>b</sup>
Chlorinated polyvinyl chloride (CPVC) pipe and tubing, 1¼ inches and larger	4	10 <sup>b</sup>
Copper or copper-alloy pipe	12	10
Copper or copper-alloy tubing, 1¼-inch diameter and smaller	6	10
Copper or copper-alloy tubing, 1½-inch diameter and larger	10	10
Cross-linked polyethylene (PEX) pipe, 1 inch and smaller	2.67 (32 inches)	10 <sup>b</sup>
Cross-linked polyethylene (PEX) pipe, 1¼ inches and larger	4	10 <sup>b</sup>
Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pipe	2.67 (32 inches)	4
Lead pipe	Continuous	4
Polyethylene/aluminum/polyethylene (PE-AL-PE) pipe	2.67 (32 inches)	4
Polyethylene of raised temperature (PE-RT) pipe, 1 inch and smaller	2.67 (32 inches)	10 <sup>b</sup>
Polyethylene of raised temperature (PE-RT) pipe, 1¼ inches and larger	4	10 <sup>b</sup>
Polypropylene (PP) pipe or tubing, 1 inch and smaller	2.67 (32 inches)	10 <sup>b</sup>
Polypropylene (PP) pipe or tubing, 1¼ inches and larger	4	10 <sup>b</sup>
Polyvinyl chloride (PVC) pipe	4	10 <sup>b</sup>
Stainless steel drainage systems	10	10 <sup>b</sup>
Steel pipe	12	15

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

- a. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.
- b. For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe.

**Reason Statement:** This line is not necessary because brass is a copper alloy and is covered under the copper alloy lines.

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

P10-21

# P11-21

IPC: 308.6

**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 Statement:** 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

# P12-21

IPC: 308.7.1

**Proponents:** John Wilson, Teekay Couplings, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**308.7.1 Location.** For pipe sizes greater than 4 inches (102 mm), restraints shall be provided for drainpipes at all changes in direction and at all changes in diameter greater than two pipe sizes. Braces, blocks, rodding or other suitable methods as specified by the coupling manufacturer for ASTM F1476 Type II Class 2 flexible & restrained shall be utilized.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilised around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless cast iron utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

Using Gasketed Mechanical couplings to provide the Axial restraint should reduce the amount additional work and materials required, and speed up installation time.

P12-21

---

# P13-21

IPC: 311.1, ISO (New), IAPMO Chapter 15 (New)

**Proponents:** Edward R. Osann, Natural Resources Defense Council, representing Natural Resources Defense Council (eosann@nrdc.org); CJ Lagan, American Standard / LIXIL, representing LIXIL (cj.lagan@lixil.com); albert rubin, representing self (rubin@ncsu.edu)

## 2021 International Plumbing Code

Revise as follows:

**311.1 General.** Toilet facilities shall be provided for construction workers and such facilities shall be maintained in a sanitary condition. Construction worker toilet facilities of the nonsewer type shall conform to PSAI Z4.3 or to IAPMO/ISO 30500.

Add new text as follows:

# ISO

New Promulgator

Add new standard(s) as follows:

# IAPMO

IAPMO Group  
4755 E. Philadelphia Street  
Ontario CA 91761 USA

**ANSI/CAN/IAPMO/ISO 30500-2019: Non-sewered sanitation systems - Prefabricated integrated treatment units - General Safety and performance requirements for design and testing**

**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.

**Reason Statement:** Currently, this section of the code requires toilet facilities to be provided for construction workers, and that if such toilets are of the non-sewered type, they must conform to standard PSAI Z4.3. This proposal allows (but does not require) an additional type of non-sewered toilet to be provided for construction workers -- a sanitation system meeting the requirements of ANSI/CAN/IAPMO/ISO 30500.

To facilitate the commercialization of hi-tech toilets providing complete onsite treatment of human waste without connection to a sanitary drainage system or septic tank, an ISO standard was adopted in 2018 to establish the key performance attributes and test procedures. 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 that was adopted in identical form as a US and Canadian national standard in 2019.

Criteria for the functioning of the unit for the capture and treatment of sanitary waste 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 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.

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. Such units may be offered as portable units. Operators of portable toilets should have the option of providing essential sanitation for construction workers with a toilet meeting the 30500 standard.

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

This code change proposal adds an additional choice of equipment to satisfy the need for temporary toilet facilities for construction workers. But their use an option, not a requirement. Thus the proposal has no impact on the cost of construction.

P13-21

# P14-21

IPC: 312.4 (New)

**Proponents:** Joseph J. Summers Chair of the PMGCAC, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

## 2021 International Plumbing Code

Add new text as follows:

**312.4 Drainage and vent vacuum test.** The portion of the drainage and vent system under test shall be evacuated of air by a vacuum type pump to achieve a uniform gauge pressure of negative 5 pounds per square inch or a negative 10 inches of mercury column (negative 34 kPa). This pressure shall be held without the removal of additional air for a period of 15 minutes. Any adjustments to the test pressure required because of changes in ambient temperatures or the seating of gaskets shall be made prior to the beginning of the test period.

**Reason Statement:** In the last code cycle, P11-18 Part II was approved for the IRC to include vacuum testing as an option. This proposal is to provide consistency with the IRC. This alternate test is a means for testing piping systems when the ambient temperatures are below freezing where water cannot be used for the test. There is no safety hazard in testing with a vacuum. The equipment to perform the test is readily available on the market and many contractors have this equipment to perform the test among their tools at present. This allowance will actually help to mitigate the cost of construction delays and prevent potential damage to piping systems when water is used for where air cannot be used for testing.

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 16.

**Cost Impact:** The code change proposal will decrease the cost of construction

Providing more alternatives for complying with the code usually lowers the cost of construction. This would be especially true for geographic locations having freezing temperatures where water could not be used for testing without the added cost of antifreeze and the subsequent disposal costs.

---

P14-21

# P15-21

IPC: 312.10.2, ASSE Chapter 15 (New)

**Proponents:** Jason Shank, ASSE International, representing ASSE International

## 2021 International Plumbing Code

**Revise as follows:**

**312.10.2 Testing.** Reduced pressure principle, double check, pressure vacuum breaker, reduced pressure detector fire protection, double check detector fire protection, and spill-resistant vacuum breaker backflow preventer assemblies and hose connection backflow preventers shall be tested at the time of installation, immediately after repairs or relocation and at least annually by a backflow assembly tester or repairer that is certified in accordance with ASSE Series 5000 or any other additional certification that is approved by the code official. The testing procedure shall be performed in accordance with one of the following standards: ASSE 5013, ASSE 5015, ASSE 5020, ASSE 5047, ASSE 5048, ASSE 5052, ASSE 5056, CSA B64.10 or CSA B64.10.1. Test gauges shall comply with ASSE 1064.

**Add new standard(s) as follows:**

# ASSE

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

### Series 5000-2017: Cross-Connection Control Professional Qualifications Standard

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASSE Series 5000-2017 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. Series 5000-2017

**Reason Statement:** The proposal states that the testing of these devices requires an certification. It leaves it up the AHJ to make that determination.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This proposed change is putting in code what is common practice already in the industry.

P15-21

# P16-21

IPC: TABLE 403.1

**Proponents:** Lee Kranz, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov); Micah Chappell, representing Washington Association of Building Officials (micah.chappell@seattle.gov)

## 2021 International Plumbing Code

Revise as follows:

**TABLE 403.1**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup> (See Sections 403.1.1 and 403.2)**

Portions of table not shown remain unchanged.

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
			MALE	FEMALE	MALE	FEMALE			
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 <sup>e</sup>
		<u>Training and skill development not in a school or academic program</u>	<u>1 per 50</u>		<u>1 per 50</u>		=	<u>1 per 100</u>	<u>1 service sink</u>

- 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.

**Reason Statement:** Training and skill development uses such as tutoring centers, martial arts studios and gymnastics facilities are often mistaken as educational uses even though they are listed in Section 304 as a business occupancy. Adding training and skill development as a business use in Table 2902.1 will clarify the intended application of these facilities and bring the table into alignment with Section 304. The factors to determine the minimum number of fixtures is proposed to be consistent with a business use due to the typically low occupant loads seen for these types of facilities. If approved, this code change will create better consistency in the application of the code.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This change will not impact the cost of construction. The purpose is to create consistency in application of the code for training and skill development uses.



# **P17-21 Part I**

IPC: TABLE 403.1

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

**THIS IS A 2 PART PROPOSAL. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE ISPSC COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.**

## **2021 International Plumbing Code**

Revise as follows:

**TABLE 403.1**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup> (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 <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Nightclubs, bars, taverns, dance halls and buildings for similar purposes <sup>d</sup>	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
		Restaurants, banquet halls and food courts <sup>d</sup>	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
		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 <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Passenger terminals and transportation facilities <sup>d</sup>	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
		Places of worship and other religious services <sup>d</sup>	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink
		Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities <sup>f</sup>	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities <sup>f</sup>	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
2	Business	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, 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 <sup>e</sup>
3	Educational	Educational facilities	1 per 50		1 per 50		—	1 per 100	1 service sink
4	Factory and industrial	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		—	1 per 400	1 service sink

5	Institutional	Custodial care facilities	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink
		Medical care recipients in hospitals and nursing homes	1 per room <sup>c</sup>	1 per room <sup>c</sup>	1 per 15	1 per 100	1 service sink per floor
		Employees in hospitals and nursing homes <sup>b</sup>	1 per 25	1 per 35	—	1 per 100	—
		Visitors in hospitals and nursing homes	1 per 75	1 per 100	—	1 per 500	—
		Prisons <sup>b</sup>	1 per cell	1 per cell	1 per 15	1 per 100	1 service sink
		Reformatories, detention centers, and correctional centers <sup>b</sup>	1 per 15	1 per 15	1 per 15	1 per 100	1 service sink
		Employees in reformatories, detention centers and correctional centers <sup>b</sup>	1 per 25	1 per 35	—	1 per 100	—
		Adult day care and child day care	1 per 15	1 per 15	1	1 per 100	1 service sink
6	Mercantile	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500	1 per 750	—	1 per 1,000	1 service sink <sup>e</sup>
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

- 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 indoor and outdoor public swimming pools shall be in accordance with Section 609 of the International Swimming Pool and Spa Code.

---

P17-21 Part I

# P17-21 Part II

ISPSC: 609.2.1

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

## 2021 International Swimming Pool and Spa Code

Revise as follows:

**609.2.1 Water area less than 7500 square feet.** Facilities that have less than 7500 gross square feet (697 m<sup>2</sup>) of water area available for bather access shall have dressing facilities and not less than one cleansing shower for males and one cleansing shower for females.

**Exception:**

This requirement shall not apply to Class C semi-public pools associated with hotels or motels.

**Reason Statement:** For hotel/motel chains that provide small pools for their guests, a single user toilet/changing room should be sufficient as the hotel guests generally will change clothes in their hotel rooms. However, there is no language in the code that allows for simultaneous use in a situation like this. I believe the proposed language will provide for larger hotel/motels that may have "water parks" associated with them to provide more facilities while not requiring that same burden on the smaller hotel/motels with pools only for hotel/motel guests.

**Cost Impact:** The code change proposal will decrease the cost of construction  
This language has the ability to decrease the cost of construction as it will require less plumbing fixtures.

---

P17-21 Part II

# **P18-21**

IPC: TABLE 403.1

**Proponents:** Valarie Evans, representing SNICC, SNBO (evansv@cityofnorthlasvegas.com)

## **2021 International Plumbing Code**

Revise as follows:

**TABLE 403.1**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup> (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 <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Nightclubs, bars, taverns, dance halls and buildings for similar purposes <sup>d</sup>	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
		Restaurants, banquet halls and food courts <sup>d</sup>	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
		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 <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Passenger terminals and transportation facilities <sup>d</sup>	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
		Places of worship and other religious services <sup>d</sup>	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink
		Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities <sup>f</sup>	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
2	Business	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, 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 <sup>e</sup>
3	Educational	Educational facilities	1 per 50		1 per 50		—	1 per 100	1 service sink
4	Factory and industrial	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		—	1 per 400	1 service sink

5	Institutional	Custodial care facilities	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink
		Medical care recipients in hospitals and nursing homes	1 per room <sup>c</sup>	1 per room <sup>c</sup>	1 per 15	1 per 100	1 service sink per floor
		Employees in hospitals and nursing homes <sup>b</sup>	1 per 25	1 per 35	—	1 per 100	—
		Visitors in hospitals and nursing homes	1 per 75	1 per 100	—	1 per 500	—
		Prisons <sup>b</sup>	1 per cell	1 per cell	1 per 15	1 per 100	1 service sink
		Reformatories, detention centers, and correctional centers <sup>b</sup>	1 per 15	1 per 15	1 per 15	1 per 100	1 service sink
		Employees in reformatories, detention centers and correctional centers <sup>b</sup>	1 per 25	1 per 35	—	1 per 100	—
		Adult day care and child day care	1 per 15	1 per 15	1	1 per 100	1 service sink
		<u>Child day care</u>	<u>1 per 15</u>	<u>1 per 15</u>	<u>—</u>	<u>1 per 100</u>	<u>1 service sink</u>
6	Mercantile	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500	1 per 750	—	1 per 1,000	1 service sink <sup>e</sup>
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	1 per 100	1 per 100	—	1 per 1,000	1 service sink



- a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.
- b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
- c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.
- d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
- e. For business and mercantile classifications with an occupant load of 15 or fewer, service sinks shall not be required.
- f. The required number and type of plumbing fixtures for outdoor public swimming pools shall be in accordance with Section 609 of the International Swimming Pool and Spa Code.

**Reason Statement:** The majority of day cares are classified as Group E occupancies. When a day care is classified as a Group I-4 occupancy, Table 2902.1 requires a bathtub/shower to be provided that is not required within Group E day care occupancies. Table 2902.1 requires the same minimum number of required plumbing fixtures for adult and child daycares. This proposal will separate adult daycares from child day cares and remove the requirement for a bathtub/shower from child day cares. All other plumbing fixture requirements for both categories will remain the same (i.e. water closets, lavatories, service sinks, etc.).

Removing the bathtub/shower fixture from these occupancies does not reduce the overall level of sanitary services and/or conditions within the facility. It is believed that the reason a bathtub/shower requirement has traditionally applied to this occupancy group was to accommodate the need to change the diapers of children less than 2.5 years old (i.e. children that are not "potty-trained") which is redundant given these facilities likely have baby changing tables provided.

Additionally, removing the bathtub/shower fixture requirement from this occupancy group increases a child's level of safety by reducing the risk of potential exposure to sexual misconduct. Group I-4 daycares accept children of all ages and it is not unreasonable to question why a facility is required to provide bathing facilities wherein children are under the custodial care by persons other than parents or guardians.

**Cost Impact:** The code change proposal will decrease the cost of construction  
The cost of construction will be reduced when the bathtub/shower is not installed.

## **P19-21**

IPC: TABLE 403.1

**Proponents:** Eric Bressman, representing Ankrom Moisan Architects (ericb@ankrommoisan.com)

### **2021 International Plumbing Code**

Revise as follows:

**TABLE 403.1**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup> (See Sections 403.1.1 and 403.2)**

Portions of table not shown remain unchanged.

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
			MALE	FEMALE	MALE	FEMALE			
7	Residential	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink
		Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		Apartment house <sup>a</sup>	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

- 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*.
- g. Accessory storage and service spaces shall not be required to have additional fixtures except where the occupant load of those spaces exceeds 50. Occupant loads greater than 50 shall be provided with one single user toilet facility.

**Reason Statement:** A typical apartment building includes a variety of spaces such as bike storage rooms, electrical closets, and other spaces that are not normally occupied. The current Code exempts the parking areas, but not other spaces. In many jurisdictions, requirements for bike storage alone can result in spaces that may have up to 20 or more occupants. These spaces are often scattered throughout the building and can trigger requirements for multiple separate toilet fixtures due to travel distance limitations per Section 2902.3.3, even though the occupants all live in the building and are provided with fixtures in their units.

This proposal would not apply to normally occupied spaces such as leasing offices, amenity or recreation facilities in the building. Toilets would still be required based on the number of occupants for those spaces.

**Cost Impact:** The code change proposal will decrease the cost of construction

By not requiring additional plumbing fixtures for normally unoccupied spaces, this proposal would reduce construction costs

## **P20-21**

IPC: TABLE 403.1

**Proponents:** Eric Bressman, representing Ankrom Moisan Architects (ericb@ankrommoisan.com)

### **2021 International Plumbing Code**

Revise as follows:

**TABLE 403.1**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>** (See Sections 403.1.1 and 403.2)

Portions of table not shown remain unchanged.

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
			MALE	FEMALE	MALE	FEMALE			
7	Residential	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink
		Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units
		<u>Occupants for normally occupied spaces other than dwelling units</u>	<u>1 per 150</u>	<u>1 per 75</u>	<u>1 per 200</u>		—	<u>1 per floor</u>	
		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

- 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.

**Reason Statement:** The current table does not take into account that many of the occupants of spaces other than the dwelling units, have access to plumbing fixtures in their units. Recognizing that some occupants won't live in the building, such as leasing agents and maintenance staff, a limited number of fixtures will be required. However, when determining the number of occupants using amenity spaces such as exercise rooms, social gathering spaces or other assembly areas the code should take into account that at least some portion of the occupants are likely to have access to their own bathrooms within the distance limits of Section 403.3.3

The factors proposed will result in a lower number of fixtures than Business or some Assembly uses, but is not so extreme that it would create delays for occupants, or over-use of the fixtures.

**Cost Impact:** The code change proposal will decrease the cost of construction

The lower plumbing fixture requirements will reduce construction costs for the fixtures and associated piping as well as the enclosing elements of the rooms.

## **P21-21**

IPC: TABLE 403.1

**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<sup>a</sup> (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 <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Nightclubs, bars, taverns, dance halls and buildings for similar purposes <sup>d</sup>	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
		Restaurants, banquet halls and food courts <sup>d</sup>	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
		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 <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Passenger terminals and transportation facilities <sup>d</sup>	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
		Places of worship and other religious services <sup>d</sup>	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink
		Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities <sup>f</sup>	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
2	Business	Buildings for the transaction of business, <u>non-medical</u> professional services, other services involving merchandise, office buildings, banks, <del>ambulatory care</del> , light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink <sup>e</sup>
		<u>Ambulatory care facilities and Outpatient clinics</u>	<u>1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50</u>	<u>1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50</u>	<u>1 per 50</u>			<u>1 per 100</u>	<u>1 service sink per floor</u>

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
5	Institutional	<u>Alcohol and drug centers</u> <u>Congregate care facilities</u> <u>Group homes</u> <u>Halfway houses</u> <u>Social rehabilitation facilities</u> <u>Foster care facilities</u> <u>Footnote b</u>	1 per 10 care recipients	1 per 10 care recipients	1 per 8 care recipients		
		<div> <div>Assisted living and residential board and care facilities with care recipients who receive Custodial care facilities</div> <div> <u>Sleeping units for care recipients</u>  <u>Footnote c</u> </div> </div>	1 per 2 to 4 sleeping units	1 per 2 to 4 sleeping units	1 per 8 sleeping units	1 per 100	1 service sink
		<div> <div>Assisted living and residential board and care facilities with care recipients who receive Custodial care facilities</div> <div> <u>Dwelling units for care recipients</u> </div> </div>	1 per dwelling unit	1 per dwelling unit	1 per dwelling unit		1 kitchen sink per dwelling unit
		<div> <div>Assisted living and residential board and care facilities with care recipients who receive Custodial care facilities</div> <div> <u>Employee facilities</u> </div> </div>	1 per 60 care recipient units	1 per 60 care recipient units		1 per 100	1 service sink per floor
		<div> <div>Assisted living and residential board and care facilities with care recipients who receive Custodial care facilities</div> <div> <u>Visitor facilities</u> </div> </div>	1 per 75 care recipient units	1 per 75 care recipient units			
		<div> <div>Nursing homes</div> <div> <u>Sleeping units for care recipients</u>  <u>Footnote c</u> </div> </div>	1 per 2 care recipient sleeping units	1 per 2 care recipient sleeping units	1 per 8 care recipient sleeping units		
		<div> <div>Nursing homes</div> <div> <u>Employee facilities</u> </div> </div>	1 per 60 care recipient units	1 per 60 care recipient sleeping units		1 per 100	1 service sink per floor
		<div> <div>Nursing homes</div> <div> <u>Visitor facilities</u> </div> </div>	1 per 75 care recipient units	1 per 75 care recipient sleeping rooms			
		<div> <div>Medical care recipients in hospitals and nursing homes</div> <div> <u>Sleeping units for care recipients</u> </div> </div>	1 per room care recipient sleeping unit	1 per room care recipient sleeping unit	1 per 15 to 100 care recipient sleeping unit	1 per 100	1 service sink per floor
		<div> <div>Medical care recipients in hospitals and nursing homes</div> <div> <u>Care recipient treatment areas</u> </div> </div>	1 per 25 care recipient treatment rooms	1 per 50 care recipient treatment rooms		1 per 100	
		<div> <div>Medical care recipients in hospitals and nursing homes</div> <div> <u>Employee facilities</u> </div> </div>	1 per 25 care recipient sleeping units or treatment room	1 per 35 care recipient sleeping units or treatment room	1 per 50 care recipient sleeping units or treatment room	1 per 100	1 service sink per floor
		<u>Footnote b</u>					



		Visitor facilities	1 per 75 care recipient sleeping room or treatment room	1 per 100 care recipient sleeping room or treatment room	1 per 50 care recipient sleeping room or treatment room		1 per 500	=
		Employees in hospitals and nursing homes <sup>b</sup>	1 per 25	1 per 35	—	1 per 100	—	
		Visitors in hospitals and nursing homes	1 per 75	1 per 100	—	1 per 500	—	
		Prisons <sup>b</sup>	1 per cell	1 per cell	1 per 15	1 per 100	1 service sink	
		Reformatories, detention centers, and correctional centers <sup>b</sup>	Cells	1 per 15	1 per 15	1 per 15	1 per 100	1 service sink
		Employees in reformatories, detention centers and correctional centers <sup>b</sup>	1 per 25	1 per 35	—	1 per 100	—	
		Adult day care and child day care	1 per 15	1 per 15	1	1 per 100	1 service sink	
6	Mercantile	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500	1 per 750	—	1 per 1,000	1 service sink <sup>e</sup>	
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 care recipients receiving custodial care	1 per 10 care recipients	1 per 10 care recipients	1 per 8 care recipients	1 per 100	1 service kitchen sink	
		One- and two-family dwellings and lodging houses with five or fewer guestrooms	1 per dwelling unit	1 per dwelling unit	1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit	
		Congregate living facilities with 16 or fewer persons	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink	

8	Storage	Structures for the storage of goods, warehouses, storehouse and freight depots. Low and Moderate Hazard.	1 per 100	1 per 100	—	1 per 1,000	1 service sink
---	---------	--	-----------	-----------	---	-------------	----------------

- a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.
- b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
- c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent ~~patient-care recipient~~ sleeping units shall be permitted provided that each ~~patient-care recipient~~ 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.

**Reason Statement:** The calculations for occupant load in the IBC does not distinguish between employees, customers, patients, inmates, etc.

The above recommendation for reformatories, detention centers and correctional centers translates the recommended staffing/patient ratio to the number of beds.

**Example:** A detention center has an average ratio of one employee to eight inmates (1:8). Assume a 1000 bed facility would require a minimum of 125 employees (1000/8=125). The 2021 IPC required 1 water closets per 25 employees and using the 1:8 ratio would required 5 water closets. 1,000 bed facility with 5 water closets for employees = 1 water closet required for every 200 beds. Lavatory criteria is 1.4 times the requirements for water closets (35/25 = 1.4). 200 beds\*1.4 = 280 employees per lavatory, rounded up to 1 lavatory per 300 employees.

The calculation for the number of visitors to patient beds for hospitals and nursing homes was developed as follows;

1,000 bed facility  
 1 visitor per bed on average  
 1,000 visitors at 1 wc per 75 visitors = 13 water closets required  
 1,000 beds / 13 wac = 1 wc per 75 beds

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 22.

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

The design requirements for licensing these types of care facilities already require these minimum numbers of plumbing fixtures. This proposal simply brings the table in alignment with what is already being done by the care industry. Although the proposal adds more “requirements” to the code (leading one to believe that there is an increase in cost), the care industry has been providing these numbers of fixtures for some time. As no additional materials or labor result from stating what is already being done, there is no impact to the cost of construction.

P21-21

## **P22-21**

IPC: TABLE 403.1, 410.4

**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<sup>a</sup> (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 <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Nightclubs, bars, taverns, dance halls and buildings for similar purposes <sup>d</sup>	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
		Restaurants, banquet halls and food courts <sup>d</sup>	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
		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 <sup>d</sup>	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		Passenger terminals and transportation facilities <sup>d</sup>	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
		Places of worship and other religious services <sup>d</sup>	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink
		Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities <sup>f</sup>	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
2	Business	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, 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 <sup>e</sup>
3	Educational	Educational facilities	1 per 50		1 per 50		—	1 per 100	1 service sink
4	Factory and industrial	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		—	1 per 400	1 service sink

5	Institutional	Custodial care facilities	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink
		Medical care recipients in hospitals and nursing homes	1 per room <sup>c</sup>	1 per room <sup>c</sup>	1 per 15	1 per 100	1 service sink per floor
		Employees in hospitals and nursing homes <sup>b</sup>	1 per 25	1 per 35	—	1 per 100	—
		Visitors in hospitals and nursing homes	1 per 75	1 per 100	—	1 per 500	—
		Prisons <sup>b</sup>	1 per cell	1 per cell	1 per 15	1 per 100	1 service sink
		Reformatories, detention centers, and correctional centers <sup>b</sup>	1 per 15	1 per 15	1 per 15	1 per 100	1 service sink
		Employees in reformatories, detention centers and correctional centers <sup>b</sup>	1 per 25	1 per 35	—	1 per 100	—
		Adult day care and child day care	1 per 15	1 per 15	1	1 per 100	1 service sink
6	Mercantile	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500	1 per 750	—	1 per 1,000	1 service sink <sup>e</sup>
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			

9.	<u>Shelters</u>	<u>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>first 80 and 1 per 80 for the remainder exceeding 80</u>	<u>1 per 40</u>	<u>1 per 100</u>	<u>1 service sink</u>
----	-----------------	--	--	---	-----------------	------------------	-----------------------

- 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 Statement:** 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.

## **P23-21**

IPC: TABLE 403.1

**Proponents:** Daniel Dain, Huckabee, representing Huckabee (daniel.dain@huckabee-inc.com)

### **2021 International Plumbing Code**

Revise as follows:

**TABLE 403.1**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup> (See Sections 403.1.1 and 403.2)**

Portions of table not shown remain unchanged.

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
			MALE	FEMALE	MALE	FEMALE			
3	Educational <sup>a</sup>	Educational facilities	1 per 50		1 per 50		—	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.
- g. The number of occupants used for Educational occupancies to determine the minimum number of plumbing fixtures required shall be based upon the actual student capacity of the facility, not the occupants as determined by this code. The minimum number of plumbing fixtures required for any other occupancies within the same Educational facility on the same site shall be determined separately. Any plumbing fixtures that are accessible to another occupancy by location can contribute toward the total number of required plumbing fixtures for such occupancy, with no simultaneous use among other occupancies considered. All occupancies shall have access by location per Section 403.3 to the minimum number of plumbing fixtures required.

**Reason Statement:** To potentially reduce the overall number of plumbing fixtures required by allowing for more efficient designs based on the actual use and arrangement of those uses, and their potential for shared use. This will provide design efficiencies in reducing square footage, initial and life cycle cost, and maintenance.

**Cost Impact:** The code change proposal will decrease the cost of construction by reducing square footage, material, equipment, and labor.



# P24-21 Part I

IPC: 403.1.1, 403.2

**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)

**THIS IS A 2 PART CODE CHANGE. PART I AND PART II WILL BE HEARD BY PLUMBING CODE COMMITTEE.**

## 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.

**403.2 Separate facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex.

**Exceptions:**

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile *occupancies* in which the maximum occupant load is 100 or fewer.
4. Separate facilities shall not be required in business *occupancies* in which the maximum occupant load is 25 or fewer.
5. Separate facilities shall not be required to be designated by sex where single-user toilet rooms are provided in accordance with Section 403.1.2.
6. Separate facilities shall not be required where rooms having both water closets and lavatory fixtures are designed for use by ~~both sexes~~ all persons regardless of sex and privacy is provided for water closets ~~and urinals is provided~~ in accordance with Section 405.3.4. ~~Urinals shall be located in an area visually separated from the remainder of the facility or each urinal that is provided shall be located in a stall.~~

P24-21 Part I

# P24-21 Part II

IBC: [P] 1210.3.2, [P] 2903.1.5, [P] 2903.1.4

**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)

## 2021 International Building Code

Revise as follows:

**[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 no less than 30 inches (762 mm). The walls or partitions shall begin at a height not ~~more~~ 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 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater. Urinals located in facilities designed for the use of all persons regardless of sex shall be located in an area visually separated from the remainder of the facility or each urinal that is provided shall be located in a stall.

### 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.

~~**[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 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.~~

~~**[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.~~

**Reason Statement:** Sections 1210 and 2902 of the 2021 IBC are complementary to each other, thus, pointers are provided in Sections 2902 and 1210.1. However, their focus and purpose are different.

The purpose of Chapter 29 of the IBC, as stated in the commentary, is “to provide a building with the necessary **number** of plumbing fixtures of a specific type and quality.” The commentary explains in great detail the methodology and difficulties in establishing the appropriate number of fixtures for each type of facility. Those difficulties continue beyond the code books as code users attempt to establish the appropriate number of fixtures for specific buildings and facilities. Much clarification is still needed in this section to enable users to make the appropriate determination.

On the other hand, and also according to the commentary, “the purpose of Chapter 12 is to establish minimum conditions for the **interior environment** of a building.” Conditions that include not only the physical but also the psychological needs of the occupants, including space perception and privacy.

In keeping with that distinction, this proposal seeks to maintain issues pertaining to the interior environment of toilet facilities in Chapter 12 and to streamline Section 2902 to include only those requirements that address the calculation and the distribution of the number and type of plumbing fixtures required.

Also, in response to public comment received from design professionals, this proposal seeks to resolve the practical challenges and misuse that results from placing urinals in stalls and to remove unnecessarily repetitive language. Specifically, and in summary, this proposal seeks to:

1. Relocate the privacy requirements for urinals from exception 2 in 2902.1.1 to Section 1210.3.2 of the 2021 IBC.
2. Relocate the performance language to accomplish privacy for urinals from exception 6 in Section 2902.2 to Section 1210.3.2 of the 2021 IBC.
3. Modify Section 1210.3.2 by incorporating the differences in language that were made to Section 2903.1.5 of the 2021 IBC in the last code cycle.
4. Since Section 2903.1.4 pertaining to privacy for water closets is a duplicate of Section 1210.3.1 and Section 2901.1 already includes a pointer to Section 1210, to remove the duplicate section in Chapter 29 of the 2021 IBC.
5. Since Section 2903.1.5 pertaining to privacy for urinals is a duplicate of Section 1210.3.2 and Section 2901.1 already includes a pointer to Section 1210, to remove the duplicate section in Chapter 29 of the 2021 IBC.

Sections 2903.1.4 and 2903.1.5 were modified by public comment during the last code cycle as Code Change No: G133-18. According to the proponent's justification, the proposal intended to bring *"language from the IPC into the IBC where designers that utilize the IBC can find this information more readily. [since] Most architectural firms do not have an IPC in their office."* However, those provisions already existed in the IBC and adding them to Chapter 29 was unnecessary.

This proposal neither introduces new nor eliminates existing language or code requirements. It seeks instead to consolidate all privacy provisions into one place (Chapter 12) and to ensure that the provisions included in Chapter 29 are consistent with the stated Scope of the Chapter.

**Bibliography:** Code Change Proposal G133-18 as Modified by Public Comment. Eirene Knott, representing Metropolitan Kansas City Chapter of the ICC; David Collins.

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

This proposal neither adds nor subtracts code requirements and simply re-organizes existing provisions and deletes duplicate provisions within the IBC.

# P25-21

IPC: 403.1.1, 403.1.2

**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 1109.2.1 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 Statement:** 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 ratios 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

---

# P26-21

IPC: 403.1.1

**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 Statement:** 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

# P27-21

IPC: 403.1.2, 403.2.1

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

## 2021 International Plumbing Code

**Revise as follows:**

**403.1.2 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 1109.2.1 of the International Building Code, shall contribute toward the total number of required plumbing fixtures for a building or tenant space. 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 facilities.

Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two single-user toilet rooms shall be permitted to serve as the required separate facilities.

**Delete without substitution:**

~~**403.2.1 Family or assisted-use toilet facilities serving as separate facilities.** Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4.~~

**Reason Statement:** As the original proponent for the language in 2909.2.1 my intended language was to allow for two unisex toilet rooms to be an option for a tenant space which would only need a single men's toilet room and a single women's toilet room based on the total occupant load. With the changes in the 2021 IPC that recognize that single user toilet rooms to be available to all persons regardless of their sex, it seems to me that this language should be relocated to correlate with that new language.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This change is for clarification purposes only and should not impact the cost of construction.

P27-21

## P28-21

IPC: SECTION 310, 310.1, 310.3, TABLE 403.1, 403.1.2, 403.1.3, 403.2, 403.3.1, 403.3.2, 403.3.5, 403.3.6, 403.4, 405.3.2, 405.3.4, 405.3.5

**Proponents:** Sarah Rice, representing The Preview Group (srice@preview-group.com)

### 2021 International Plumbing Code

Revise as follows:

#### SECTION 310 ~~WASHROOM AND TOILET~~ FACILITIES ~~ROOM REQUIREMENTS.~~

**310.1 Light and ventilation.** ~~Washrooms and toilet rooms~~ Toilet facilities shall be illuminated and ventilated in accordance with the *International Building Code* and *International Mechanical Code* .

**310.3 Interior finish.** Interior finish surfaces of toilet facilities ~~rooms~~ shall comply with the *International Building Code* .



**TABLE 403.1**  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup> (See Sections 403.1.1 and 403.2)**

Portions of table not shown remain unchanged.

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	Medical care recipients in hospitals and nursing homes	1 per room <sup>c</sup>		1 per room <sup>c</sup>		1 per 15	1 per 100	1 service sink per floor

- 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-user toilet facility 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.

**403.1.2 Fixtures in Single-user toilet facilities and bathing room fixtures.** The plumbing fixtures located in single-user toilet facility and single-user bathing rooms, including family or assisted-use toilet facilities and bathing rooms that are required by Section 1109.2.1 of the International Building Code, shall contribute toward the total number of required plumbing fixtures for a building or tenant space. Single-user toilet facilities and bathing rooms, and family or assisted-use toilet facilities 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 facilities.

**403.1.3 Lavatory distribution.** Where two or more toilet facilities rooms are provided for each sex, the required number of lavatories shall be distributed proportionately to the required number of water closets.

**403.2 Separate facilities.** Where plumbing fixtures are required, separate toilet facilities shall be provided for each sex.

**Exceptions:**

1. Separate toilet facilities shall not be required for dwelling units and sleeping units.
2. Separate toilet facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate toilet facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or fewer.
4. Separate toilet facilities shall not be required in business occupancies in which the maximum occupant load is 25 or fewer.
5. Separate toilet facilities shall not be required to be designated by sex where single-user toilet rooms are provided in accordance with Section 403.1.2.
6. Separate toilet facilities shall not be required where rooms having both water closets and lavatory fixtures are designed for use by both sexes and privacy for water closets is provided in accordance with Section 405.3.4. Urinals shall be located in an area visually separated from the remainder of the facility or each urinal that is provided shall be located in a stall.

**403.3.1 Access.** The route to the public toilet facilities required by Section 403.3 shall not pass through kitchens, storage rooms or closets. Access to the required toilet facilities shall be from within the building or from the exterior of the building. The public shall have access to the required toilet facilities at all times that the building is occupied.

**403.3.2 Prohibited toilet room location for toilet facilities.** Toilet facilities rooms shall not open directly into a room used for the preparation of food for service to the public.

**403.3.5 Pay toilet facilities.** Where pay toilet facilities are installed, such toilet facilities shall be in excess of the required minimum toilet facilities. Required toilet facilities shall be free of charge.

**403.3.6 Door locking.** Where a toilet ~~facility 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 ~~facilities rooms~~.

**403.4 Signage.** Required *public* ~~toilet~~ facilities shall be provided with signs that designate the sex, as required by Section 403.2. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1111 of the International Building Code.

**403.3.2 Public lavatories.** In employee and *public* toilet ~~facilities rooms~~, the required lavatory shall be located in the same room as the required water closet.

**403.3.4 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.

**Exceptions:**

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

**403.3.5 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). 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 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 ~~facility room~~ with a lockable door.
2. Toilet ~~facilities rooms~~ located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

**Reason Statement:** This is one of several code changes which is intended to implement a consistent use of the term "toilet facility".

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

This is a correlation code change between the IPC and IBC and has no affect on the the cost of construction.

# P29-21

IPC: 403.2

**Proponents:** Eric Bressman, representing Ankrom Moisan Architects (erich@ankrommoisan.com)

## 2021 International Plumbing Code

Revise as follows:

**403.2 Separate facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex.

**Exceptions:** Separate facilities shall not be required in any of the following.

1. ~~Separate facilities shall not be required for dwelling~~ Dwelling units and sleeping units.
2. ~~Separate facilities shall not be required in structures~~ Structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. ~~Separate facilities shall not be required in mercantile~~ Mercantile occupancies in which the maximum occupant load is 100 or fewer.
4. ~~Separate facilities shall not be required in business~~ Business occupancies in which the maximum occupant load is 25 or fewer.
5. ~~Separate facilities shall not be required to be designated by sex where~~ Where single-user toilets rooms are provided in accordance with Section 2902.1.2.
6. ~~Separate facilities shall not be required where~~ Where rooms having both water closets and lavatory fixtures are designed for use by both sexes and privacy for water closets is provided in accordance with Section 405.3.4. Urinals shall be located in an area visually separated from the remainder of the facility or each urinal that is provided shall be located in a stall.

**Reason Statement:** This proposal does not materially change or modify the exception. It is a simplification of an existing set of exceptions that currently include unnecessary repetitive language.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This does not change any Code requirement so there is no cost impact.

---

P29-21

# P30-21

IPC: 403.2

**Proponents:** Eric Bressman, representing Ankrom Moisan Architects (erick@ankrommoisan.com)

## 2021 International Plumbing Code

Revise as follows:

### 403.2 Separate facilities.

#### Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile *occupancies* in which the maximum occupant load is 100 or fewer.
4. Separate facilities shall not be required in business *occupancies* in which the maximum occupant load is 25 or fewer.
5. Separate facilities shall not be required to be designated by sex where single-user toilet rooms are provided in accordance with Section 403.1.2.
6. Separate facilities shall not be required where rooms having both water closets and lavatory fixtures are designed for use by both sexes and privacy for water closets is provided in accordance with Section 405.3.4. Urinals shall be located in an area visually separated from the remainder of the facility or each urinal that is provided shall be located in a stall.
7. Separate facilities shall not be required in Residential Apartment house uses where the occupant load of all non-dwelling unit portions of the building, is less than 50.

**Reason Statement:** Most apartment houses are required to provide a limited number of plumbing fixtures for occupants in spaces other than the dwelling units. This exception would allow the use of uni-sex bathrooms for these limited use facilities when the occupant load is small enough. The Code already allows this arrangement for various mercantile and business uses.

Currently, the Code has no specific exception for the use of uni-sex bathrooms to account for non dwelling unit portions of Apartment Houses. This results in at least two separate single user bathrooms when there are more than 15 occupants, and doesn't take into account that many of them have access to their own facilities.

By raising the threshold to 50, this proposal recognizes that some of the occupants have access to their own facilities and can use them if they are uncomfortable using a uni-sex bathroom.

**Cost Impact:** The code change proposal will decrease the cost of construction

This proposal will reduce construction costs for plumbing fixtures, associated piping and the enclosing elements of the facilities in some designs.

---

P30-21

# P31-21

IPC: 403.2.1

**Proponents:** Emma Gonzalez-Laders, representing NYS DOS Division of Building Standards and Codes (emma.gonzalez-laders@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov)

## 2021 International Plumbing Code

Revise as follows:

**403.2.1 Family or assisted-use toilet facilities serving as separate facilities.** Where a building or tenant space ~~requires~~ provides a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required ~~separate~~ facilities. ~~Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4.~~

**Reason Statement:** New exceptions were added to Section 2902.2 during the last code cycle to indicate that separation by sex is not required for single-user toilet rooms, nor for multi-user facilities designed to serve all persons regardless of sex. The number of exceptions to Section 2902.2 basically amounts to the fact that separation by sex is no longer required, only optional, where other provisions of the code are met. However, the corresponding change was not made to Section 2902.2.1, which still reads *"where a building or tenant space **requires** a separate toilet facility..."* We propose that the word "requires" be replaced with "provides."

Also during the last code cycle, changes were made to Section 2902.1.2 to indicate that *"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.**"* Repeating that provision in Section 2902.2.1 appears to be a coordination oversight. We propose to delete the unnecessary redundancy.

**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 coordination across related code sections.

---

P31-21

# P32-21

IPC: 403.2.1

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

## 2021 International Plumbing Code

**Delete without substitution:**

~~**403.2.1 Family or assisted-use toilet facilities serving as separate facilities.** Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4.~~

**Reason Statement:** Section 403.2.1 was added in the 2012 IPC to allow small occupancies (needing only 1 WC for males and 1 WC for females) to have these separate sex, single-user toilet facilities labeled for use by both sexes. The purpose was to reduce wait times if one of the facilities was being used for more than an “average” length of time. This was a small step towards what has been called in the past, “unisex” labeling of a single-user toilet facility.

Another section in the IPC (403.1.2) has “morphed” through the 2015 and 2018 editions to result in the 2021 edition requiring that all single-user toilet facilities be labeled “for use by all persons regardless of their sex.” Therefore, Section 403.2.1 is redundant and needs to be deleted to eliminate confusion.

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 25.

**Cost Impact:** The code change proposal will decrease the cost of construction

Because the two single-user toilet facilities are required to be identical, where they are in a cluster, only one of the facilities is required to be of accessible design (in accordance with the building code’s accessibility exception.) The one toilet facility will be smaller and without accessible fixtures and hardware (grab bars). Therefore, the cost for the one toilet facility will be less.

P32-21

# P33-21

IPC: 403.3.3

**Proponents:** Lee Kranz, representing Myself (lkranz@bellevuewa.gov)

## 2021 International Plumbing Code

**Revise as follows:**

**403.3.3 Location of toilet facilities in occupancies other than malls.** In occupancies other than covered and open mall buildings, the required *public* and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

**Exceptions:**

1. The location and maximum distances of travel to required employee facilities in factory and industrial *occupancies* shall be permitted to exceed that required by this section, provided that the location and maximum distances of travel are *approved*.
2. The location and maximum distances of travel to required public and employee facilities in Group S *occupancies* shall be permitted to exceed that required by this section, provided that the location and maximum distances of travel are *approved*.
3. Required public and employee toilet facilities shall be permitted to be located more than one story above or below the space required to be provided with toilet facilities in buildings provided with one or more elevators meeting the requirements of Chapter 30.

**Reason Statement:** Elevators are provided in many buildings for convenience, safety and to satisfy the accessible route of travel requirements in IBC Section 1104. The current limitation to access toilet facilities located one floor above or below the space required to be provided with toilet facilities makes sense for buildings where the only way to get to these facilities is via a stairway. When an elevator is provided, the time required to get to any floor of a building where toilet facilities are provided could be considered equivalent to taking a stairway to an adjacent story. The 500 foot limitation would still apply in all cases.

**Cost Impact:** The code change proposal will decrease the cost of construction

If approved, this code change will reduce the cost of construction because fewer restroom fixtures will be the result.

P33-21

---

# P34-21

IPC: 403.3.3

**Proponents:** Eric Bressman, representing Ankrom Moisan Architects (erichb@ankrommoisan.com)

## 2021 International Plumbing Code

Revise as follows:

**403.3.3 Location of toilet facilities in occupancies other than malls.** In occupancies other than covered and open mall buildings, the required *public* and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

### Exceptions:

1. The location and maximum distances of travel to required employee facilities in factory and industrial *occupancies* shall be permitted to exceed that required by this section, provided that the location and maximum distances of travel are *approved*.
2. The location and maximum distances of travel to required public and employee facilities in Group S *occupancies* shall be permitted to exceed that required by this section, provided that the location and maximum distances of travel are *approved*.
3. Where bathrooms are provided to fulfill the requirements of ancillary uses in apartment houses, occupants from spaces below the level of exit discharge shall be permitted to travel up to the level of exit discharge without limitation on the distance of the path of travel.

**Reason Statement:** When apartment houses include below grade areas that are required to have plumbing fixtures, this exception would allow the facilities to be at the level of exit discharge (typically the ground floor of the building). By allowing this extended travel distance, for a limited occupant load, this would remove the requirement for additional facilities being located multiple stories below grade.

Currently the second exception to Section 403.3.3 allows Group 'S' occupancies to exceed the limits, if 'approved'. Most jurisdictions won't approve anything beyond the limits of the existing language and not all spaces below grade are Group 'S' occupancies. This added exception would only apply to Apartment Houses which also recognizes that most occupants in these spaces also have access to fixtures in their units.

**Cost Impact:** The code change proposal will decrease the cost of construction

In the event an Apartment House has multiple levels below grade that trigger toilet facilities, this exception would reduce the cost of the building.

---

P34-21



# P35-21

IPC: 403.3.6

**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 Statement:** 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

# P36-21

## IPC: 403.4

**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, representing New York State Dept of State (china.clarke@dos.ny.gov); Rebecca Krefting, Skidmore College, representing Self (rkreftin@skidmore.edu)

## 2021 International Plumbing Code

### Revise as follows:

**403.4 Signage.** Required *public* facilities shall be provided with signs that ~~designate the~~ indicate whether the facility is to be used by males, by females, or by all persons regardless of sex, as required by Section 403.2. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1111 of the International Building Code.

**Reason Statement:** This proposal seeks to bring IPC Section 403.4 (IBC Section 2902.4) into alignment with the changes made to IPC Sections 403.1.1 and 403.1.2 (IBC Sections 2902.1.1 and 2902.1.2 ) of the 2021 IPC (IBC) in the last code cycle.

Provisions for the design of multi-user facilities designed to serve all persons regardless of their sex were introduced during the last code cycle. IPC Section 403.1.1 (IBC 2902.1.1) of the 2021 IPC (IBC) includes an exception applicable to the fixture count calculations for such facilities. Also, IPC Section 403.1.2 (IBC 2902.1.2) of the 2021 IPC (IBC) indicates that "*single-user facilities ... shall be identified as being available for use by all persons regardless of their sex.*" However, Section IPC 403.4 (IBC 2902.4) was not changed accordingly and, as it stands, it contradicts the previously quoted section. Additionally, the purpose of this section is to require signage, it is not to determine how facilities are separated or not, therefore, the reference to Section IPC 403.2 (IBC 2902.2) is unnecessary and can only add confusion.

**Bibliography:** Section 2902.2 of the 2021 IBC was referenced in the Reason Statement. It is copied here for convenience.

### [P] 2902.2 Separate facilities.

Where plumbing fixtures are required, separate facilities shall be provided for each sex.

### Exceptions:

1. Separate facilities shall not be required for *dwelling units* and *sleeping units*.
2. Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum *occupant load* is 100 or fewer.
4. Separate facilities shall not be required in business occupancies in which the maximum *occupant load* is 25 or fewer.
5. Separate facilities shall not be required to be designated by sex where single-user toilets rooms are provided in accordance with Section 2902.1.2.
6. Separate facilities shall not be required where rooms having both water closets and lavatory fixtures are designed for use by both sexes and privacy for water closets are installed in accordance with Section 405.3.4 of the *International Plumbing Code*. Urinals shall be located in an area visually separated from the remainder of the facility or each urinal that is provided shall be located in a stall.

**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.

P36-21

# P37-21 Part I

IPC: 403.7 (New), 403.7.1 (New), 403.7.2 (New)

**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 COMMITTEE. 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.

---

P37-21 Part I

# P37-21 Part II

IBC: 1210.2.3 (New)

**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 Statement:** 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 chooses 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 II

# P38-21

IPC: 404.1, 404.2 (New), 404.3 (New), 404.3.1 (New), 404.3.2 (New), 404.3.3 (New), 404.3.4 (New), 404.3.5 (New), 404.3.6 (New)

**Proponents:** Sarah Rice, representing The Preview Group (srice@preview-group.com)

## 2021 International Plumbing Code

Revise as follows:

**404.1 Where required.** Accessible plumbing facilities and fixtures shall be provided in accordance with this section and Chapter 11 of the International Building Code.

Add new text as follows:

**404.2 Toilet facilities.** Each toilet room and bathing room shall be accessible in accordance with the International Building Code. Where a floor level is not required to be connected by an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor level.

### Exceptions:

1. Toilet rooms or bathing rooms accessed only through a private office, not for common or public use and intended for use by a single occupant, shall be permitted to comply with the specific exceptions in ICC A117.1.
2. This section is not applicable to toilet and bathing rooms that serve dwelling units or sleeping units that are not required to be accessible by Section 1108 of the International Building Code.
3. Where multiple single-user toilet rooms or bathing rooms are clustered at a single location, at least 50 percent but not less than one room for each use at each cluster shall be accessible.
4. Toilet rooms or bathing rooms that are part of critical care or intensive care patient sleeping rooms serving Accessible units are not required to be accessible.
5. Toilet rooms or bathing rooms designed for bariatrics patients are not required to comply with the toilet room and bathing room requirements in ICC A117.1.

**404.3 Plumbing fixtures.** Except as provided for in Sections 404.3.1 and 404.3.2, at least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.

### Exceptions:

1. Where not more than one urinal is provided in a toilet room or bathing room, the urinal shall not be required to be accessible.
2. Where permitted in Section 1108 of the International Building Code, in toilet rooms or bathrooms serving Accessible units, water closets designed for assisted toileting shall comply with Section 1110.2.2 of the International Building Code.
3. Where permitted in Section 1108 of the International Building Code, in bathrooms serving Accessible units, showers designed for assisted bathing shall comply with Section 1110.2.3 of the International Building Code.
4. Where toilet facilities are primarily for children's use, required accessible water closets, toilet compartments and lavatories shall be permitted to comply with the children's provisions of ICC A117.1.

**404.3.1 Water closet compartment.** Where water closet compartments are provided in a toilet room or bathing room, at least 5 percent of the total number of compartments shall be wheelchair accessible. Where the combined total water closet compartments and urinals provided in a toilet room or bathing room is six or more, at least 5 percent of the total number of compartments shall be ambulatory accessible, provided in addition to the wheelchair-accessible compartment.

**404.3.2 Lavatories.** Where lavatories are provided, at least 5 percent, but not less than one, shall be accessible. Where an accessible lavatory is located within the accessible water closet compartment at least one additional accessible lavatory shall be provided in the multicompartiment toilet room outside the water closet compartment. Where the total lavatories provided in a toilet room or bathing facility is six or more, at least one lavatory with enhanced reach ranges shall be provided.

**404.3.3 Sinks.** Where sinks are provided, at least 5 percent but not less than one provided in accessible spaces shall be accessible.

**Exception:** Mop or service sinks shall not be required to be accessible.

**404.3.4 Drinking fountains.** Where drinking fountains are provided on an exterior site, on a floor or within a secured area, the drinking fountains shall be provided in accordance with Sections 1110.5.1 and 1110.5.2 of the International Building Code.

**404.3.5 Minimum number.** Not fewer than two drinking fountains shall be provided. One drinking fountain shall comply with the requirements for people who use a wheelchair and one drinking fountain shall comply with the requirements for standing persons.

**Exceptions:**

1. A single drinking fountain with two separate spouts that complies with the requirements for people who use a wheelchair and standing persons shall be permitted to be substituted for two separate drinking fountains.
2. Where drinking fountains are primarily for children's use, drinking fountains for people using wheelchairs shall be permitted to comply with the children's provisions in ICC A117.1 and drinking fountains for standing children shall be permitted to provide the spout at 30 inches (762 mm) minimum above the floor.

**404.3.6 More than the minimum number.** Where more than the minimum number of drinking fountains specified in Section 404.4.5 is provided, 50 percent of the total number of drinking fountains provided shall comply with the requirements for persons who use a wheelchair and 50 percent of the total number of drinking fountains provided shall comply with the requirements for standing persons.

**Exceptions:**

1. Where 50 percent of the drinking fountains yields a fraction, 50 percent shall be permitted to be rounded up or down, provided that the total number of drinking fountains complying with this section equals 100 percent of the drinking fountains.
2. Where drinking fountains are primarily for children's use, drinking fountains for people using wheelchairs shall be permitted to comply with the children's provisions in ICC A117.1 and drinking fountains for standing children

**Reason Statement:** Currently in IPC Chapter 4, and specifically Section 404, the code user is given the means to determine how many plumbing fixtures are required in a facility. Thee IPC then goes on in Section 404 to dictate how to divide up the number of required fixtures between the various types of toilet facilities - female, male, family, assisted-use, etc. But it never tells the code user how many of the plumbing fixtures need to be made accessible. So you know how many, but not what kind. In order to find that out IPC Section 404 sends the code user to the IBC to try to find this information rather than give it to them right there.

404.3.1 is a duplication of IBC 1110.2.4

404.3.2 is a duplication of IBC 1110.2.5

404.3.3 is a duplication of IBC 1110.3

This proposal brings into the plumbing code that information. There are no technical changes involved, only reproducing the applicable sections from Section 1110 of the IBC so the IPC will now say how many and what kind.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This code change is intended to correlate information between the IPC and the IBC.

# P39-21 Part I

IPC: 405.3.4, 405.3.5, IAPMO Chapter 15 (New)

**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**

**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.

P39-21 Part I

# P39-21 Part II

IBC: [P] 1210.2.2, [P] 1210.3, [P] 1210.3.1, [P] 1210.3.2, [P] 2903.1.4, [P] 2903.1.5

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.~~ 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 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.~~

**Reason Statement:** 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.

# P40-21

IPC: 407.2

**Proponents:** Joseph J. Summers, Chair of the PMGCAC, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

## 2021 International Plumbing Code

Revise as follows:

**407.2 Bathtub waste outlets and overflows.** Bathtubs shall be equipped with a waste outlet that is not less than 1<sup>1</sup>/<sub>2</sub> inches (38 mm) in diameter. The waste outlet shall be equipped with a watertight stopper. Where an overflow is installed in a bathtub, the piping from the overflow outlet shall be connected upstream of the fixture trap. The overflow outlet shall discharge to the trap whether the waste outlet is closed or open. ~~the overflow shall be not less than 1<sup>1</sup>/<sub>2</sub> inches (38 mm) in diameter.~~

**Reason Statement:** There are several bathtubs that have overflows that are not a perfect circle and an 1-1/2 inch diameter requirement could prevent the installation of non-circular overflows. What is important is if a bathtub does have an overflow, that standing water is only permitted in the overflow when the fixture is filled to the point of overflow and that the overflow does not bypass the trap of the bathtub.

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 17.

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

This change is only a clarification of the existing requirements to allow for newer designs of tub overflows on the market. Clarifications of the code do not have a cost impact.

---

P40-21

# P41-21

IPC: 410.1

**Proponents:** Emily Toto, ASHRAE, representing ASHRAE (etoto@ashrae.org)

## 2021 International Plumbing Code

Revise as follows:

**410.1 Approval.** ~~Drinking fountains shall conform to ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1 or ASME A112.19.3/CSA B45.4, and water coolers shall conform to ASHRAE 18.~~ Drinking fountains, *water coolers* and *water dispensers* shall conform to NSF 61, Section 9. Drinking fountains shall also conform to ASME A112.19.1/CSA B45.2 or ASME A112.19.2/CSA B45.1. Electrically operated, refrigerated drinking *water coolers* and *water dispensers* shall be listed and labeled in accordance with UL 399.

**Reason Statement:** ASHRAE 18 has been withdrawn so it is appropriate to remove from this list. The proposed modification to the sentence order is intended to clarify the requirements that apply to each product type.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This proposal is editorial in nature and does not include new or revised requirements.

---

P41-21

# P42-21

IPC: 410.2

**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 Statement:** 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

# P43-21

IPC: 410.4

**Proponents:** Erica Spayd, Warby Parker, representing Self

## 2021 International Plumbing Code

**Revise as follows:**

**410.4 Substitution.** Where restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants. In covered mall and open mall buildings, where less than three drinking fountains are required within a tenant space, water dispensers shall be permitted to be substituted for the required number of drinking fountains within that tenant space. 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 Statement:** Drinking fountains are underutilized fixtures that take up valuable space and resources in small occupancies. 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. Additionally, the lasting sociocultural impacts of the COVID-19 pandemic are likely to drive utilization of drinking fountains down even further, with citizens becoming ever more cautious about the spread of infectious diseases. Whereas most water dispensers (plumbed bottle filling stations) are touchless, they present as a much safer option in our post-pandemic lives.

**Cost Impact:** The code change proposal will decrease the cost of construction \$4,000-\$5,000 for covered mall and open mall tenants required to have less than three drinking fountains.

---

P43-21

# P44-21

IPC: 410.4

**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 Statement:** 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

# P45-21 Part I

IPC: 410.6 (New)

**Proponents:** Kyle Parag, representing Division of Fire Prevention & Control (Kyle.Parag@state.co.us)

**THIS IS A 2 PART CODE CHANGE. PART I AND PART II WILL BE HEARD BY PLUMBING CODE COMMITTEE.**

## 2021 International Plumbing Code

**Add new text as follows:**

**410.6 Drinking fountain maintenance.** *Drinking fountains, water coolers and bottle fillers shall be maintained in a safe, sanitary and working condition.*

---

P45-21 Part I

# P45-21 Part II

IPMC: [P] 502.4.1

**Proponents:** Kyle Parag, representing Division of Fire Prevention & Control (kyle.parag@state.co.us)

## 2021 International Property Maintenance Code

**Revise as follows:**

**[P] 502.4.1 Drinking facilities.** Drinking facilities shall be a drinking fountain, water cooler, bottled water cooler or disposable cups next to a sink or water dispenser. Drinking facilities shall not be located in *toilet rooms* or *bathrooms*. Drinking fountains, water coolers and bottle fillers shall be maintained in a safe, sanitary and working condition in accordance with the International Plumbing Code. Except for periodic maintenance or cleaning, public access and use shall be provided to the drinking facilities at all times during occupancy of the premises.

**Reason Statement:** The world of Covid-19 has created a lot of new issues, and one of the largest changes to our built world due to Covid-19 was the barricading of all drinking fountains throughout commercial properties.

Although there are code paths to issue notices of violation for these instances, it is a difficult path. Adding a clear cut section for jurisdictions to quote from directly from the IPC eliminates a lot of confusion and creates direct requirements for many future generations and unforeseeable circumstances ahead.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
No effect on construction

---

P45-21 Part II



# P46-21

IPC: 412.10

**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 Statement:** 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

## P47-21

IPC: 412.2, ASSE Chapter 15 (New)

**Proponents:** Jason Shank, ASSE International, representing ASSE International

### 2021 International Plumbing Code

**Revise as follows:**

**412.2 Hand showers.** Hand-held showers shall conform to ASME A112.18.1/CSA B125.1. Hand-held showers shall provide backflow protection in accordance with ASME A112.18.1/CSA B125.1 or shall be protected against backflow by a device complying with ASME A112.18.3 or ASSE 1014.

**Add new standard(s) as follows:**

# ASSE

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

#### 1014-2020: Performance Requirements for Backflow Prevention Devices for Hand-held Showers

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASSE 1014-2020 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.

**Reason Statement:** By adding the ASSE 1014 to this section it allows another option of equal protection to this code section.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This proposed change adds an extra option.

---

P47-21

# P48-21

IPC: 412.5

**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 Statement:** 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

# P49-21

IPC: 419.6 (New)

**Proponents:** Julius Ballanco, representing Bradley Corp. (JBENGINEER@aol.com); James Kendzel, American Supply Association, representing American Supply Association (jkendzel@asa.net)

## 2021 International Plumbing Code

Add new text as follows:

**419.6 Soap dispenser.** Each public lavatory shall have an accompanying soap dispenser.

**Reason Statement:** One thing we have learned from the COVID-19 pandemic is the importance of washing ones hand with soap. Surprisingly, the code does not require soap dispensers for public lavatories. However, most engineers and architects specify soap dispensers. Plumbing contractors install soap dispensers when located in a counter top lavatory. This is an important health issue that the Plumbing Code must address.

**Bibliography:** <https://www.rwjf.org/en/blog/2020/03/a-happy-habit-of-healthy-handwashing.html>  
<https://www.cdc.gov/handwashing/when-how-handwashing.html>  
<https://globalhandwashing.org/wp-content/uploads/2020/09/GHD-2020-Fact-Sheet-English.pdf>  
<https://globalhandwashing.org/wp-content/uploads/2020/10/Handwashing-Learning-Brief.pdf>  
[https://globalhandwashing.org/wp-content/uploads/2015/03/Handwashing-Literature-Review\\_Jan-thru-June-2013\\_v2-clean-1.pdf](https://globalhandwashing.org/wp-content/uploads/2015/03/Handwashing-Literature-Review_Jan-thru-June-2013_v2-clean-1.pdf)

**Cost Impact:** The code change proposal will increase the cost of construction. Because this change will mandate the installation of soap dispensers, for those projects that providing soap dispenser was not part of the building's design feature, there will be added cost. The cost of the dispensers will vary depending on the type of dispenser chosen.

---

P49-21

# P50-21

IPC: 423.3

**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 120°F (49°C) 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 Statement:** 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

# P51-21

IPC: 423.4 (New), ASSE Chapter 15 (New), UL Chapter 15 (New)

**Proponents:** Jason Shank, ASSE International, representing ASSE International

## 2021 International Plumbing Code

Add new text as follows:

**423.4 Water Dispensers.** All potable water dispensers directly connected to the plumbing system shall comply with one of the following:

1. Beverage faucets shall comply with ASME A112.18.1/CSA B125.1
2. Dispensers that supply electrically heated or cooled water shall comply with ASSE 1023
3. Electronic devices that heat water shall comply with UL 499

Add new standard(s) as follows:

# ASSE

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

**1023-19:** Performance Requirements for Electrically Heated or Cooled Water Dispensers

# UL

UL LLC  
333 Pfingsten Road  
Northbrook IL 60062-2096

**499-2014:**

**Standard for Electric Heating Appliances with revisions through February 23, 2017**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASSE 1023-19 and UL 499-2014 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.

**Reason Statement:** Water dispensers are being used more and more. By adding this proposal it provides some regulations to what is allowed in the plumbing system.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This proposal is enforcing what is common practice already in the industry.

P51-21

# P52-21

IPC: 424.2

**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)

## 2021 International Plumbing Code

Revise as follows:

**424.2 Substitution for water closets.** In each bathroom or toilet room, urinals shall not be substituted for more than 67 percent of the required water closets for males according to Table 403.1 in assembly and educational *occupancies*. Urinals shall not be substituted for more than 50 percent of the required water closets for males according to Table 403.1 in all other *occupancies*.

**Reason Statement:** This proposal seeks to fix an unintended consequence of the addition of code provisions for multi-user facilities designed to serve all persons regardless of their sex without correlating those changes to the provisions of Section 424.2 of the 2021 IPC. Provisions for the design of multi-user facilities designed to serve all persons regardless of their sex were introduced during the last code cycle. Exception 2 to Section 2902.1.1 of the 2021 IBC indicates that *"where multiple-user facilities are designed to serve all genders, the minimum fixture count shall be calculated 100 percent, based on total occupant load."* Also, Section 424.2 of the IPC indicates that urinals may substitute up to 67% of the required water closets in assembly and educational spaces. However, for most assembly uses there is a different number of plumbing fixtures required for males and females in accordance with Table 403.1. Substituting 67% of **ALL** required fixtures would result in a larger number of urinals and a lower number of toilet fixtures available for females. For instance, if a multi-user facility were to be designed for use by all persons regardless of their sex for an A-1 occupancy with an occupant load of 1,000 persons, 8 toilet fixtures are required for females (1,000/125) and 4 toilet fixtures are required for males (1,000/65), of which, a maximum of 2 can be urinals. On the other hand, if urinals were to substitute for the toilet requirements for the 100% of the occupant load - applying exception 2 to Section 2902.1.1 of the 2021 IBC - then 8 fixtures could be urinals, leaving only 4 water closets for the use of all persons male and female.

This is contrary to the more than three-decade-long effort to provide "potty parity," or the equitable provision of public toilet facilities for females and males.

It is 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."*

We do not believe this disparity in the two provisions was intentional, rather an oversight and lack of consideration of the implications that provisions in one code could have on the provisions of another code.

**Bibliography:** Potty Parity Act introduced in Congress; codes continue to address issue. Roulo, Candace. May 03, 2010. Contractor Magazine. <https://www.contractormag.com/home/article/20875882/potty-parity-act-introduced-in-congress-codes-continue-to-address-issue>  
The Long Lines for Women's Bathrooms Could Be Eliminated. Why Haven't They Been? Pinsker, Joe. January 23, 2019. The Atlantic Magazine. <https://www.theatlantic.com/family/archive/2019/01/women-men-bathroom-lines-wait/580993/>

**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, provides consistency across related code sections.

P52-21

# P53-21 Part I

IPC: 501.9 (New)

**Proponents:** Jeremy Brown, representing NSF International (brown@nsf.org)

## 2021 International Plumbing Code

**Add new text as follows:**

**501.9 Lead Content.** Water Heaters shall be in accordance with Section 605.2.1.

**Reason Statement:** Section 605.2.1 was created to implement lead content requirements of the US Safe Drinking Water Act (SDWA). In September 2020, the EPA finalized its final rule for interpreting the Safe Drinking Water Act. The final rule did change scope of products affected by the lead content requirements and cited water heaters as fixtures used for potable water according the final rule. See SDWA definition below: "Fixture means a receptacle or device that is connected to a water supply system or discharges to a drainage system or both. Fixtures used for potable uses shall include but are not limited to: (1) Drinking water coolers, drinking water fountains, drinking water bottle fillers, dishwashers; (2) Plumbed in devices, such as point-of-use treatment devices, coffee makers, and refrigerator ice and water dispensers; and (3) Water heaters, water meters, water pumps, and water tanks, unless such fixtures are not used for potable uses." Final rule is found at <https://www.federalregister.gov/documents/2020/09/01/2020-16869/use-of-lead-free-pipes-fittings-fixtures-solder-and-flux-for-drinking-water> Water heaters are singled out for proposed code sections because they are not consistently interpreted as intended to convey or dispense drinking water. As such they need a specific code section to require lead content to be consistent with the SDWA.

I have submitted this code change as well as a similar one to give the committee options for how this could be approved.

**Bibliography:** NSF/ANSI/CAN 372-2020 Drinking Water System Components-Lead Content

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
The SDWA already mandates that water heaters be third party certified and lead free so this proposal does not increase the cost of construction.

---

P53-21 Part I



# P53-21 Part II

IRC: P2801.9 (New)

**Proponents:** Jeremy Brown, representing NSF International (brown@nsf.org)

## 2021 International Residential Code

**Add new text as follows:**

**P2801.9 Lead Content.** Water Heaters shall be in accordance with Section P2906.2.1

**Reason Statement:** Section P2906.2.1 was created to implement lead content requirements of the US Safe Drinking Water Act (SDWA). In September 2020, the EPA finalized its final rule for interpreting the Safe Drinking Water Act. The final rule did change scope of products affected by the lead content requirements and cited water heaters as fixtures used for potable water according the final rule. See SDWA definition below: "Fixture means a receptacle or device that is connected to a water supply system or discharges to a drainage system or both. Fixtures used for potable uses shall include but are not limited to: (1) Drinking water coolers, drinking water fountains, drinking water bottle fillers, dishwashers; (2) Plumbed in devices, such as point-of-use treatment devices, coffee makers, and refrigerator ice and water dispensers; and (3) Water heaters, water meters, water pumps, and water tanks, unless such fixtures are not used for potable uses." Final rule is found at <https://www.federalregister.gov/documents/2020/09/01/2020-16869/use-of-lead-free-pipes-fittings-fixturesolder-and-flux-for-drinking-water>

Water heaters are singled out for proposed code sections because they are not consistently interpreted as intended to convey or dispense drinking water. As such they need a specific code section to require lead content to be consistent with the SDWA.

I have submitted this code change as well as a similar one to give the committee options for how this could be approved.

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

The SDWA already mandates that water heaters be third party certified and lead free so this proposal does not increase the cost of construction.

---

P53-21 Part II

# P54-21 Part I

IPC: 501.9 (New)

**Proponents:** Jeremy Brown, representing NSF International (brown@nsf.org)

## 2021 International Plumbing Code

**Add new text as follows:**

**501.9 Lead Content.** Water heaters shall comply with NSF 372 and shall have a weighted average lead content of 0.25% or less.

**Reason Statement:** Section 605.2.1 was created to implement lead content requirements of the US Safe Drinking Water Act (SDWA). In September 2020, the EPA finalized its final rule for interpreting the Safe Drinking Water Act. The final rule did change scope of products affected by the lead content requirements and cited water heaters as fixtures used for potable water according to the final rule. See SDWA definition below: "Fixture means a receptacle or device that is connected to a water supply system or discharges to a drainage system or both. Fixtures used for potable uses shall include but are not limited to: (1) Drinking water coolers, drinking water fountains, drinking water bottle fillers, dishwashers; (2) Plumbed in devices, such as point-of-use treatment devices, coffee makers, and refrigerator ice and water dispensers; and (3) Water heaters, water meters, water pumps, and water tanks, unless such fixtures are not used for potable uses." Final rule is found at <https://www.federalregister.gov/documents/2020/09/01/2020-16869/use-of-lead-free-pipes-fittings-fixtures-solder-and-flux-for-drinking-water> Water heaters are singled out for proposed code sections because they are not consistently interpreted as intended to convey or dispense drinking water. As such they need a specific code section to require lead content to be consistent with the SDWA. I have submitted this code change as well as a similar one to give the committee options for how this could be approved.

**Bibliography:** NSF/ANSI/CAN 372-2020 Drinking Water System Components-Lead Content

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
The SDWA already mandates that water heaters be third party certified and lead free so this proposal does not increase the cost of construction.

---

P54-21 Part I

# P54-21 Part II

IRC: P2801.9 (New)

**Proponents:** Jeremy Brown, representing NSF International (brown@nsf.org)

**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 Residential Code

**Add new text as follows:**

**P2801.9 Lead Content.** Water heaters shall comply with NSF 372 and shall have a weighted average lead content of 0.25% or less.

**Reason Statement:** Section P2906.2.1 was created to implement lead content requirements of the US Safe Drinking Water Act (SDWA) and requires NSF 372. In September 2020, the EPA finalized its final rule for interpreting the Safe Drinking Water Act. The final rule did change scope of products affected by the lead content requirements and cited water heaters as fixtures used for potable water according the final rule. See SDWA definition below:

"Fixture means a receptacle or device that is connected to a water supply system or discharges to a drainage system or both. Fixtures used for potable uses shall include but are not limited to: (1) Drinking water coolers, drinking water fountains, drinking water bottle fillers, dishwashers; (2) Plumbed in devices, such as point-of-use treatment devices, coffee makers, and refrigerator ice and water dispensers; and (3) Water heaters, water meters, water pumps, and water tanks, unless such fixtures are not used for potable uses."

Final rule is found at <https://www.federalregister.gov/documents/2020/09/01/2020-16869/use-of-lead-free-pipes-fittings-fixtures-solder-and-flux-for-drinking-water> Water heaters are singled out for proposed code sections because they are not consistently interpreted as intended to convey or dispense drinking water. As such they need a specific code section to require lead content to be consistent with the SDWA. I have submitted this code change as well as a similar one to give the committee options for how this could be approved.

NSF/ANSI/CAN 372 is the American and Canadian National Standards for determining lead content of drinking water system components.

**Bibliography:** NSF/ANSI/CAN 372-2020 Drinking Water System Components-Lead Content

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

The SDWA already mandates that water heaters be third party certified and lead free so this proposal does not increase the cost of construction.

---

P54-21 Part II

# P55-21

IPC: 504.7, ASTM Chapter 15 (New), UL Chapter 15 (New)

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

## 2021 International Plumbing Code

Revise as follows:

**504.7 Required pan.** Where a storage tank-type water heater or a hot water storage tank is installed in a location where water leakage from the tank will cause damage, the tank shall be installed in a pan constructed of one of the following:

1. Galvanized steel or aluminum of not less than 0.0236 inch (0.6010 mm) in thickness.
2. Plastic not less than 0.036 inch (0.9 mm) in thickness.
3. Other *approved* materials.
4. A plastic pan installed beneath a gas fired water heater shall be constructed of material having a flame spread index of 25 or less and a smoked developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.
5. Water heaters installed in pans shall comply with Section 314.2.3.2

~~A plastic pan shall not be installed beneath a gas-fired water heater.~~

Add new standard(s) as follows:

# ASTM

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

**E84-2018B: Standard Test Methods for Surface Burning Characteristics of Building Materials**

# UL

UL LLC  
333 Pfingsten Road  
Northbrook IL 60062-2096

**723-2018: Test for Surface Burning Characteristics of Building Materials**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM E84-2018B and UL723-2018 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.

**Reason Statement:** This language was installed during the 2018 cycle and will make the IPC consistent with what's in the IRC Section 2801.6 as there are now listed pans for this application.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This language is editorial in nature and will not affect cost.

P55-21

# P56-21

IPC: 504.7

**Proponents:** Sidney Cavanaugh, Cavanaugh Consulting, representing IPS Corp. (sidneycavanaugh@yahoo.com)

## 2021 International Plumbing Code

**Revise as follows:**

**504.7 Required pan.** Where a storage tank-type water heater or a hot water storage tank is installed in a location where water leakage from the tank will cause damage, the tank shall be installed in a pan constructed of one of the following:

1. Galvanized steel or aluminum of not less than 0.0236 inch (0.6010 mm) in thickness.
2. Plastic not less than 0.036 inch (0.9 mm) in thickness.
3. Other *approved* materials. A plastic pan installed beneath a gas-fired water heater shall be constructed of a material having a flame spread index of 25 Or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.

~~A plastic pan shall not be installed beneath a gas-fired water heater.~~

**Reason Statement:** This code change simply adds wording that currently exist in the IRC which allows plastic pans meeting ASTM E84 or UL 723 for flame spread index and smoke- developed index to be used under a gas-fired water heater. This installation is currently allowed by the IRC, the NFGC and the UPC.

**Bibliography:** ASTM E84-13a: Test for Surface Burning Characteristics of Building Materials  
UL723: Standard for Test for Surface Burning Characteristics of Building Materials

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
There should be no additional cost impact as these pans are currently being used across the country and throughout Canada.

---

P56-21

# P57-21

IPC: 504.7.1

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

## 2021 International Plumbing Code

**Revise as follows:**

**504.7.1 Pan size and drain.** The pan shall be not less than 1½ inches (38 mm) in depth and shall be of sufficient size and shape to receive all dripping or condensate from the tank or water heater. The pan shall be drained by an indirect waste pipe having a diameter of not less than ¾ inch (19 mm). Piping for safety pan drains shall be of those materials listed in Table 605.3 or Table 605.4.

**Reason Statement:** The need for drain pan piping to be of piping material that is rated for 180 degrees F at pressure is unfounded. PVC drainage piping is rated for conveying water at 140 degrees F by gravity (no pressure). A water heater tank that “springs a leak” is most often found to be only dripping from the bottom of the tank’s housing. By the time the water reaches the outlet of the pan, the water temperature is much lower than the temperature of the water in the tank (which is typically not hotter than 140 degrees F).

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 21.

**Cost Impact:** The code change proposal will decrease the cost of construction

Table 605.3 has piping materials that are less expensive than those in Table 605.4. Allowing use of less expensive materials will lower the cost of construction.

---

P57-21

# P58-21

IPC: 602.3.1 (New), 602.3.6 (New), 608.18.7, 608.18.7.1 (New), 608.18.7.2 (New), 202 (New), ASSE Chapter 15 (New), WSC (New), ASSE 1093/WSC PAS-97 -2019 (New)

**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

ASSE 1093-2019 / WSC PAS-97(2019)

:

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

**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.

**Reason Statement:** 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.

---

P58-21



# P59-21

IPC: 604.8

**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 Statement: 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

# P60-21

IPC: 605.2.1

**Proponents:** Chris Haldiman, representing Watts Water Technologies (chris.haldiman@wattswater.com); Cameron Rapoport, Watts, representing Watts (cameron.rapoport@wattswater.com)

## 2021 International Plumbing Code

Revise as follows:

**605.2.1 Lead content of drinking water pipe and fittings.** Pipe, pipe fittings, joints, valves, faucets and fixture fittings ~~utilized to supply~~ contacting water for drinking or cooking purposes shall comply with NSF 372 and shall have a weighted average lead content of 0.25 percent or less.

**Reason Statement:** Current code language allows for the use of leaded backflow preventers when downstream water is considered non-potable, however all or portions of that valve may still be in contact with water that may be used for drinking or cooking purposes. A common example would be a leaded ASSE 1012 backflow preventer on a residential boiler fill line. Only after the backflow preventer has the water been isolated from the potable water used to supply drinking/cooking water, however the backflow preventer itself, which frequently will not comply with NSF 372, will be in contact with water that may be used for drinking or cooking purposes.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
There is no impact to the cost of construction since the proposal is only providing clarification.

---

P60-21

# **P61-21 Part I**

IPC: TABLE 605.3, ASTM Chapter 15 (New)

**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**

<b>MATERIAL</b>	<b>STANDARD</b>
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; <u>ASTM A554</u> ; ASTM A778
Stainless steel pipe (Type 316/316L)	ASTM A269/A269M; ASTM A312; <u>ASTM A554</u> ; ASTM A778
<u>Stainless steel tubing (Type 304/304L)</u>	<u>ASTM A269; ASTM A312; ASTM A554; ASTM A778</u>
<u>Stainless steel tubing (Type 316/316L)</u>	<u>ASTM A269; ASTM A312; ASTM A554; ASTM A778</u>

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**

**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

## **P61-21 Part II**

IRC: TABLE P2906.4; IPC: ASTM Chapter 15 (New)

**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**

	<b>STANDARD</b>
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 (Type 304/304L) pipe	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778
Stainless steel (Type 316/316L) pipe	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778
<u>Stainless steel (Type 304/304L) tubing</u>	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778
<u>Stainless steel (Type 316/316L) tubing</u>	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; 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**

**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.

**Reason Statement:** 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.

## **P62-21 Part I**

IPC: TABLE 605.4, ASTM Chapter 15 (New)

**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**

<b>MATERIAL</b>	<b>STANDARD</b>
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)	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778
Stainless steel pipe (Type 316/316L)	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778
Stainless steel tubing (Type 304/304L)	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778
Stainless steel tubing (Type 316/316L)	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; 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**

**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.

**Reason Statement:** 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.

P62-21 Part I



## **P62-21 Part II**

**IRC: TABLE P2906.5, ASTM Chapter 44 (New)**

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

### **2021 International Residential Code**

**Revise as follows:**

**TABLE P2906.5  
WATER DISTRIBUTION PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Chlorinated polyvinyl chloride (CPVC) plastic pipe and tubing	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 (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) pipe	ASTM F1986
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 (Type 304/304L) pipe	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778
<u>Stainless steel (Type 316/316L) pipe</u>	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778
<u>Stainless steel (Type 304/304L) tubing</u>	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778
<u>Stainless steel (Type 316/316L) tubing</u>	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778

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**

**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.

**Reason Statement:** Stainless steel material as indicated in the IPC is proposed to be added for applications where stainless steel pipe, tubing and fittings are necessary for corrosion resistance and also aligns with IPC. Add ASTM A269 and A554 which are equivalent to those standards included as additional standard options for product listing.

**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 and tubing that can be purchased.

P62-21 Part II

## **P63-21 Part I**

IPC: TABLE 605.5, ASTM Chapter 15 (New)

**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)	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Stainless steel (Type 316/316L)	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Steel	ASME B16.9; ASME B16.11; ASME B16.28; ASTM F1476; ASTM F1548; <u>ASTM F3226</u>

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**

**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 I

## **P63-21 Part II**

**IRC: TABLE P2906.6, ASTM Chapter 44 (New)**

**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	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778; <u>ASTM F3226</u>
Stainless steel (Type 316/316L) pipe	<u>ASTM A269</u> ; ASTM A312; <u>ASTM A554</u> ; ASTM A778; <u>ASTM F3226</u>
Steel	ASME B16.9; ASME B16.11; ASME B16.28; <u>ASTM F3226</u>

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

**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.

**Reason Statement:** 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.

## **P64-21 Part I**

IPC: TABLE 605.5, ASTM Chapter 15 (New)

**Proponents:** Michael Cudahy, representing PPFA (mikec@cmservices.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**

Revise as follows:

**TABLE 605.5  
PIPE FITTINGS**

<b>MATERIAL</b>	<b>STANDARD</b>
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; <u>ASTM F3347</u> ; 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; <u>ASTM F3347</u> ; 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 A312; ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Stainless steel (Type 316/316L)	ASTM A312; ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Steel	ASME B16.9; ASME B16.11; ASME B16.28; ASTM F1476; ASTM F1548

Add new standard(s) as follows:

# ASTM

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

**F3347-20A: Standard Specification for Metal Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3347-20A 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.

P64-21 Part I



## **P64-21 Part II**

IRC: TABLE P2906.6, ASTM Chapter 44 (New)

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

### **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; <u>ASTM F3347</u> ; 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; <u>ASTM F3347</u> ; 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 A312; ASTM A778
Stainless steel (Type 316/316L) pipe	ASTM A312; ASTM A778
Steel	ASME B16.9; ASME B16.11; ASME B16.28

Add new standard(s) as follows:

# ASTM

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

**F3347-20a: Standard Specification for Metal Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3347-20a 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.

**Reason Statement:** ASTM F3347 is titled, "Standard Specification for Metal Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing and contains information for metallic fittings for both PEX and PERT systems intended for use in residential and commercial, hot and cold, potable water distribution systems as well as sealed central heating, including under-floor heating/cooling systems, and residential fire sprinkler systems.

**Bibliography:** ASTM F3347, Standard Specification for Metal Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
The proposal adds a new standard for PEX and PERT fittings and is not expected to raise or lower the cost of construction.

## **P65-21 Part I**

IPC: TABLE 605.5, ASTM Chapter 15 (New)

**Proponents:** Michael Cudahy, representing PPFA (mikec@cmservices.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**

Revise as follows:

**TABLE 605.5  
PIPE FITTINGS**

<b>MATERIAL</b>	<b>STANDARD</b>
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; <u>ASTM F3348</u> ; 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; <u>ASTM F3348</u> ; 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 A312; ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Stainless steel (Type 316/316L)	ASTM A312; ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Steel	ASME B16.9; ASME B16.11; ASME B16.28; ASTM F1476; ASTM F1548

Add new standard(s) as follows:

# ASTM

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

**F3348-20b: Standard Specification for Plastic Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3348-20b 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.

P65-21 Part I

## **P65-21 Part II**

**IRC: TABLE P2906.6, ASTM Chapter 44 (New)**

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

### **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; <u>ASTM F3348</u> ; 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; <u>ASTM F3348</u> ; 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 A312; ASTM A778
Stainless steel (Type 316/316L) pipe	ASTM A312; ASTM A778
Steel	ASME B16.9; ASME B16.11; ASME B16.28

Add new standard(s) as follows:

# ASTM

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

**F3348-20b: Standard Specification for Plastic Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3348-20b 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.

**Reason Statement:** ASTM F3348 is titled, "Standard Specification for Plastic Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing" and contains information on plastic fittings for PEX and PERT systems and should be included in the fittings table. The fittings are intended for use in residential and commercial, hot and cold, potable water distribution systems as well as sealed central heating, including under-floor heating/cooling systems, and residential fire sprinkler systems.

**Bibliography:** ASTM F3348, Standard Specification for Plastic Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This proposal adds a standard for fittings and is not expected to raise or lower the costs of construction.

## **P66-21**

IPC: TABLE 605.5

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

### **2021 International Plumbing Code**

Revise as follows:

**TABLE 605.5  
PIPE FITTINGS**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic	ASTM D2468 ; <u>ASTM F1476</u>
Cast iron	ASME B16.4 ; <u>ASTM F1476</u>
Chlorinated polyvinyl chloride (CPVC) plastic	ASSE 1061; ASTM D2846; ASTM F437; ASTM F438; ASTM F439; CSA B137.6 ; <u>ASTM F1476</u>
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 ; <u>ASTM F1476</u>
Polypropylene (PP) plastic pipe or tubing	ASTM F2389; CSA B137.11 ; <u>ASTM F1476</u>
Polyvinyl chloride (PVC) plastic	ASTM D2464; ASTM D2466; ASTM D2467; CSA B137.2; CSA B137.3 ; <u>ASTM F1476</u>
Stainless steel (Type 304/304L)	ASTM A312; ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Stainless steel (Type 316/316L)	ASTM A312; ASTM A778; ASTM F1476; ASTM F1548; ASTM F3226
Steel	ASME B16.9; ASME B16.11; ASME B16.28; ASTM F1476; ASTM F1548 ;

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of water distribution pipe systems utilize GMCs in key locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required





## **P67-21**

IPC: TABLE 605.5

**Proponents:** Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

### **2021 International Plumbing Code**

Revise as follows:

**TABLE 605.5**  
**PIPE FITTINGS**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Metal ( <del>brass</del> <u>copper alloy</u> ) insert fittings for polyethylene/aluminum/polyethylene (PE-AL-PE) and cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX)	ASTM F1974

**Reason Statement:** Brass and Bronze are Copper Alloys. Copper Alloy is the correct term.

**Cost Impact:** The code change proposal will increase the cost of construction  
This code change proposal will not increase the cost of construction.

P67-21

# **P68-21 Part I**

IPC: TABLE 605.7

**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**

<b>MATERIAL</b>	<b>STANDARD</b>
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
<u>Stainless steel (Type 304/304L)</u>	<u>IAPMO Z1157</u>
<u>Stainless steel (Type 316/316L)</u>	<u>IAPMO Z1157</u>

**Reason Statement:** 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

## **P68-21 Part II**

IRC: TABLE P2903.9.4, IAPMO Chapter 44 (New)

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

### **2021 International Residential Code**

Revise as follows:

**TABLE P2903.9.4  
VALVES**

<b>MATERIAL</b>	<b>STANDARD</b>
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, <u>IAPMO Z1157</u> , 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, <u>IAPMO Z1157</u> , NSF 359
Polypropylene (PP) plastic	ASME A112.4.14, ASTM F2389
Polyvinyl chloride (PVC) plastic	ASME A112.4.14, ASTM F1970, MSS SP-122
<u>Stainless Steel</u>	<u>IAPMO Z1157</u>

Add new standard(s) as follows:

# IAPMO

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

## Z1157-2014e1: Ball Valves

**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.

**Reason Statement:** 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.

P68-21 Part II

# P69-21

IPC: 605.10.1

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**605.10.1 Mechanical joints.** Mechanical joints on water pipes shall be made with an elastomeric seal conforming to ASTM D3139, NSF 61, A STM F1476 Type II Class 2 flexible and restrained, or approved joint designed for the specific application. Mechanical joints shall only be installed in underground systems, unless otherwise *approved*. Joints shall be installed only in accordance with the manufacturer's instructions.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

P69-21



# P70-21

IPC: 605.11

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**605.11 Gray iron and ductile iron joints.** Joints for gray and ductile iron pipe and fittings shall comply with AWWA C111/A21.11 and shall be installed in accordance with the manufacturer's instructions.

Mechanical joint shielded couplings for joining ductile iron pipe shall conform to ASTM F1476 Type II Class 2 or Type II Class 3 or AWWA C22. The mechanical shield shall be either 304 or 316 L stainless steel with alloy steel coated or 316 or 316L stainless steel fasteners. The elastomeric gasket shall comply with NSF 61. The couplings should be designed and manufactured to suit the pipe outside diameter. The coupling shall be installed in accordance with the manufacturer's instructions and tightened, using a calibrated torque wrench, to the torque indicated by the manufacturer.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be updated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019), AWWA C227-17

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

---

P70-21

# P71-21

IPC: 605.12.2

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**605.12.2 Mechanical joints.** Mechanical joints shall be installed in accordance with the manufacturer's instructions.

Mechanical joints for copper or copper alloy piping shall be made with a mechanical coupling with groove end piping, or ASTM F1476 Type II Class 2 flexible & restrained, or approved joint designed for the specific application.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

P71-21

# P72-21

IPC: 605.13.3

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**605.13.3 Grooved and shouldered and plain end mechanical joints.** Grooved and shouldered mechanical joints and joints for plain ended pipe shall comply with ASTM F1476, shall be made with an *approved* elastomeric seal and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

P72-21

# P73-21

IPC: 605.14.1

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**605.14.1 Mechanical joints.** Mechanical joints shall include compression, flanged, grooved and push fit fittings. A mechanical joint shielded coupling for CPVC plastic shall have a metallic shield that complies with either Type II Class 2 or Type II Class 3 of ASTM F1476. The elastomeric seal shall comply with NSF 61 or other suitable material that will cater for the fluid within the pipework system. The couplings shall be designed and manufactured to suit the pipe outside diameter. The coupling shall be installed in accordance with manufacturer's instructions and tightened, using a calibrated torque wrench, to the torque indicated by the manufacturer. The mechanical joint can be treated as a permanent pipe seal. Mechanical joints shall be installed in accordance with the manufacturer's instructions.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be upgraded. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required.

P73-21

# P74-21 Part I

IPC: 605.14.2, ASTM Chapter 15 (New)

**Proponents:** Michael Cudahy, PPFA, representing PPFA (mikec@cmservices.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

**Revise as follows:**

**605.14.2 Solvent cementing.** Joint surfaces shall be clean and free from moisture. Joints shall be made in accordance with the pipe manufacturer's installation instructions. Solvent-cemented joints shall be permitted above or below ground.

Where such instructions require that a primer be used, the primer shall be applied to the joint surfaces and a solvent cement orange in color and conforming to ASTM F493 shall be applied to the joint surfaces. The joint shall be made while the cement is fluid and in accordance with ASTM D2855.

Where such instructions allow for a one-step solvent cement, yellow in color and conforming to ASTM F493, to be used, the joint surfaces shall not require application of a primer before the solvent cement is applied. The joint shall be made while the cement is wet and in accordance with ~~ASTM D2846 or ASTM F493.~~ ASTM F3328.

~~Solvent-cemented joints shall be permitted above or below ground.~~

**Add new standard(s) as follows:**

# ASTM

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

**ASTM D2855-15: Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets**

**F3328-18: Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3328-18 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.

P74-21 Part I

# P74-21 Part II

IRC: P2906.9.1.2, P2906.9.1.3, ASTM Chapter 44 (New)

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

## 2021 International Residential Code

Revise as follows:

**P2906.9.1.2 CPVC plastic pipe.** Joint surfaces shall be clean and free from moisture. Joints shall be made in accordance with the pipe, fitting or solvent cement manufacturer's installation instructions.

Solvent cement joints shall be permitted above or below ground.

Where such instructions require a primer to be used, an *approved* primer shall be applied, and a solvent cement, orange in color and conforming to ASTM F493, shall be applied to joint surfaces. The joint shall be made while the cement is wet, and in accordance with ASTM D2855.

Where such instructions allow for a one-step solvent cement, yellow or red in color and conforming to ASTM F493, to be used, the joint surfaces shall not require application of a primer before the solvent cement is applied. The joint shall be made while the cement is wet, and in accordance with ~~ASTM D2846 or ASTM F493.~~ ASTM F3328

~~Solvent cement joints shall be permitted above or below ground.~~

**P2906.9.1.3 CPVC/AL/CPVC pipe.** Joint surfaces shall be clean and free from moisture, and an *approved* primer shall be applied. Solvent cement, orange in color and conforming to ASTM F493, shall be applied to all joint surfaces. The joint shall be made while the cement is wet, and in accordance with ~~ASTM D2846 or ASTM F493.~~ ASTM D2855. Solvent-cemented joints shall be installed above or below ground.

**Exception:** A primer shall not be required where all of the following conditions apply:

1. The solvent cement used is third-party certified as conforming to ASTM F493.
2. The solvent cement used is yellow in color.
3. The solvent cement is used only for joining  $\frac{1}{2}$ -inch (12.7 mm) through 1-inch (25 mm) diameter CPVC/AL/CPVC pipe and CPVC fittings.
4. The CPVC fittings are manufactured in accordance with ASTM D2846.
5. The joint is made in accordance with ASTM F3328.

Add new standard(s) as follows:

# ASTM

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

**D2855-20: Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets**

**F3328-19: Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly(Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM D2855-20 and ASTM D3328-19 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.

**Reason Statement:** Add the ASTM D2855 and ASTM F3328 standards to the CPVC and CPVC composite solvent cementing joining section.

ASTM D2855-15 is, "Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets"

ASTM F3328-18 is, "Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets"

These standards are the standards that represent how the joint is made in the two-step (primer and cement) or one-step (cement) process. ASTM D2846 and ASTM F493 are intended for the chlorinated poly(vinyl chloride) plastic hot- and cold-water distribution system and CPVC cement.

**Bibliography:** ASTM F3328 Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly(Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets

ASTM D2855 Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets

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

The inclusion of the standards is not expected to increase or decrease the costs of construction, but only to ensure the joints are correctly made, if by one step, or two step methods.

# P75-21 Part I

IPC: 605.14.2

**Proponents:** Forest Hampton, Lubrizol, Inc., representing Lubrizol, Inc. (forest.hampton@lubrizol.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

**Revise as follows:**

**605.14.2 Solvent cementing.** Joint surfaces shall be clean and free from moisture. Joints shall be made in accordance with the pipe manufacturer's installation instructions. Where such instructions require that a primer be used, the primer shall be applied to the joint surfaces and a solvent cement orange in color and conforming to ASTM F493 shall be applied to the joint surfaces. Where such instructions allow for a one-step solvent cement, yellow or green in color and conforming to ASTM F493, to be used, the joint surfaces shall not require application of a primer before the solvent cement is applied. The joint shall be made while the cement is wet and in accordance with ASTM D2846 or ASTM F493. Solvent-cemented joints shall be permitted above or below ground.

---

P75-21 Part I



# P75-21 Part II

IRC: P2906.9.1.2

**Proponents:** Forest Hampton, representing Lubrizol, Inc. (forest.hampton@lubrizol.com)

## 2021 International Residential Code

**Revise as follows:**

**P2906.9.1.2 CPVC plastic pipe.** Joint surfaces shall be clean and free from moisture. Joints shall be made in accordance with the pipe, fitting or solvent cement manufacturer's installation instructions. Where such instructions require a primer to be used, an *approved* primer shall be applied, and a solvent cement, orange in color and conforming to ASTM F493, shall be applied to joint surfaces. Where such instructions allow for a one-step solvent cement, yellow, green, or red in color and conforming to ASTM F493, to be used, the joint surfaces shall not require application of a primer before the solvent cement is applied. The joint shall be made while the cement is wet, and in accordance with ASTM D2846 or ASTM F493. Solvent cement joints shall be permitted above or below ground.

**Reason Statement:** Currently, it can be difficult to see the yellow solvent cement ring on a tan CTS CPVC joint during inspection. A high contrast cement has been asked for from the field to aid in the inspection of CPVC joints. The color green was chosen because of its high contrast against the tan pipe and fittings and green is not currently used to identify any other type of cement.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. The addition of another one-step solvent cement color will not change the cost of construction.

---

P75-21 Part II

# P76-21 Part I

IPC: 605.15.2, ASTM Chapter 15 (New)

**Proponents:** Michael Cudahy, representing PPFA (mikec@cmservices.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

**Revise as follows:**

**605.15.2 Solvent cementing.** Joint surfaces shall be clean and free from moisture, and an approved primer shall be applied. Solvent cement, orange in color and conforming to ASTM F493, shall be applied to joint surfaces. The joint shall be made while the cement is wet, and in accordance with ~~ASTM D2846 or ASTM F493~~ ASTM D2855. Solvent cement joints shall be permitted above or below ground.

**Exception:** A primer is not required where all of the following conditions apply:

1. The solvent cement used is third-party certified as conforming to ASTM F493.
2. The solvent cement used is yellow in color.
3. The solvent cement is used only for joining  $\frac{1}{2}$ -inch (12.7 mm) through 2-inch-diameter (51 mm) CPVC/AL/CPVC pipe and CPVC fittings.
4. The CPVC fittings are manufactured in accordance with ASTM D2846.
5. The joint is made in accordance with ASTM F3328.

**Add new standard(s) as follows:**

# ASTM

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

**D2855-20: Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly(Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets**

**F3328-19: Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3328-19 and ASTM D2855-20 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.

P76-21 Part I

# P76-21 Part II

IRC: P2906.9.1.3, ASTM Chapter 44 (New)

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

## 2021 International Residential Code

Revise as follows:

**P2906.9.1.3 CPVC/AL/CPVC pipe.** Joint surfaces shall be clean and free from moisture, and an *approved* primer shall be applied. Solvent cement, orange in color and conforming to ASTM F493, shall be applied to all joint surfaces. The joint shall be made while the cement is wet, and in accordance with ~~ASTM D2846 or ASTM F493~~ ASTM D2855. Solvent-cemented joints shall be installed above or below ground.

**Exception:** A primer shall not be required where all of the following conditions apply:

1. The solvent cement used is third-party certified as conforming to ASTM F493.
2. The solvent cement used is yellow in color.
3. The solvent cement is used only for joining  $\frac{1}{2}$ -inch (12.7 mm) through 1-inch (25 mm) diameter CPVC/AL/CPVC pipe and CPVC fittings.
4. The CPVC fittings are manufactured in accordance with ASTM D2846.
5. The joint is made in accordance with ASTM F3328.

Add new standard(s) as follows:

# ASTM

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

**D2855-20: Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly(Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets**

**F3328-19: Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3328-19 and ASTM D2855-20 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.

**Reason Statement:** There are sections of the IPC and IRC allowing either two- or one-step use of PVC and CPVC cements in limited circumstances. The sections currently refer to inappropriate standards and the one and two step joining standards, ASTM F3328 and ASTM D2855, would be more appropriate to add.

For reference, these are the titles of the standards being changed in the proposal;

ASTM D2855-15 is, "Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets"

ASTM F3328-18 is, "Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets"

ASTM F493 -14 is, "Standard Specification for Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe and Fittings"

ASTM D2846/D2846M-19a is, "Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Hot-and Cold-Water Distribution Systems"

**Bibliography:** ASTM D2855 "Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets"

ASTM F3328 "Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets"

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

The proposal adds standards on properly making one or two step solvent cement joints and is not expected to increase or decrease the cost of construction.

# P77-21

IPC: 605.17.3

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**605.17.3 Grooved and shouldered and Plain Ended pipe mechanical joints.** Grooved and shouldered and plain ended pipe, mechanical joints shall comply with ASTM F1476, shall be made with an approved elastomeric seal and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**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 of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required.

P77-21

---

# P78-21

IPC: 605.18.3

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**605.18.3 Mechanical joints.** Mechanical joints shall be made with an elastomeric gasket or shall comply with either Type II Class 2 or Type II Class 3 of ASTM F1476. The elastomeric seal shall comply with NSF 61. The coupling shall be designed and manufactured to suit the pipe outside diameter. The mechanical joint coupling should be installed in accordance with manufacturers instructions and tightened, using a calibrated torque wrench, to the torque indicated by the manufacturer.

~~Mechanical joints shall be installed in accordance with the manufacturer's instructions.~~

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required.

P78-21

# P79-21

IPC: 605.19.2

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**605.19.2 Mechanical and compression sleeve joints.** Mechanical and compression sleeve joints shall be installed in accordance with the manufacturer's instructions. Mechanical joints shall be made with an elastomeric gasket or shall be made to either Type II Class 2 or Type II Class 3 of ASTM F1476. The elastomeric seal shall comply with NSF 61. The coupling shall be designed and manufactured to suit the pipe outside diameter. The coupling shall be installed in accordance with manufacturers instructions and tightened, using a calibrated torque wrench, to the torque indicated by the manufacturer.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be upgraded. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

P79-21

# P80-21

IPC: 605.21.2

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**605.21.2 Grooved and shouldered and plain end pipe mechanical joints.** Grooved and shouldered joints and for plain ended pipe, mechanical joints shall comply with ASTM F1476, shall be made with an *approved* elastomeric seal and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

P80-21

# P81-21

IPC: 605.22.3

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**605.22.3 Grooved and shouldered and plain end pipe mechanical joints.** Grooved and shouldered and plain end pipe mechanical joints shall comply with ASTM F1476, shall be made with an *approved* elastomeric seal and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

P81-21

---



# P82-21

IPC: 605.23

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**605.23 Joints between different materials.** Joints between different piping materials shall be made with a mechanical joint of the compression or mechanical-sealing type, or shall be made in accordance with Section 605.23.1, 605.23.2 or 605.23.3. Connectors or adapters shall have an elastomeric seal conforming to ASTM F477 or NSF 61. Joints shall be installed in accordance with the manufacturer's instructions.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019) / NSF ANSI CAN 61

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

P82-21

# P83-21

IPC: 605.23.1

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**605.23.1 Copper or copper-alloy tubing to galvanized steel pipe.** Joints between copper pipe or tubing and galvanized steel pipe shall be made with a copper-alloy fitting, a dielectric fitting conforming to ASSE 1079, or a stepped mechanical coupling that complies with Type II Class 3 of ASTM F1476. The sealing gasket shall conform to NSF 61. The copper tubing shall be soldered to the fitting in an approved manner, and the fitting shall be screwed to the threaded pipe. The mechanical coupling shall be installed in accordance with manufacturer's instructions and tightened using a calibrated torque wrench, to the torque indicated by the manufacturer.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be upgraded. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019) / NSF ANSI CAN 61

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476 with Stepped Gaskets to NSF /ANSI /CAN 61, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure performance additional system security when rapid installation is required.

These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required.

P83-21

# P84-21

IPC: 605.23.3

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**605.23.3 Stainless steel.** Joints between stainless steel and different piping materials shall be made with a mechanical joint of the compression or mechanical sealing type that complies with Type II Class 3 of ASTM F1476, ~~or~~ a dielectric fitting or a dielectric union conforming to ASSE 1079.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

P84-21

---

# P85-21

IPC: 606.1

**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 Statement:** 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

# P86-21

IPC: 606.2

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

## 2021 International Plumbing Code

**Revise as follows:**

**606.2 Location of shutoff valves.** Shutoff valves shall be installed in the following locations:

1. On the fixture supply to each plumbing fixture other than bathtubs and showers in ~~one- and two-family~~ residential *occupancies*, and other than in individual sleeping units that are provided with unit shutoff valves in hotels, motels, boarding houses and similar *occupancies*.
2. On the water supply pipe to each sillcock.
3. On the water supply pipe to each appliance or mechanical equipment.

**Reason Statement:** The requirements for shutoff valves on bathtubs and showers should be no different for multi-family residential occupancies than for one- and two-family residential occupancies. Section 606.1, Item 6 already requires a main shutoff valve for every dwelling unit. This shutoff valve is sufficient to allow repair or replacement of bathtub and shower valves in any residential occupancy, whether in homes or apartments.

**Cost Impact:** The code change proposal will decrease the cost of construction

This proposal will eliminate the need for additional piping, valves, and/or screwdriver stops in multi-family residential occupancies.

---

P86-21

## **P87-21 Part I**

**IPC: TABLE 604.4, USEPA (New), (New)**

**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 <sup>b</sup>
Shower head <sup>a,c</sup>	<u>2.0</u> <del>2.5</del> 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.**

**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

## **P87-21 Part II**

**IRC: TABLE P2903.2, USEPA (New), (New)**

**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<sup>b</sup>**

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY
Lavatory faucet	2.2 gpm at 60 psi
Shower head <sup>a,c</sup>	<u>2.0</u> <del>2.5</del> 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 WaterSense Specification for Showerheads Version 1.1, July 26, 2018.**

**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.

**Reason Statement:** 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.

# P88-21

IPC: 606.5.11 (New), WSC (New), ANSI/WSC PST 2000/2016 (New)

**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

### **ANSI/WSC PST 2000/2016 Standard Pressurized Water Storage Tank.**

**Reason Statement:** 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

# P89-21

IPC: 607.2.1 (New)

**Proponents:** Joseph J. Summers, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

## 2021 International Plumbing Code

**Add new text as follows:**

**607.2.1 Commercial energy provisions.** In occupancies that are required to comply with the Commercial provisions of the International Energy Conservation Code, the developed length of hot or tempered water piping shall limited in accordance with Sections C404.5.1 through C404.5.2.1 of that code.

**Reason Statement:** Requirements for hot water pipe sizing and lengths has been in the Commercial Provisions of the Energy code for several edition. Because the IPC did not have a pointer to the requirements, the requirements were sometimes overlooked. Adding the pointer clarifies the cod.

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 9.

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

The requirement for hot water pipe sizing is already in the current code. This proposal only adds a pointer to the requirements and as such, there is no additional labor or materials to impact the cost of construction.

---

P89-21

# P90-21

IPC: 607.4

**Proponents:** Matthew Payette, City of Longmont, representing City of Longmont

## 2021 International Plumbing Code

**Revise as follows:**

**607.4 Flow of hot water to fixtures.** Fixture fittings, faucets and diverters shall be installed and adjusted so that the flow of hot water from the fittings corresponds to the left-hand side of the fixture fitting. Single handle fixture fittings shall be installed and adjusted so that the flow of hot water corresponds to the far side of the fixture fitting.

**Exception:** Shower and tub/shower mixing valves conforming to ASSE 1016/ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1, where the flow of hot water corresponds to the markings on the device.

**Reason Statement:**



This type of faucet currently has no requirement for which direction should be the hot supply. I am proposing that hot should be to the back or far side of the fixture to prevent scalding to small children. A child that can barely reach the controls will inherently pull the handle toward themselves. If this is the direction of the hot supply, it could lead to injury of the child.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This is a simple installation direction.

P90-21

## **P91-21**

**IPC: TABLE 608.1, ASSE Chapter 15 (New)**

**Proponents:** Chris Haldiman, representing Watts Water Technologies (chris.haldiman@wattswater.com); Cameron Rapoport, representing Watts (cameron.rapoport@wattswater.com)

### **2021 International Plumbing Code**

**Revise as follows:**

**TABLE 608.1**  
**APPLICATION OF BACKFLOW PREVENTERS**

DEVICE	DEGREE OF HAZARD <sup>a</sup>	APPLICATION <sup>b</sup>	APPLICABLE STANDARDS
<b>Backflow prevention assemblies:</b>			
Double check backflow prevention assembly and double check fire protection backflow prevention assembly	Low hazard	Backpressure or backsiphonage Sizes $\frac{3}{8}$ "–16"	ASSE 1015; AWWA C510; CSA B64.5; CSA B64.5.1
Double check detector fire protection backflow prevention assemblies	Low hazard	Backpressure or backsiphonage Sizes 2"–16"	ASSE 1048
Pressure vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes $\frac{1}{2}$ "–2"	ASSE 1020; CSA B64.1.2
Reduced pressure principle backflow prevention assembly and reduced pressure principle fire protection backflow assembly	High or low hazard	Backpressure or backsiphonage Sizes $\frac{3}{8}$ "–16"	ASSE 1013; AWWA C511; CSA B64.4; CSA B64.4.1
Reduced pressure detector fire protection backflow prevention assemblies	High or low hazard	Backsiphonage or backpressure (automatic sprinkler systems)	ASSE 1047
Spill-resistant vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes $\frac{1}{4}$ "–2"	ASSE 1056; CSA B64.1.3
<b>Backflow preventer plumbing devices:</b>			
Antisiphon-type fill valves for gravity water closet flush tanks	High hazard	Backsiphonage only	ASSE 1002/ASME A112.1002/CSA B125.12; CSA B125.3
Backflow preventer for carbonated beverage machines	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{8}$ "	ASSE 1022
Backflow preventer with intermediate atmospheric vents	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{4}$ "	ASSE 1012; CSA B64.3
Backflow preventer with intermediate atmospheric vent and pressure-reducing valve.	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{4}$ "	ASSE 1081
Dual-check-valve-type backflow preventer	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "–1"	ASSE 1024; <u>ASSE 1032</u> ; CSA B64.6
Hose connection backflow preventer	High or low hazard	Low head backpressure, rated working pressure, backpressure or backsiphonage Sizes $\frac{1}{2}$ "–1"	ASME A112.21.3; ASSE 1052; CSA B64.2.1.1
Hose connection vacuum breaker	High or low hazard	Low head backpressure or backsiphonage Sizes $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1"	ASME A112.21.3; ASSE 1011; CSA B64.2; CSA B64.2.1
Laboratory faucet backflow preventer	High or low hazard	Low head backpressure and backsiphonage	ASSE 1035; CSA B64.7
Pipe-applied atmospheric-type vacuum breaker	High or low hazard	Backsiphonage only Sizes $\frac{1}{4}$ "–4"	ASSE 1001; CSA B64.1.1
Vacuum breaker wall hydrants, frost-resistant, automatic-draining-type	High or low hazard	Low head backpressure or backsiphonage Sizes $\frac{3}{4}$ ", 1"	ASME A112.21.3; ASSE 1019; CSA B64.2.2
<b>Other means or methods:</b>			
Air gap	High or low hazard	Backsiphonage or backpressure	ASME A112.1.2
Air gap fittings for use with plumbing fixtures, appliances and appurtenances	High or low hazard	Backsiphonage or backpressure	ASME A112.1.3
Barometric loop	High or low hazard	Backsiphonage only	(See Section 608.14.4)

For SI: 1 inch = 25.4 mm.

- a. Low hazard—See Pollution (Section 202).  
High hazard—See Contamination (Section 202).
- b. See Backpressure, low head (Section 202, Backflow).  
See Backsiphonage (Section 202, Backflow).

Add new standard(s) as follows:

# ASSE

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

**1032-2004(R2021): Performance Requirements for Dual Check Valve Type Backflow Preventers for Carbonated Beverage Dispensers, Post Mix Type**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASSE 1032-2004(R2021) 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.

**Reason Statement:** ASSE 1032, a standard for dual checks, is not currently listed in table 608.1

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This proposal only adds additional models to select from.

---

P91-21



## **P92-21**

IPC: TABLE 608.1

**Proponents:** Jason Shank, ASSE International, representing ASSE International

### **2021 International Plumbing Code**

Revise as follows:

**TABLE 608.1**  
**APPLICATION OF BACKFLOW PREVENTERS**

Portions of table not shown remain unchanged.

DEVICE	DEGREE OF HAZARD <sup>a</sup>	APPLICATION <sup>b</sup>	APPLICABLE STANDARDS
<b>Backflow prevention assemblies:</b>			
Double check backflow prevention assembly <del>and double check fire protection backflow prevention assembly</del>	Low hazard	Backpressure or backsiphonage Sizes <del><math>\frac{3}{8}</math>"–<math>\frac{1}{4}</math>"</del> <u><math>\frac{1}{4}</math>"–16"</u>	ASSE 1015; AWWA C510; CSA B64.5; CSA B64.5.1
Double check detector fire protection backflow prevention assemblies	Low hazard	Backpressure or backsiphonage Sizes <del><math>\frac{1}{2}</math>"–16"</del> <u><math>\frac{1}{2}</math>"–16"</u>	ASSE 1048
Pressure vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes $\frac{1}{2}$ "–2"	ASSE 1020; CSA B64.1.2
Reduced pressure principle backflow prevention assembly <del>and reduced pressure principle fire protection backflow assembly</del>	High or low hazard	Backpressure or backsiphonage Sizes <del><math>\frac{3}{8}</math>"</del> <u><math>\frac{1}{4}</math>"–16"</u>	ASSE 1013; AWWA C511; CSA B64.4; CSA B64.4.1
Reduced pressure detector fire protection backflow prevention assemblies	High or low hazard	Backsiphonage or backpressure (automatic sprinkler systems)	ASSE 1047
Spill-resistant vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes $\frac{1}{4}$ "–2"	ASSE 1056; CSA B64.1.3
<b>Backflow preventer plumbing devices:</b>			
Antisiphon-type fill valves for gravity water closet flush tanks	High hazard	Backsiphonage only	ASSE 1002/ASME A112.1002/CSA B125.12; CSA B125.3
Backflow preventer for carbonated beverage machines	Low hazard	Backpressure or backsiphonage Sizes <del><math>\frac{1}{4}</math>"–<math>\frac{3}{8}</math>"</del> <u><math>\frac{1}{4}</math>"–1/2"</u>	ASSE 1022
Backflow preventer with intermediate atmospheric vents	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{4}$ "	ASSE 1012; CSA B64.3
Backflow preventer with intermediate atmospheric vent and pressure-reducing valve.	Low hazard	Backpressure or backsiphonage Sizes <del><math>\frac{1}{4}</math>"–<math>\frac{3}{4}</math>"</del> <u><math>\frac{1}{2}</math>"–3/4"</u>	ASSE 1081
Dual-check-valve-type backflow preventer	Low hazard	Backpressure or backsiphonage Sizes <del><math>\frac{1}{4}</math>"–<math>\frac{1}{2}</math>"</del> <u><math>\frac{1}{4}</math>"–2"</u>	ASSE 1024; CSA B64.6
Hose connection backflow preventer	High or low hazard	Low head backpressure, rated working pressure, backpressure or backsiphonage Sizes $\frac{1}{2}$ "–1"	ASME A112.21.3; ASSE 1052; CSA B64.2.1.1
Hose connection vacuum breaker	High or low hazard	Low head backpressure or backsiphonage Sizes $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1"	ASME A112.21.3; ASSE 1011; CSA B64.2; CSA B64.2.1
Laboratory faucet backflow preventer	High or low hazard	Low head backpressure and backsiphonage <u>Sizes <math>\frac{1}{8}</math>" - 8"</u>	ASSE 1035; CSA B64.7
Pipe-applied atmospheric-type vacuum breaker	High or low hazard	Backsiphonage only Sizes <del><math>\frac{1}{4}</math>"–4"</del>	ASSE 1001; CSA B64.1.1
Vacuum breaker wall hydrants, frost-resistant, automatic-draining-type	High or low hazard	Low head backpressure or backsiphonage Sizes $\frac{3}{4}$ ", 1"	ASME A112.21.3; ASSE 1019; CSA B64.2.2
<b>Other means or methods:</b>			
Air gap	High or low hazard	Backsiphonage or backpressure	ASME A112.1.2
Air gap fittings for use with plumbing fixtures, appliances and appurtenances	High or low hazard	Backsiphonage or backpressure	ASME A112.1.3
Barometric loop	High or low hazard	Backsiphonage only	(See Section 608.14.4)

For SI: 1 inch = 25.4 mm.

- a. Low hazard—See Pollution (Section 202).  
High hazard—See Contamination (Section 202).
- b. See Backpressure, low head (Section 202, Backflow).  
See Backsiphonage (Section 202, Backflow).

**Reason Statement:** The changes being proposed are updates to the language and sizes in the current versions of these standards.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
These devices are still being required.

---

P92-21

## **P93-21**

IPC: TABLE 608.1, ASSE Chapter 15 (New)

**Proponents:** Jason Shank, ASSE International, representing ASSE International

### **2021 International Plumbing Code**

Revise as follows:

**TABLE 608.1**  
**APPLICATION OF BACKFLOW PREVENTERS**

DEVICE	DEGREE OF HAZARD <sup>a</sup>	APPLICATION <sup>b</sup>	APPLICABLE STANDARDS
<b>Backflow prevention assemblies:</b>			
Double check backflow prevention assembly and double check fire protection backflow prevention assembly	Low hazard	Backpressure or backsiphonage Sizes $\frac{3}{8}$ "–16"	ASSE 1015; AWWA C510; CSA B64.5; CSA B64.5.1
Double check detector fire protection backflow prevention assemblies	Low hazard	Backpressure or backsiphonage Sizes 2"–16"	ASSE 1048
Pressure vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes $\frac{1}{2}$ "–2"	ASSE 1020; CSA B64.1.2
Reduced pressure principle backflow prevention assembly and reduced pressure principle fire protection backflow assembly	High or low hazard	Backpressure or backsiphonage Sizes $\frac{3}{8}$ "–16"	ASSE 1013; AWWA C511; CSA B64.4; CSA B64.4.1
Reduced pressure detector fire protection backflow prevention assemblies	High or low hazard	Backsiphonage or backpressure (automatic sprinkler systems)	ASSE 1047
Spill-resistant vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes $\frac{1}{4}$ "–2"	ASSE 1056; CSA B64.1.3
<b>Backflow preventer plumbing devices:</b>			
Antisiphon-type fill valves for gravity water closet flush tanks	High hazard	Backsiphonage only	ASSE 1002/ASME A112.1002/CSA B125.12; CSA B125.3
Backflow preventer for carbonated beverage machines	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{8}$ "	ASSE 1022
Backflow preventer with intermediate atmospheric vents	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{4}$ "	ASSE 1012; CSA B64.3
Backflow preventer with intermediate atmospheric vent and pressure-reducing valve.	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{4}$ "	ASSE 1081
Dual-check-valve-type backflow preventer	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "–1"	ASSE 1024; CSA B64.6
Hose connection backflow preventer	High or low hazard	Low head backpressure, rated working pressure, backpressure or backsiphonage Sizes $\frac{1}{2}$ "–1"	ASME A112.21.3; ASSE 1052; CSA B64.2.1.1
Hose connection vacuum breaker	High or low hazard	Low head backpressure or backsiphonage Sizes $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1"	ASME A112.21.3; ASSE 1011; CSA B64.2; CSA B64.2.1
Laboratory faucet backflow preventer	High or low hazard	Low head backpressure and backsiphonage	ASSE 1035; CSA B64.7
Pipe-applied atmospheric-type vacuum breaker	High or low hazard	Backsiphonage only Sizes $\frac{1}{4}$ "–4"	ASSE 1001; CSA B64.1.1
Vacuum breaker wall hydrants, frost-resistant, automatic-draining-type	High or low hazard	Low head backpressure or backsiphonage Sizes $\frac{3}{4}$ ", 1"	ASME A112.21.3; ASSE 1019; CSA B64.2.2
<b>Other means or methods:</b>			
Air gap	High or low hazard	Backsiphonage or backpressure	ASME A112.1.2
Air gap fittings for use with plumbing fixtures, appliances and appurtenances	High or low hazard	Backsiphonage or backpressure	ASME A112.1.3
Barometric loop	High or low hazard	Backsiphonage only	(See Section 608.14.4)
<u>Dual check backflow preventer wall hydrants, freeze resistant</u>	<u>High or Low Hazard</u>	<u>Backsiphonage only</u>	<u>ASSE 1053</u> <u>Such devices are not for use under continuous pressure conditions</u>

For SI: 1 inch = 25.4 mm.

- a. Low hazard—See Pollution (Section 202).  
High hazard—See Contamination (Section 202).
- b. See Backpressure, low head (Section 202, Backflow).  
See Backsiphonage (Section 202, Backflow).

**Add new standard(s) as follows:**

# ASSE

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

## **1053-19: Performance Requirements for Dual Check Backflow Preventer Wall Hydrants – Freeze Resistant Type**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASSE 1053-19 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.

**Reason Statement:** This proposal is to add ASSE 1053 to the table like other approved backflow devices.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
There is no added requirements.

---

P93-21

## **P94-21**

IPC: TABLE 608.1, ASSE Chapter 15 (New)

**Proponents:** Jason Shank, ASSE International, representing ASSE International

### **2021 International Plumbing Code**

Revise as follows:



**TABLE 608.1**  
**APPLICATION OF BACKFLOW PREVENTERS**

DEVICE	DEGREE OF HAZARD <sup>a</sup>	APPLICATION <sup>b</sup>	APPLICABLE STANDARDS
<b>Backflow prevention assemblies:</b>			
Double check backflow prevention assembly and double check fire protection backflow prevention assembly	Low hazard	Backpressure or backsiphonage Sizes $\frac{3}{8}$ "–16"	ASSE 1015; AWWA C510; CSA B64.5; CSA B64.5.1
Double check detector fire protection backflow prevention assemblies	Low hazard	Backpressure or backsiphonage Sizes 2"–16"	ASSE 1048
Pressure vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes $\frac{1}{2}$ "–2"	ASSE 1020; CSA B64.1.2
Reduced pressure principle backflow prevention assembly and reduced pressure principle fire protection backflow assembly	High or low hazard	Backpressure or backsiphonage Sizes $\frac{3}{8}$ "–16"	ASSE 1013; AWWA C511; CSA B64.4; CSA B64.4.1
Reduced pressure detector fire protection backflow prevention assemblies	High or low hazard	Backsiphonage or backpressure (automatic sprinkler systems)	ASSE 1047
Spill-resistant vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes $\frac{1}{4}$ "–2"	ASSE 1056; CSA B64.1.3
<b>Backflow preventer plumbing devices:</b>			
Antisiphon-type fill valves for gravity water closet flush tanks	High hazard	Backsiphonage only	ASSE 1002/ASME A112.1002/CSA B125.12; CSA B125.3
Backflow preventer for carbonated beverage machines	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{8}$ "	ASSE 1022
Backflow preventer with intermediate atmospheric vents	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{4}$ "	ASSE 1012; CSA B64.3
Backflow preventer with intermediate atmospheric vent and pressure-reducing valve.	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "– $\frac{3}{4}$ "	ASSE 1081
Dual-check-valve-type backflow preventer	Low hazard	Backpressure or backsiphonage Sizes $\frac{1}{4}$ "–1"	ASSE 1024; CSA B64.6
Hose connection backflow preventer	High or low hazard	Low head backpressure, rated working pressure, backpressure or backsiphonage Sizes $\frac{1}{2}$ "–1"	ASME A112.21.3; ASSE 1052; CSA B64.2.1.1
Hose connection vacuum breaker	High or low hazard	Low head backpressure or backsiphonage Sizes $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1"	ASME A112.21.3; ASSE 1011; CSA B64.2; CSA B64.2.1
Laboratory faucet backflow preventer	High or low hazard	Low head backpressure and backsiphonage	ASSE 1035; CSA B64.7
Pipe-applied atmospheric-type vacuum breaker	High or low hazard	Backsiphonage only Sizes $\frac{1}{4}$ "–4"	ASSE 1001; CSA B64.1.1
Vacuum breaker wall hydrants, frost-resistant, automatic-draining-type	High or low hazard	Low head backpressure or backsiphonage Sizes $\frac{3}{4}$ ", 1"	ASME A112.21.3; ASSE 1019; CSA B64.2.2
<b>Other means or methods:</b>			
Air gap	High or low hazard	Backsiphonage or backpressure	ASME A112.1.2
Air gap fittings for use with plumbing fixtures, appliances and appurtenances	High or low hazard	Backsiphonage or backpressure	ASME A112.1.3
Barometric loop	High or low hazard	Backsiphonage only	(See Section 608.14.4)
Freeze resistant sanitary yard hydrants	High or low hazard	Backsiphonage only	ASSE 1057 Such devices are not use under continuous pressure conditions

For SI: 1 inch = 25.4 mm.

- a. Low hazard—See Pollution (Section 202).  
High hazard—See Contamination (Section 202).
- b. See Backpressure, low head (Section 202, Backflow).  
See Backsiphonage (Section 202, Backflow).

**Add new standard(s) as follows:**

# ASSE

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

**1057-12: Performance Requirements for Freeze Resistant Sanitary Yard Hydrant with Backflow Protection**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASSE 1057-12 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.

**Reason Statement:** The addition of the ASSE 1057 to this table just keeps the table update for allowable backflow devices.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This proposal does not add any new requirements.

---

P94-21

## **P95-21**

IPC: TABLE 608.1

**Proponents:** Jason Shank, ASSE International, representing ASSE International

### **2021 International Plumbing Code**

Revise as follows:

**TABLE 608.1  
APPLICATION OF BACKFLOW PREVENTERS**

DEVICE	DEGREE OF HAZARD <sup>a</sup>	APPLICATION <sup>b</sup>	APPLICABLE STANDARDS
<b>Backflow prevention assemblies:</b>			
Double check backflow prevention assembly and double check fire protection backflow prevention assembly	Low hazard	Backpressure or backsiphonage Sizes 3/8"–16"	ASSE 1015; AWWA C510; CSA B64.5; CSA B64.5.1
Double check detector fire protection backflow prevention assemblies	Low hazard	Backpressure or backsiphonage Sizes 2"–16"	ASSE 1048
Pressure vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes 1/2"–2"	ASSE 1020; CSA B64.1.2
Reduced pressure principle backflow prevention assembly and reduced pressure principle fire protection backflow assembly	High or low hazard	Backpressure or backsiphonage Sizes 3/8"–16"	ASSE 1013; AWWA C511; CSA B64.4; CSA B64.4.1
Reduced pressure detector fire protection backflow prevention assemblies	High or low hazard	Backsiphonage or backpressure (automatic sprinkler systems)	ASSE 1047
Spill-resistant vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes 1/4"–2"	ASSE 1056; CSA B64.1.3
<b>Backflow preventer plumbing devices:</b>			
Antisiphon-type fill valves for gravity water closet flush tanks	High hazard	Backsiphonage only	ASSE 1002/ASME A112.1002/CSA B125.12; CSA B125.3
Backflow preventer for carbonated beverage machines	Low hazard	Backpressure or backsiphonage Sizes 1/4"–3/8"	ASSE 1022
Backflow preventer with intermediate atmospheric vents	Low hazard	Backpressure or backsiphonage Sizes 1/4"–3/4"	ASSE 1012; CSA B64.3
Backflow preventer with intermediate atmospheric vent and pressure-reducing valve.	Low hazard	Backpressure or backsiphonage Sizes 1/4"–3/4"	ASSE 1081
Dual-check-valve-type backflow preventer	Low hazard	Backpressure or backsiphonage Sizes 1/4"–1"	ASSE 1024; CSA B64.6
Hose connection backflow preventer	High or low hazard	Low head backpressure, rated working pressure, backpressure or backsiphonage Sizes 1/2"–1"	ASME A112.21.3; ASSE 1052; CSA B64.2.1.1
Hose connection vacuum breaker	High or low hazard	Low head backpressure or backsiphonage Sizes 1/2", 3/4", 1"	ASME A112.21.3; ASSE 1011; CSA B64.2; CSA B64.2.1
Laboratory faucet backflow preventer	High or low hazard	Low head backpressure and backsiphonage	ASSE 1035; CSA B64.7
Pipe-applied atmospheric-type vacuum breaker	High or low hazard	Backsiphonage only Sizes 1/4"–4"	ASSE 1001; CSA B64.1.1
Vacuum breaker wall hydrants, frost-resistant, automatic-draining-type	High or low hazard	Low head backpressure or backsiphonage Sizes 3/4", 1"	ASME A112.21.3; ASSE 1019; CSA B64.2.2
<b>Other means or methods:</b>			
Air gap	High or low hazard	Backsiphonage or backpressure	ASME A112.1.2
	High or		

Air gap fittings for use with plumbing fixtures, appliances and appurtenances	High or low hazard	Backsiphonage or backpressure	ASME A112.1.3
Barometric loop	High or low hazard	Backsiphonage only	(See Section 608.14.4)
<u>Chemical dispenser with intergral backflow protection</u>	<u>High or low hazard</u>	<u>Backsiphonage only</u>	<u>ASSE 1055</u> <u>Shall be installeed according to manufacturer's recommendations with dedicated water supply whenever possible</u>

For SI: 1 inch = 25.4 mm.

- a. Low hazard—See Pollution (Section 202).  
High hazard—See Contamination (Section 202).
- b. See Backpressure, low head (Section 202, Backflow).  
See Backsiphonage (Section 202, Backflow).

**Reason Statement:** The ASSE 1055 is being proposed to add to this table like other approved backflow devices.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
The is no additional requirements.

P95-21

# P96-21 Part I

IPC: 608.15

**Proponents:** Richard Grace, representing Virginia Plumbing and Mechanical Inspectors Association (VPMIA) and Virginia Building and Code Officials Association (VBCOA) (richard.grace@fairfaxcounty.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:

**608.15 Location of backflow preventers.** Access for inspection, testing, service, repair and replacement shall be provided to backflow preventers prevention assemblies. Backflow prevention assemblies shall be installed between 12 inches (305 mm) and 60 inches (1525 mm) from grade, floor level or service platform and as specified by the manufacturer's instructions. Where the manufacturer's listed installation height conflicts with this requirement, the manufacturer's listed heights shall apply. Access shall be provided to backflow prevention devices and as specified by the manufacturer's instructions.

---

P96-21 Part I

# P96-21 Part II

IRC: P2902.6

**Proponents:** Richard Grace, representing Virginia Plumbing and Mechanical Inspectors Association (VPMIA) and Virginia Building and Code Officials Association (VBCOA) (richard.grace@fairfaxcounty.gov)

## 2021 International Residential Code

Revise as follows:

**P2902.6 Location of backflow preventers.** Access for inspection, testing, service, repair and replacement shall be provided to backflow preventers prevention assemblies. Backflow prevention assemblies shall be installed between 12 inches (305 mm) and 60 inches (1525 mm) from grade, floor level or service platform and as specified by the manufacturer's instructions. Where the manufacturer's listed installation height conflicts with this requirement, the manufacturer's listed heights shall apply. Access shall be provided to backflow prevention devices and as specified by the manufacturer's instructions.

**Reason Statement:** As is necessary with many appliances, control devices and other equipment, backflow prevention assemblies and devices require inspection, testing, service, repair and replacement. Currently, there are provisions in the I codes to provide access to appliances, control devices and other equipment for inspection, service, repair and replacement. This proposal looks to provide similar provisions for backflow preventers. "Testing" has been included to align with VPC 312.10 and VRC P2503.8 requirements. It is important to address access for backflow prevention assemblies and devices at the new installation stage to ensure proper access is provided for future inspection, testing, service, repair and replacement.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
Access is already required for backflow preventers. This change simply provides more details to this access requirement that should not increase the cost of construction.

---

P96-21 Part II



# P97-21

IPC: 608.15.2

**Proponents:** Chris Haldiman, representing Watts Water Technologies (chris.haldiman@wattswater.com); Cameron Rapoport, representing Watts (cameron.rapoport@wattswater.com)

## 2021 International Plumbing Code

Revise as follows:

**608.15.2 Protection of backflow preventers.** Backflow preventers shall not be located in areas subject to freezing except where they can be removed by means of unions or are protected from freezing by heat, insulation, ~~or both built-in freeze protection, digital monitoring, or a combination thereof.~~

**Reason Statement:** In areas subjected to outdoor freezing temperatures, backflow preventer failure can occur in indoor mechanical rooms when not adequately heated, which is often the case. This is particularly true for fire sprinkler system backflow assemblies, as there is not flow of water to prevent freezing. In these cases, removal of the valve would not be possible, and insulation may be tampered with, lost, or inadequate due to both low water and ambient temperature. In such cases, digital monitoring systems with either a separate alarm or connection to a Building Management System (BMS) will alert users to take action to prevent damage to the backflow preventer.

**Cost Impact:** The code change proposal will increase the cost of construction. Although this would increase installation cost, it will increase protection of the system from freezing damage and service outages.

---

P97-21

# P98-21

IPC: 608.15.2.1

**Proponents:** Chris Haldiman, Watts Water Technologies, representing Watts Water Technologies (chris.haldiman@wattswater.com); Cameron Rapoport, representing Watts (cameron.raपोport@wattswater.com)

## 2021 International Plumbing Code

Revise as follows:

**608.15.2.1 Relief port piping.** The termination of the piping from the relief port or *air gap* fitting of a backflow preventer shall discharge to an *approved* indirect waste receptor or to the outdoors where it will not cause damage or create a nuisance. The indirect waste receptor and drainage piping shall be sized to drain the maximum discharge flow rate from the relief port as published by the backflow preventer manufacturer. Where a properly-sized drain or indirect waste receptor is not available or feasible, a sensor shall be located to monitor discharge from the backflow preventer and provide automatic shutdown through an appropriate tightly-closing valve. When the sensor detects excessive discharge, the sensor shall produce either an audible alarm sound or send a digital signal notification through connection to a building management system.

**Reason Statement:** Especially for larger backflow preventers, high-pressure areas, or backflow preventer installed on high floors appropriately sized discharge piping may not be feasible. Addition of this system will also allow for immediate notification of a system issue when a WiFi module is included.

**Cost Impact:** The code change proposal will increase the cost of construction

Although there will be a cost increase for the backflow assembly due to additional controls, this cost may be offset by installing a smaller sized drain line.

P98-21

---

# P99-21

IPC: 608.17.1.2, ASSE Chapter 15 (New)

**Proponents:** Chris Haldiman, Watts Water Technologies, representing Watts Water Technologies (chris.haldiman@wattswater.com); Cameron Rapoport, Watts, representing Watts (cameron.raपोport@wattswater.com)

## 2021 International Plumbing Code

Revise as follows:

**608.17.1.2 Coffee machines and noncarbonated drink dispensers.** The water supply connection to each coffee machine and each noncarbonated beverage dispenser shall be protected against backflow by a backflow preventer conforming to ASSE 1022, ~~or~~ ASSE 1024, ASSE 1032 or protected by an *air gap*.

Add new standard(s) as follows:

# ASSE

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

### 1032- 2004(R2021): Dual Check Valve Type Backflow Preventers for Carbonated Beverage Dispensers – Post Mix Type

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASSE 1032-2004(R2021) 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.

**Reason Statement:** Post-mix type carbonated beverage dispensers present a higher hazard than non-carbonated beverage dispensers, and therefore the added protection of an atmospheric vent in an ASSE 1022 compliant device is appropriate. However, non-carbonated beverage dispensers present less of a hazard as they do not produce carbonic acid, and therefore a dual check would be an appropriate device. There are two ASSE standards for dual checks, 1032 and 1024.

Though ASSE 1032 states it is specifically for carbonated beverage, examination of the standard leaves no reason it would not be appropriate for non-carbonated beverage. Additionally, ASSE 1032 are more commonly available in appropriate sizes (1/4", 3/8") than ASSE 1024 devices, and with more appropriate end connections given that their intended application is for beverage dispensing.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. There is no cost impact, it just offers increased device choices.

P99-21

# P100-21

IPC: 608.17.4.1

**Proponents:** Jason Shank, ASSE International, representing ASSE International

## 2021 International Plumbing Code

**Revise as follows:**

**608.17.4.1 Additives or nonpotable source.** Where systems under continuous pressure contain chemical additives or antifreeze, or where systems are connected to a nonpotable secondary water supply, the potable water supply shall be protected against backflow by a reduced pressure principle backflow prevention assembly ~~conforming to ASSE 1013 or a reduced pressure principle fire protection backflow prevention assembly~~. Where chemical additives or antifreeze are added to only a portion of an automatic sprinkler system or standpipe system, the reduced pressure principle backflow prevention assembly or the reduced pressure principle fire protection backflow prevention assembly shall be permitted to be located so as to isolate that portion of the system. Where systems are not under continuous pressure, the potable water supply shall be protected against backflow by an *air gap* or an atmospheric vacuum breaker conforming to ASSE 1001 or CSA B64.1.1.

**Reason Statement:** The proposed deleted section language is no longer in use the current version of the ASSE 1013. Adding the ASSE 1013 standard confirms that the device meets a ASSE 1013.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This proposal does not change any requirement already in the Code.

---

P100-21

# P101-21

IPC: 609.2

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

## 2021 International Plumbing Code

**Revise as follows:**

**609.2 Water service for Group I-2, Condition 2 facilities.** Group I-2, Condition 2 facilities shall have not fewer than two water service pipes sized such that with the loss of the largest service pipe, the remaining service pipes will meet the water demand for the entire facility. Each water service pipe shall enter the facility separately from the the point of source. Each water service shall have a shutoff valve in the building and a shutoff valve at the utility-provided point of connection to the water main or other source of potable water.

**Reason Statement:** This is simply to drive home the point that two service pipe must enter the building independently from one another. They cannot be combined together before entering the building thereby defeating the purpose of redundancy. This is more of a clarification than a new requirement.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This is only a clarification and will not increase cost.

---

P101-21

# P102-21

IPC: 609.3, 609.3.1 (New), 609.3.2 (New)

**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 Statement:** 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<sup>1</sup>.

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

# P103-21

IPC: 611.1, ASSE Chapter 15 (New)

**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**

**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.

**Reason Statement:** 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 choose from for the application.

P103-21

# **P104-21**

IPC: TABLE 702.1

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## **2021 International Plumbing Code**

Revise as follows:



**TABLE 702.1  
ABOVE-GROUND DRAINAGE AND VENT PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM F628; ASTM F1488; CSA B181.1 ; <a href="#">ASTM F1476</a>
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301 ; <a href="#">ASTM F1476</a>
Copper or copper-alloy pipe	ASTM B42; ASTM B43; ASTM B302 ; <a href="#">ASTM F1476</a>
Copper or copper-alloy tubing (Type K, L, M or DWV)	ASTM B75; ASTM B88; ASTM B251; ASTM B306 ; <a href="#">ASTM F1476</a>
Galvanized steel pipe	ASTM A53 ; <a href="#">ASTM F1476</a>
Glass pipe	ASTM C1053
Polyolefin pipe	ASTM F1412; CSA B181.3 ; <a href="#">ASTM F1476</a>
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200), and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2665; ASTM F891; ASTM F1488; CSA B181.2; <a href="#">ASTM F1476</a>
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949; ASTM F1488
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F1673; CSA B181.3 ; <a href="#">ASTM F1476</a>
Stainless steel drainage systems, Types 304 and 316L	ASME A112.3.1 ; <a href="#">ASTM F1476</a>

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Pipe systems. Reducing pipework failures due to accidental surge or static pressure. No Hot works or special tooling is required.

P104-21

# **P105-21**

IPC: TABLE 702.2

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## **2021 International Plumbing Code**

Revise as follows:

**TABLE 702.2**  
**UNDERGROUND BUILDING DRAINAGE AND VENT PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM F628; ASTM F1488; CSA B181.1 ; <a href="#">ASTM F1476</a>
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301 ; <a href="#">ASTM F1476</a>
Copper or copper-alloy tubing (Type K, L, M or DWV)	ASTM B75; ASTM B88; ASTM B251; ASTM B306 ; <a href="#">ASTM F1476</a>
Polyethylene (PE) plastic pipe (SDR-PR)	ASTM F714 ; <a href="#">ASTM F1476</a>
Polyolefin pipe	ASTM F714; ASTM F1412; CSA B181.3 ; <a href="#">ASTM F1476</a>
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2665; ASTM F891; ASTM F1488; CSA B181.2 ; <a href="#">ASTM F1476</a>
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949; ASTM F1488
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F1673; CSA B181.3 ; <a href="#">ASTM F1476</a>
Stainless steel drainage systems, Type 316L	ASME A112.3.1 ; <a href="#">ASTM F1476</a>

For SI: 1 inch = 25.4 mm.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Pipe systems. Reducing pipework failures due to accidental surge or static pressure. No Hot works or special tooling is required.

P105-21

# **P106-21**

**IPC: TABLE 702.3**

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.com)

## **2021 International Plumbing Code**

**Revise as follows:**

**TABLE 702.3  
BUILDING SEWER PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM D2680; ASTM F628; ASTM F1488; CSA B181.1
Acrylonitrile butadiene styrene (ABS) plastic pipe in sewer and drain diameters, including SDR 42 (PS 20), PS 35, SDR 35 (PS 45), PS 50, PS 100, PS 140, SDR 23.5 (PS 150) and PS 200; with a solid, cellular core or composite wall	ASTM D2751; ASTM F1488
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301
Concrete pipe	ASTM C14; ASTM C76; CSA A257.1; CSA A257.2
Copper or copper-alloy tubing (Type K or L)	ASTM B75; ASTM B88; ASTM B251
Polyethylene (PE) plastic pipe (SDR-PR)	ASTM F714
Polypropylene (PP) plastic pipe	ASTM <del>F2736</del> ; ASTM F2764; CSA B182.13
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2665; ASTM F891; ASTM F1488
Polyvinyl chloride (PVC) plastic pipe in sewer and drain diameters, including PS 25, SDR 41 (PS 28), PS 35, SDR 35 (PS 46), PS 50, PS 100, SDR 26 (PS 115), PS 140 and PS 200; with a solid, cellular core or composite wall	ASTM F891; ASTM F1488; ASTM D3034; CSA B182.2; CSA B182.4
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949; ASTM F1488
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F1673; CSA B181.3
Stainless steel drainage systems, Types 304 and 316L	ASME A112.3.1
Vitrified clay pipe	ASTM C4; ASTM C700

For SI: 1 inch = 25.4 mm.

**Reason Statement:** ASTM F2736 was withdrawn by ASTM (see [ASTM.org/Standards/F2736.htm](https://www.astm.org/Standards/F2736.htm)). The reason for removing it from Table 702.3 (Building Sewer Pipe), is to help keep the IPC Code current. ASTM F2736 double wall pipe was moved into ASTM F2764, which is currently listed in IPC Table 702.3. ASTM F2736 corrugated single wall pipe moved to ASTM F3219. Because corrugated single wall pipe is not appropriate for building sewer pipe, it is not being proposed for addition to Table 702.3.

NOTE: Although ASTM D3219 is not being proposed for addition to the IPC, it is indicated by ASTM as the replacement for ASTM F2736. I felt that the committee may want to review it. Therefore, I have requested that ASTM include ASTM D3219 on ASTM's web portal for ICC Committee Member viewing of standards.

**Bibliography:**

1. ASTM F2736 - Standard Specification for 6 to 30 in. (152 to 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe and Double Wall Pipe (Withdrawn 2018)
2. ASTM F2764 - Standard Specification for 6 to 60 in. [150 to 1500 mm] Polypropylene (PP) Corrugated Double and Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications
3. ASTM F3219 - Standard Specification for 3 to 30 in. (75 to 750 mm) Polypropylene (PP) Corrugated Single Wall Pipe and Fittings

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This is simply an editorial cleanup of a standard that is no longer used for the product/

P106-21

# **P107-21**

**IPC: TABLE 702.3, ASTM Chapter 15 (New)**

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.com)

## **2021 International Plumbing Code**

**Revise as follows:**

**TABLE 702.3  
BUILDING SEWER PIPE**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe (Profile Wall)	ASTM F2763

Add new standard(s) as follows:

# ASTM

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

**F2763-16: Standard Specification for 12 to 60 in. [300 to 1500 mm] Dual and Triple Profile-Wall Polyethylene (PP) Pipe and Fittings for Sanitary Sewer Applications**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F2763-16 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.

**Reason Statement:** ASTM F2763 is a 12 to 60 inch corrugated dual and triple wall sanitary sewer product with pipe wall stiffness at a minimum of 46 psi. The standard is being added for communities that may want a higher stiffness corrugated HDPE pipe. The standard has been in place since 2011.

**Bibliography:** ASTM F2763 - Standard Specification for 12 to 60 in. [300 to 1500 mm] Dual and Triple Profile-Wall Polyethylene (PE) Pipe and Fittings for Sanitary Sewer Applications

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. Because installation standards vary, so do the installed cost of ASTM F2763 pipe. Typically when corrugated HDPE pipes are used, there is a savings on installation costs.

P107-21

# **P108-21**

**IPC: TABLE 702.3, ASTM Chapter 15 (New)**

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.com)

## **2021 International Plumbing Code**

**Revise as follows:**



**TABLE 702.3  
BUILDING SEWER PIPE**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe (corrugated wall)	ASTM F2947/F2947M

Add new standard(s) as follows:

# ASTM

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

**F2947/F2947M-20: Standard Specification for 150 to 1500 mm [6 to 60 in.] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Sanitary Sewer Applications**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, F2947/F2947M-20 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.

**Reason Statement:** ASTM F2947/F2947M - Standard Specification for 150 to 1500 mm [6 to 60 in.] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Sanitary Sewer Applications is a pipe product with a variable stiffness outer wall based on pipe diameter. The product has an enhanced liner for improved hydraulic conductivity. The standard incorporates recycled content material without compromising the products longevity or performance. Recent improvements to the standard makes it a viable addition to IPC at this time.

**Bibliography:** ASTM F2947/F2947M - Standard Specification for 150 to 1500 mm [6 to 60 in.] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Sanitary Sewer Applications

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. Based on installation requirements and the products that are commonly being used, ASTM F2947/F2947M pipe may or may not provide a construction cost savings.

P108-21

# **P109-21**

IPC: TABLE 702.3

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## **2021 International Plumbing Code**

Revise as follows:

**TABLE 702.3  
BUILDING SEWER PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM D2680; ASTM F628; ASTM F1488; CSA B181.1 ; <u>ASTM F1476</u>
Acrylonitrile butadiene styrene (ABS) plastic pipe in sewer and drain diameters, including SDR 42 (PS 20), PS 35, SDR 35 (PS 45), PS 50, PS 100, PS 140, SDR 23.5 (PS 150) and PS 200; with a solid, cellular core or composite wall	ASTM D2751; ASTM F1488 <u>ASTM F1476</u>
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301; <u>ASTM F1476</u>
Concrete pipe	ASTM C14; ASTM C76; CSA A257.1; CSA A257.2 ; <u>ASTM F1476</u>
Copper or copper-alloy tubing (Type K or L)	ASTM B75; ASTM B88; ASTM B251 ; <u>ASTM F1476</u>
Polyethylene (PE) plastic pipe (SDR-PR)	ASTM F714 ; <u>ASTM F1476</u>
Polypropylene (PP) plastic pipe	ASTM F2736; ASTM F2764; CSA B182.13 ; <u>ASTM F1476</u>
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2665; ASTM F891; ASTM F1488 ; <u>ASTM F1476</u>
Polyvinyl chloride (PVC) plastic pipe in sewer and drain diameters, including PS 25, SDR 41 (PS 28), PS 35, SDR 35 (PS 46), PS 50, PS 100, SDR 26 (PS 115), PS 140 and PS 200; with a solid, cellular core or composite wall	ASTM F891; ASTM F1488; ASTM D3034; CSA B182.2; CSA B182.4 ; <u>ASTM F1476</u>
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949; ASTM F1488
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F1673; CSA B181.3 ; <u>ASTM F1476</u>
Stainless steel drainage systems, Types 304 and 316L	ASME A112.3.1 ; <u>ASTM F1476</u>
Vitrified clay pipe	ASTM C4; ASTM C700 ; <u>ASTM F1476</u>

For SI: 1 inch = 25.4 mm.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Pipe systems. Reducing pipework failures due to accidental surge or static pressure. No Hot works or special tooling is required.

# **P110-21**

IPC: TABLE 702.4

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## **2021 International Plumbing Code**

Revise as follows:

**TABLE 702.4  
PIPE FITTINGS**

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters	ASME A112.4.4; ASTM D2661; ASTM F628; CSA B181.1; <u>ASTM F1476</u>
Acrylonitrile butadiene styrene (ABS) plastic pipe in sewer and drain diameters	ASTM D2751; <u>ASTM F1476</u>
Cast iron	ASME B16.4; ASME B16.12; ASTM A74; ASTM A888; CISPI 301; <u>ASTM F1476</u>
Copper or copper alloy	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.23; ASME B16.26; ASME B16.29; <u>ASTM F1476</u>
Glass	ASTM C1053
Gray iron and ductile iron	AWWA C110/A21.10; <u>ASTM F1476</u>
Polyethylene	ASTM D2683; <u>ASTM F1476</u>
Polyolefin	ASTM F1412; CSA B181.3
Polyvinyl chloride (PVC) plastic in IPS diameters	ASME A112.4.4; ASTM D2665; ASTM F1866; <u>ASTM F1476</u>
Polyvinyl chloride (PVC) plastic pipe in sewer and drain diameters	ASTM D3034 ; <u>ASTM F1476</u>
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D.	ASTM D2949
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F1673; CSA B181.3; <u>ASTM F1476</u>
Stainless steel drainage systems, Types 304 and 316L	ASME A112.3.1; <u>ASTM F1476</u>
Steel	ASME B16.9; ASME B16.11; ASME B16.28 ; <u>ASTM F1476</u>
Vitrified clay	ASTM C700 ; <u>ASTM F1476</u>

For SI: 1 inch = 25.4 mm.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems.

Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Pipe systems. Reducing pipework failures due to accidental surge or static pressure. No Hot works or special tooling is required.

P110-21

# P111-21

IPC: 702.6, 901.3, TABLE 702.6 (New), 902.1.1 (New), ASTM Chapter 15 (New)

**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 waste drainage 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**

<b>MATERIAL</b>	<b>STANDARD</b>
Chlorinated polyvinyl chloride (CPVC)	ASTM F2618
Borosilicate glass	ASTM C1053
High silicon iron	ASTM A518/A518M
Polypropylene (PP)	ASTM F1412
Polyvinylidene fluoride (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**

**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.

**Reason Statement:** 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.

# P112-21

IPC: 705.2.1

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**705.2.1 Mechanical joints.** Mechanical joints on drainage pipes shall be made with an elastomeric seal conforming to ASTM C1173, ASTM D3212, or CSA B602 or shall comply with NSF 61. A mechanical joint shielded coupling for joining ABS & ABS co-extruded plastic pipe shall conform to either Type II Class 2 or Type II Class 3 of ASTM F1476. The coupling shield shall be either 304 or 316L stainless steel with either 316 or 316L stainless steel fasteners or coated alloy steel fasteners. The couplings shall be designed and manufactured to suit the pipe outside diameter. Joints shall be installed in accordance with the manufacturer's instructions. The coupling shall be installed in accordance with manufacturers instructions and tightened, using a calibrated torque wrench, to the torque indicated by the manufacturer. Mechanical joints shall be installed only in underground systems unless otherwise *approved*.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilised around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be updated. . Global manufacturers of Pipework systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
The additional cost of using Gasketed Mechanical Couplings is negligible compared to the performance and ease of installation.

P112-21



# P113-21

IPC: 705.3.3

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**705.3.3 Mechanical joint coupling.** Mechanical joint couplings for hubless pipe and fittings shall consist of an elastomeric sealing sleeve and a metallic shield that comply with CISPI 310, ASTM C1277 ~~or~~ ASTM C1540 ~~or~~ ASTM F1476. The elastomeric sealing sleeve shall conform to ASTM C564 ~~or~~ CSA B602 ~~and shall be provided with a center stop or shall comply with NSF 61.~~ Mechanical joint couplings shall be installed in accordance with the manufacturer's instructions and tightened, using a calibrated torque wrench, to the torque indicated by the manufacturer.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilised around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless cast iron pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** NSF 61-2020 CISPI 310-2018 ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

The inclusion of Gasketed Mechanical Couplings to ASTM F1476 Type II Class 2, will enhance the performance of hubless cast iron pipe systems. Allowing higher pressure performance of the axially restrained coupling upto 145PSI to give additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure.

P113-21

# P114-21

IPC: 705.5.2

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**705.5.2 Mechanical joints.** ~~Mechanical joints shall be installed in accordance with the manufacturer's instructions.~~

Mechanical joints for copper or copper alloy piping shall be made with a mechanical coupling for groove end piping, a coupling that complies with Type II Class 2 of ASTM F1476 or approved coupling designed for the specific application. Joints shall be installed in accordance with the manufacturer's instructions.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilised around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows systems to be uprated. Global manufacturers and installers of Copper piping utilize GMCs many locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

The Use of Gasketed Mechanical Couplings will allow for non hot works to be carried out on sites, thus reducing danger of fire and explosion due to heat, or will allow for quick installation of pipework using simple tooling.

P114-21

---

# P115-21

IPC: 705.8.2

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**705.8.2 Mechanical joints.** Joints shall be made with an *approved* elastomeric seal. Mechanical joints between stainless steel pipe and fittings shall be of the compression type, grooved coupling type, hydraulic press-connect fitting type, flanged type or, for plain end piping and fittings, a type that complies with either Type II Class 2 or Type II class 3 of ASTM F1476. Mechanical joints shall be installed in accordance with the manufacturer's instructions

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilised around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global pipe manufacturers and contractors utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe.

---

P115-21

# P116-21

IPC: 705.10.1

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**705.10.1 Mechanical joints.** ~~Mechanical joints on drainage pipe shall be made with an elastomeric seal conforming to ASTM C1173, ASTM D3212 or CSA B602. Mechanical joints shall not be installed in above-ground systems, unless otherwise approved. Joints shall be installed in accordance with the manufacturer's instructions.~~

Mechanical joints on drainage pipe shall be made with an elastomeric seal conforming to ASTM C1173, ASTM D3212, CSA B602 or NSF 61. A mechanical joint shielded coupling for polyethylene pipe and fittings shall have a metallic shield that complies with Type II Class 3 of ASTM F1476. The couplings shall be designed and manufactured to suit the pipe outside diameter. The coupling shall be installed in accordance with manufacturer's instructions and tightened, using a calibrated torque wrench, to the torque indicated by the manufacturer.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be updated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476 will enhance the performance of hubless cast iron pipe systems. Allowing higher pressure performance and give additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure.

P116-21

# P117-21 Part I

IPC: 705.10.2, ASTM Chapter 15 (New)

**Proponents:** Michael Cudahy, PPFA, representing PPFA (mikec@cmservices.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

**Revise as follows:**

**705.10.2 Solvent cementing.** Joint surfaces shall be clean and free from moisture. A purple primer that conforms to ASTM F656 shall be applied. Solvent cement not purple in color and conforming to ASTM D2564, CSA B137.3, CSA B181.2 or CSA B182.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet and shall be in accordance with ASTM D2855. Solvent-cement joints shall be permitted above or below ground.

**Exception:** A primer is not required where both of the following conditions apply:

1. The solvent cement used is third-party certified as conforming to ASTM D2564.
2. The solvent cement is used only for joining PVC drain, waste and vent pipe and fittings in nonpressure applications in sizes up to and including 4 inches (102 mm) in diameter.
3. The joint is made in accordance with ASTM F3328.

**Add new standard(s) as follows:**

# ASTM

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

**F3328-19: Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3328-19 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.

P117-21 Part I

---

# P117-21 Part II

IRC: P3003.9.2, ASTM Chapter 44 (New)

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

## 2021 International Residential Code

**Revise as follows:**

**P3003.9.2 Solvent cementing.** Joint surfaces shall be clean and free from moisture. A purple primer, or other *approved* primer, that conforms to ASTM F656 shall be applied. Solvent cement not purple in color and conforming to ASTM D2564, CSA B137.3 or CSA B181.2 shall be applied to all joint surfaces. The joint shall be made while the cement is wet, and shall be in accordance with ASTM D2855. Solvent-cement joints shall be installed above or below ground.

**Exception:** A primer shall not be required where all of the following conditions apply:

1. The solvent cement used is third-party certified as conforming to ASTM D2564.
2. The solvent cement is used only for joining PVC drain, waste and vent pipe and fittings in nonpressure applications in sizes up to and including 4 inches (102 mm) in diameter
3. The joint is made in accordance with ASTM F3328.

**Add new standard(s) as follows:**

# ASTM

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

**F3328-19: Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3328-19 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.

**Reason Statement:** ASTM F3328-18 is titled, "Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets" and is intended to instruct users on how to make one step joints in PVC and CPVC.

**Bibliography:** ASTM F3328 Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
The use of an ASTM instructional type standard is not expected to raise or lower the costs of construction.

P117-21 Part II

# P118-21

IPC: 705.11

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**705.11 Vitrified clay.** ~~Joints between vitrified clay pipe or fittings shall be made with an elastomeric seal conforming to ASTM C425, ASTM C1173 or CSA B602.~~

Mechanical Joints shall be designed to provide a permanent seal and be of the mechanical or push fit type of joint. ASTM F1476 Type II Class 3 flexible and un-restrained for plain ended pipe. The push on joint shall include an elastomeric gasket that complies with ASTM C425, ASTM C1173, CSA B602 or NSF/ANSI/CAN 61 and shall provide a compressive force against the spigot and socket after assembly to provide a permanent seal.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilised around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless cast iron utilize GMCs in sensitive locations as part of their overall systems. Contractors utilize GMC's to install pipework where other types of couplings are unsuitable.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476 Type II Class 3, will enhance the performance of Vitrified Clay to give additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure.

P118-21

# P119-21

IPC: 705.12.2

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**705.12.2 Mechanical joints.** ~~Mechanical joints in drainage piping shall be made with an elastomeric seal conforming to ASTM C1173, ASTM D3212 or CSA B602. Mechanical joints shall be installed in accordance with the manufacturer's instructions.~~

Mechanical joints on drainage pipe shall be made with an elastomeric seal conforming to ASTM C1173, ASTM D3212, CSA B602 or NSF 61. A mechanical joint shielded coupling for polyethylene pipe and fittings shall have a metallic shield that complies with either Type II Class 2 or Type II Class 3 of ASTM F1476. The coupling shall be designed and manufactured to suit the pipe outside diameter. The coupling shall be installed in accordance with manufacturer's instructions and tightened, using a calibrated torque wrench, to the torque indicated by the manufacturer.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilised around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476 will enhance the performance of hubless cast iron pipe systems. Allowing higher pressure performance and give additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure.

P119-21



## **P120-21 Part I**

IPC: TABLE 702.1, TABLE 702.2, TABLE 702.4, 705.13.1, ASTM Chapter 15 (New)

**Proponents:** William Chapin, representing Professional Code Consulting, LLC (bill@profcc.us)

**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**

Revise as follows:

**TABLE 702.1**  
**ABOVE-GROUND DRAINAGE AND VENT PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM F628; ASTM F1488; CSA B181.1
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301
Copper or copper-alloy pipe	ASTM B42; ASTM B43; ASTM B302
Copper or copper-alloy tubing (Type K, L, M or DWV)	ASTM B75; ASTM B88; ASTM B251; ASTM B306
Galvanized steel pipe	ASTM A53
Glass pipe	ASTM C1053
Polyolefin pipe	ASTM F1412; <u>ASTM F3371</u> ; CSA B181.3
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200), and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2665; ASTM F891; ASTM F1488; CSA B181.2
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949; ASTM F1488
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F1673; CSA B181.3
Stainless steel drainage systems, Types 304 and 316L	ASME A112.3.1

**TABLE 702.2**  
**UNDERGROUND BUILDING DRAINAGE AND VENT PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM F628; ASTM F1488; CSA B181.1
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301
Copper or copper-alloy tubing (Type K, L, M or DWV)	ASTM B75; ASTM B88; ASTM B251; ASTM B306
Polyethylene (PE) plastic pipe (SDR-PR)	ASTM F714
Polyolefin pipe	ASTM F714; ASTM F1412; <u>ASTM F3371</u> ; CSA B181.3
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2665; ASTM F891; ASTM F1488; CSA B181.2
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949; ASTM F1488
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F1673; CSA B181.3
Stainless steel drainage systems, Type 316L	ASME A112.3.1

For SI: 1 inch = 25.4 mm.

**TABLE 702.4  
PIPE FITTINGS**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters	ASME A112.4.4; ASTM D2661; ASTM F628; CSA B181.1
Acrylonitrile butadiene styrene (ABS) plastic pipe in sewer and drain diameters	ASTM D2751
Cast iron	ASME B16.4; ASME B16.12; ASTM A74; ASTM A888; CISPI 301
Copper or copper alloy	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.23; ASME B16.26; ASME B16.29
Glass	ASTM C1053
Gray iron and ductile iron	AWWA C110/A21.10
Polyethylene	ASTM D2683
Polyolefin	ASTM F1412; <u>ASTM F3371</u> ; CSA B181.3
Polyvinyl chloride (PVC) plastic in IPS diameters	ASME A112.4.4; ASTM D2665; ASTM F1866
Polyvinyl chloride (PVC) plastic pipe in sewer and drain diameters	ASTM D3034
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D.	ASTM D2949
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F1673; CSA B181.3
Stainless steel drainage systems, Types 304 and 316L	ASME A112.3.1
Steel	ASME B16.9; ASME B16.11; ASME B16.28
Vitrified clay	ASTM C700

For SI: 1 inch = 25.4 mm.

**705.13.1 Heat-fusion joints.** Heat-fusion joints for polyolefin pipe and tubing joints shall be installed with socket-type heat-fused polyolefin fittings or electrofusion polyolefin fittings. Joint surfaces shall be clean and free from moisture. The joint shall be undisturbed until cool. Joints shall be made in accordance with ASTM F1412, ASTM F3371 or CSA B181.3.

**Add new standard(s) as follows:**

# ASTM

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

**F3371-19: Standard Specification for Polyolefin Pipe and Fittings for Drainage, Waste, and Vent**

**Staff Analysis:** A review of the standards proposed for inclusion in the code, ASTM F3371-19 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.

P120-21 Part I

## **P120-21 Part II**

IRC: TABLE P3002.1(1), TABLE P3002.1(2), TABLE P3002.2, P3003.11.1, ASTM Chapter 44 (New)

**Proponents:** William Chapin, representing Professional Code Consulting, LLC (bill@profcc.us)

### **2021 International Residential Code**

Revise as follows:

**TABLE P3002.1(1)**  
**ABOVE-GROUND DRAINAGE AND VENT PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM D2680; ASTM F628; ASTM F1488; CSA B181.1
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301
Copper or copper-alloy pipe	ASTM B42; ASTM B43; ASTM B302
Copper or copper-alloy tubing (Type K, L, M or DWV)	ASTM B75/B75M; ASTM B88; ASTM B251/B251M; ASTM B306
Galvanized steel pipe	ASTM A53/A53M
Polyolefin pipe	<u>ASTM F3371</u> ; CSA B181.3
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2665; ASTM F891; ASTM F1488; CSA B181.2
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949; ASTM F1488
Stainless steel drainage systems, Types 304 and 316L	ASME A112.3.1

For SI: 1 inch = 25.4 mm.

**TABLE P3002.1(2)**  
**UNDERGROUND BUILDING DRAINAGE AND VENT PIPE**

PIPE	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM F628; ASTM F1488; CSA B181.1
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301
Copper or copper-alloy tubing (Type K, L, M or DWV)	ASTM B75/B75M; ASTM B88; ASTM B251; ASTM B306
Polyethylene (PE) plastic pipe (SDR-PR)	ASTM F714
Polyolefin pipe	ASTM F714; ASTM F1412; <u>ASTM F3371</u> ; CSA B181.3
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2665; ASTM F891; ASTM F1488; CSA B181.2
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949; ASTM F1488
Stainless steel drainage systems, Type 316L	ASME A112.3.1

For SI: 1 inch = 25.4 mm.

**TABLE P3002.2  
BUILDING SEWER PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM F628; ASTM F1488
Acrylonitrile butadiene styrene (ABS) plastic pipe in sewer and drain diameters, including SDR 42 (PS 20), PS35, SDR 35 (PS 45), PS50, PS100, PS140, SDR 23.5 (PS 150) and PS200; with a solid, cellular core or composite wall	ASTM D2751; ASTM F1488
Polyvinyl chloride (PVC) plastic pipe in sewer and drain diameters, including PS 25, SDR 41 (PS 28), PS 35, SDR 35 (PS 46), PS 50, PS 100, SDR 26 (PS 115), PS140 and PS 200; with a solid, cellular core or composite wall	ASTM D3034; ASTM F891; ASTM F1488; CSA B182.2; CSA B182.4
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301
Concrete pipe	ASTM C14; ASTM C76; CSA 8—93; CSA A257.2
Copper or copper-alloy tubing (Type K or L)	ASTM B75/B75M; ASTM B88; ASTM B251/B251M
Polyethylene (PE) plastic pipe (SDR-PR)	ASTM F714
Polyolefin pipe	ASTM F1412; <u>ASTM F3371</u> ; CSA B181.3
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with solid, cellular core or composite wall	ASTM D2665; ASTM D2949; ASTM D3034; ASTM F1412; CSA B182.2; CSA B182.4
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949, ASTM F1488
Stainless steel drainage systems, Types 304 and 316L	ASME A112.3.1
Vitrified clay pipe	ASTM C425; ASTM C700

For SI: 1 inch = 25.4 mm.

**P3003.11.1 Heat-fusion joints.** Heat-fusion joints for polyolefin pipe and tubing joints shall be installed with socket-type heat-fused polyolefin fittings or electrofusion polyolefin fittings. Joint surfaces shall be clean and free from moisture. The joint shall be undisturbed until cool. Joints shall be made in accordance with ASTM F1412, ASTM F3371, or CSA B181.3.

**Add new standard(s) as follows:**

# ASTM

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

## **F3371-19: Standard Specification for Polyolefin Pipe and Fittings for Drainage, Waste, and Vent Applications**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3371-19 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.

**Reason Statement:** ASTM F1412 for corrosive waste is currently being used for typical DWV applications. There is no restriction within F1412 to not allow this and still should be referenced, but it is overly restrictive for manufacturer to make polyolefin pipe/fittings for typical DWV applications to have to go to the extreme of a chemical resistance test in F1412 if the product was not to be used for corrosive waste. For this reason, ASTM F3371 was developed and published as it includes the same requirements as F1412 minus the chemical resistance testing. Also note that other ASTM standards for DWV application do not include a chemical resistance test.

**Bibliography:** ASTM F3371-19 Standard Specification for Polyolefin Pipe and Fittings for Drainage, Waste, and Vent

Applications

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. Options to comply with the code usually allow for decreases in the cost of construction.



# P121-21

IPC: 705.13.2

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**705.13.2 Mechanical and compression sleeve joints.** ~~Mechanical and compression sleeve joints shall be installed in accordance with the manufacturer's instructions.~~

Mechanical and compression sleeve joints can include gasketed mechanical couplings that comply with ASTM F1476. The couplings shall be designed and manufactured to suit the pipe outside diameter. The coupling shall be installed in accordance with manufacturer's instructions and tightened, using a calibrated torque wrench, to the torque indicated by the manufacturer.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be updated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance of hubless pipe systems. Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure.

P121-21

# P122-21

IPC: 705.14.2

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**705.14.2 Mechanical and compression sleeve joints.** ~~Mechanical and compression sleeve joints shall be installed in accordance with the manufacturer's instructions.~~

Mechanical and compression sleeve joints can include gasketed mechanical couplings that comply with ASTM F1476. The couplings shall be designed and manufactured to suit the pipe outside diameter. The coupling shall be installed in accordance with manufacturer's instructions and tightened, using a calibrated torque wrench, to the torque stated by the manufacturer.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be upgraded. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance of hubless pipe systems. Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure.

P122-21

---

# P123-21

IPC: 705.16

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**705.16 Joints between different materials.** Joints between different piping materials shall be made with a mechanical joint of the compression or mechanical-sealing type conforming to ASTM C1173, ASTM C1460 or ASTM C1461. Connectors and adapters shall be *approved* for the application and such joints shall have an elastomeric seal conforming to ASTM C425, ASTM C443, ASTM C564, ASTM C1440, ASTM F477, CSA A257.3M or CSA B602, NSF 61 or as required in Sections 705.16.1 through 705.16.7. Joints between glass pipe and other types of materials shall be made with adapters having a TFE seal. Transitional couplings conforming to ASTM F1476 Type II Class 3 shall be permitted for both above ground or below ground uses. Joints shall be installed in accordance with the manufacturer's instructions.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be upgraded. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance of hubless pipe systems. Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure.

---

P123-21

# P124-21

IPC: 705.16, 705.2.4 (New), 705.10.5 (New)

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

## 2021 International Plumbing Code

**Revise as follows:**

**705.16 Joints between different materials.** Joints between different piping materials shall be made with a mechanical joint ~~of the compression or mechanical-sealing type~~ conforming to ASTM C1173, ASTM C1460 or ASTM C1461. Connectors and adapters shall be *approved* for the application and such joints shall have an elastomeric seal conforming to ASTM C425, ASTM C443, ASTM C564, ASTM C1440, ASTM F477, CSA A257.3M or CSA B602, or as required in Sections 705.16.1 through 705.16.7. Joints between glass pipe and other types of materials shall be made with adapters having a TFE seal. Joints shall be installed in accordance with the manufacturer's instructions.

**Add new text as follows:**

**705.2.4 Mechanical joints above ground.** Mechanical joint couplings used above ground to connect ABS pipe to ABS pipe shall be of the shielded type and shall be marked by the manufacturer as being recommended for the application.

**705.10.5 Mechanical joints above ground.** Mechanical joint couplings used above ground to connect PVC pipe to PVC pipe shall be of the shielded type and shall be marked by the manufacturer as being recommended for the application.

**Reason Statement:** This proposal has two purposes:

The change in Section 705.16 removes contradictory information on coupling types. A coupling cannot be both mechanical and a compression joint. Removing the existing language does not prohibit the use of compression gaskets which are already covered by the elastomeric gasket standards referenced.

The addition of new sections 705.2.4 and 705.10.5 is to clear up questions as to whether mechanical joint couplings can be used to connect the same types of piping material, specifically PVC to PVC and ABS to ABS. Section 705.16 speaks to using mechanical couplings to connect different piping materials. Examples are, galvanized steel-to-PVC, and cast iron-to-PVC. The obvious question is: If one end of elastomeric-type mechanical coupling is suitable to install on a PVC pipe, why wouldn't the other end be suitable to be installed on a PVC pipe? Mechanical couplings made for connecting the same sizes of steel and PVC pipes are dimensionally identical on both ends. Several manufacturers of these type of couplings mark their same size (on both ends) couplings suitable for PL-ST to PL-ST. For example:

1-1/2 inch CI, PL or ST to 1-1/2 inch CI, PL or ST

2 inch CI, PL or ST to 2 inch CI, PL or ST

3 inch PL, ST or XHCI to 3 inch PL, ST or XHCI

4 inch PL, ST or XHCI to 4 inch PL, ST or XHCI

6 inch PL, ST or XHCI to 6 inch PL, ST or XHCI

There are many situations where use of this type of coupling is necessary to perform the work. Examples are "cutting in" a wye into a stack or horizontal drain for the addition of fixtures and repairing a broken section of piping. Is it likely that someone would install a new piping system using these mechanical couplings? No because the cost of these couplings are much more than solvent-welded couplings.

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 23.

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

The proposal only clarifies the code. Clarifications of existing requirements do not change material or labor costs and therefore, do not impact the

cost of construction.

P124-21

---

# P125-21

IPC: 705.16.1

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**705.16.1 Copper pipe or tubing to cast-iron hub pipe.** Joints between copper pipe or tubing and cast-iron hub pipe shall be made with a copper or copper alloy ferrule, ~~or a compression joint~~ or a stepped mechanical coupling that complies with Type II Class 3 of ASTM F1476. The copper pipe or tubing shall be soldered to the ferrule in an *approved* manner, and the ferrule shall be joined to the cast-iron hub by a caulked joint or a mechanical compression joint.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance of hubless pipe systems.

Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure. No Hot works or special tooling is required.

---

P125-21

# P126-21

IPC: 705.16.2

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**705.16.2 Copper or copper-alloy pipe or tubing to galvanized steel pipe.** Joints between copper or copper-alloy pipe or tubing and galvanized steel pipe shall be made with a copper-alloy fitting, ~~a or dielectric fitting, a compression joint or a stepped mechanical coupling that complies with Type II Class 3 of ASTM F1476.~~ The copper tubing shall be soldered to the fitting in an *approved* manner, and the fitting shall be screwed to the threaded pipe. The coupling shall be installed in accordance with manufacturer's instructions and tightened, using a calibrated torque wrench to the torque indicated by the manufacturer.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be upgraded. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance of hubless pipe systems.

Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure. No Hot works or special tooling is required.

P126-21

# P127-21

IPC: 705.16.3

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

**Revise as follows:**

**705.16.3 Cast-iron pipe to galvanized steel pipe.** Joints between cast iron and galvanized steel shall be made by either caulked or threaded joints or stepped mechanical coupling that complies with ASTM F1476 Type II Class 3 flexible and un-restrained or with an other approved adapter fitting.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

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

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance of hubless pipe systems.

Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure. No Hot works or special tooling is required.

P127-21



# P128-21

IPC: 705.16.7

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## 2021 International Plumbing Code

Revise as follows:

**705.16.7 Stainless steel drainage systems to other materials.** Joints between stainless steel drainage systems and other piping materials shall be made with *approved* mechanical couplings and include or stepped mechanical coupling that complies with ASTM F1476 Type II Class 3 flexible and un-restrained.

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance of hubless pipe systems.

Allowing higher pressure performance additional system security when storm surge or blockages occur. These pipe couplings successfully are utilized globally on Hub less Pipe systems. Reducing pipework failures due to accidental surge or static pressure. No Hot works or special tooling is required.

---

P128-21

# P129-21 Part I

IPC: 202 (New), 718.1, 718.2 (New), 718.3 (New), 718.3.1 (New), 718.4 (New), 718.5 (New), 718.6 (New), 718.7 (New), 718.7.1 (New), 718.8 (New), 718.9 (New), 718.10 (New), ASTM Chapter 15 (New)

**Proponents:** Joanne Carroll, Subtegit Group Inc., representing HammerHead Trenchless (jcarroll@subtegit.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)**

**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

---

# P129-21 Part II

IRC: R202 (New), P3012 (New), P3012.1 (New), P3012.2 (New), P3012.3 (New), P3012.3.1 (New), P3012.4 (New), P3012.5 (New), P3012.6 (New), P3012.7 (New), P3012.7.1 (New), P3012.10 (New), P3012.8 (New), P3012.9 (New), ASTM Chapter 44 (New)

**Proponents:** Joanne Carroll, Subtegit Group Inc., representing HammerHead Trenchless (jcarroll@subtegit.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:**

**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**

**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.

**Reason Statement:**

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.

# P130-21

IPC: SECTION 202, 1003.1, 1003.3, 1003.3.1, 1003.3.2, 1003.3.3, 1003.3.4, 1003.3.5, 1003.3.5.1, TABLE 1003.3.5.1, 1003.3.5.2, 1003.3.6, 1003.3.7, 1003.3.8

**Proponents:** Brent Werlein, City of Virginia Beach-Public Utilities, representing City of Virginia Beach-Public Utilities (bwerlein@vbgov.com)

## 2021 International Plumbing Code

### SECTION 202 GENERAL DEFINITIONS.

Revise as follows:

**GREASE-FOG-LADEN WASTE.** Effluent discharge that is produced from food processing, food preparation or other sources where ~~grease~~, fats, ~~and~~ oils and ~~grease~~ (FOG) enter automatic dishwasher prerinse stations, sinks or other appurtenances.

**1003.1 Where required.** Interceptors and separators shall be provided to prevent the discharge of ~~fat~~, oil, grease, sand and other substances harmful or hazardous to the *public sewer*, the private sewage system or the sewage treatment plant or processes.

**1003.3 ~~Grease- Fat, Oil, and Grease (FOG) interceptors.~~** ~~Grease~~ Fat, oil, and grease (FOG) interceptors shall comply with the requirements of Sections 1003.3.1 through 1003.3.8.

**1003.3.1 ~~Grease- FOG~~ interceptors and automatic grease removal devices required.** A ~~grease-FOG~~ interceptor or automatic ~~grease~~ FOG removal device shall be required to receive the drainage from fixtures and equipment with ~~grease~~ FOG-laden waste located in food preparation areas, such as in restaurants, hotel kitchens, hospitals, school kitchens, bars, factory cafeterias and clubs. Fixtures and equipment shall include pot sinks, prerinse sinks; soup kettles or similar devices; wok stations; floor drains or sinks into which kettles are drained; automatic hood wash units and dishwashers without prerinse sinks. ~~Grease-FOG~~ interceptors and automatic ~~grease-FOG~~ removal devices shall receive waste only from fixtures and equipment that allow fats, oils or grease to be discharged. Where lack of space or other constraints prevent the installation or replacement of a ~~grease-FOG~~ interceptor, one or more ~~grease-FOG~~ interceptors shall be permitted to be installed on or above the floor and upstream of an existing ~~grease-FOG~~ interceptor.

**1003.3.2 Food waste disposers restriction.** A food waste disposer shall not discharge to a ~~grease-FOG~~ interceptor.

**1003.3.3 Additives to ~~grease-FOG~~ interceptors.** Dispensing systems that dispense interceptor performance additives to ~~grease~~ FOG interceptors shall not be installed except where such systems dispense microbes for the enhancement of aerobic bioremediation of ~~grease~~ FOG and other organic material, or for inhibiting growth of pathogenic organisms by anaerobic methods. Such microbial dispensing systems shall be installed only where the ~~grease-FOG~~ interceptor manufacturer's instructions allow such systems and the systems conform to ASME A112.14.6. Systems that discharge emulsifiers, chemicals or enzymes to ~~grease-FOG~~ interceptors shall be prohibited.

**1003.3.4 ~~Grease-FOG~~ interceptors and automatic ~~grease-FOG~~ removal devices not required.** A ~~grease-FOG~~ interceptor or an automatic ~~grease-FOG~~ removal device shall not be required for individual dwelling units or any *private* living quarters.

**1003.3.5 Hydromechanical ~~grease-FOG~~ interceptors, fats, oils and greases disposal systems and automatic ~~grease-FOG~~ removal devices.** Hydromechanical ~~grease-FOG~~ interceptors; fats, oils, and greases disposal systems and automatic ~~grease-FOG~~ removal devices shall be sized in accordance with ASME A112.14.3, ASME A112.14.4, ASME A112.14.6, CSA B481.3 or PDI G101. Hydromechanical ~~grease~~ FOG interceptors; fats, oils, and greases disposal systems and automatic ~~grease-FOG~~ removal devices shall be designed and tested in accordance with ASME A112.14.3, ASME A112.14.4, CSA B481.1, PDI G101 or PDI G102. Hydromechanical ~~grease-FOG~~ interceptors; fats, oils, and greases disposal systems and automatic ~~grease-FOG~~ removal devices shall be installed in accordance with the manufacturer's instructions. Where manufacturer's instructions are not provided, hydromechanical ~~grease-FOG~~ interceptors; fats, oils, and greases disposal systems and automatic ~~grease-FOG~~ removal devices shall be installed in compliance with ASME A112.14.3, ASME A112.14.4, ASME A112.14.6, CSA B481.3 or PDI G101.

**1003.3.5.1 ~~Grease-FOG~~ interceptor capacity.** ~~Grease-FOG~~ interceptors shall have the ~~grease-FOG~~ retention capacity indicated in Table 1003.3.5.1 for the flow-through rates indicated.

**TABLE 1003.3.5.1  
CAPACITY OF GREASE ~~FOG~~ INTERCEPTORS<sup>a</sup>**

<b>TOTAL FLOW-THROUGH RATING (gpm)</b>	<b>GREASE <del>FOG</del> RETENTION CAPACITY (pounds)</b>
4	8
6	12
7	14
9	18
10	20
12	24
14	28
15	30
18	36
20	40
25	50
35	70
50	100
75	150
100	200

For SI: 1 gallon per minute = 3.785 L/m, 1 pound = 0.454 kg.

a. For total flow-through ratings greater than 100 (gpm), double the flow-through rating to determine the grease retention capacity (pounds).

**1003.3.5.2 Rate of flow controls.** ~~Grease-FOG~~ interceptors shall be equipped with devices to control the rate of water flow so that the water flow does not exceed the rated flow. The flow-control device shall be vented and terminate not less than 6 inches (152 mm) above the flood rim level or be installed in accordance with the manufacturer's instructions.

**1003.3.6 Automatic ~~grease-FOG~~ removal devices.** Where automatic ~~grease-FOG~~ removal devices are installed, such devices shall be located downstream of each fixture or multiple fixtures in accordance with the manufacturer's instructions. The automatic ~~grease-FOG~~ removal device shall be sized to pretreat the measured or calculated flows for all connected fixtures or equipment. *Ready access* shall be provided for inspection and maintenance.

**1003.3.7 Gravity ~~grease-FOG~~ interceptors and gravity ~~grease-FOG~~ interceptors with fats, oils, and greases disposal systems.** The required capacity of gravity ~~grease-FOG~~ interceptors and gravity ~~grease-FOG~~ interceptors with fats, oils, and greases disposal systems shall be determined by multiplying the peak drain flow into the interceptor in gallons per minute by a retention time of 30 minutes. Gravity ~~grease-FOG~~ interceptors shall be designed and tested in accordance with IAPMO/ANSI Z1001. Gravity ~~grease-FOG~~ interceptors with fats, oils, and greases disposal systems shall be designed and tested in accordance with ASME A112.14.6 and IAPMO/ANSI Z1001. Gravity ~~grease-FOG~~ interceptors and gravity ~~grease-FOG~~ interceptors with fats, oils, and greases disposal systems shall be installed in accordance with manufacturer's instructions. Where manufacturer's instructions are not provided, gravity ~~grease-FOG~~ interceptors and gravity ~~grease-FOG~~ interceptors with fats, oils, and greases disposal systems shall be installed in compliance with ASME A112.14.6 and IAPMO/ANSI Z1001.

**1003.3.8 Direct connection.** The discharge piping from a ~~grease-FOG~~ interceptor shall be directly connected to the sanitary drainage system.

**Reason Statement:** The reason for replacing grease with FOG is because many people have the misnomer that grease interceptors are only for places that fry food. Many locations that provide dairy, bakery, or even smoothie locations do not believe they need an interceptor. They hear the term grease and don't think of the fats or the oils. Changing the name of the interceptors to FOG interceptors will help with the education of people. This will also help separate out terminology for petroleum oil and grease interceptors, commonly referred to oil interceptor.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
There is no change in cost with changing terminology.

# P131-21

IPC: 1003.1, 1003.2, 1003.3.1, 1003.3.3, 1003.3.5, 1003.3.7

**Proponents:** Brent Werlein, representing City of Virginia Beach-Public Utilities (bwerlein@vbgov.com)

## 2021 International Plumbing Code

Revise as follows:

**1003.1 Where required.** Interceptors and separators shall be provided to prevent the discharge of oil, grease, sand and other substances harmful or hazardous to the *public sewer*, the private sewage system or the sewage treatment plant or processes. Verify with the local sewer authority if an interceptor or separator is needed.

**1003.2 Approval.** The size, type and location of each interceptor and of each separator shall be designed and installed in accordance with the manufacturer's instructions, a local sewer authority, and the requirements of this section based on the anticipated conditions of use. Wastes that do not require treatment or separation shall not be discharged into any interceptor or separator.

**1003.3.1 Grease interceptors and automatic grease removal devices required.** A grease interceptor or automatic grease removal device shall be required to receive the drainage from fixtures and equipment with grease-laden waste located in food preparation areas, such as, but not limited to, in restaurants, hotel kitchens, hospitals, school kitchens, bars, factory cafeterias and clubs. Fixtures and equipment shall include pot sinks, prerinse sinks; soup kettles or similar devices; wok stations; floor drains or sinks into which kettles are drained; automatic hood wash units and dishwashers without prerinse sinks, mop sinks, and any other fixtures that the local sewer authority requires. Grease interceptors and automatic grease removal devices shall receive waste only from fixtures and equipment that allow fats, oils or grease to be discharged. Where lack of space or other constraints prevent the installation or replacement of a grease interceptor, one or more grease interceptors shall be permitted to be installed on or above the floor and upstream of an existing grease interceptor.

**1003.3.3 Additives to grease interceptors.** Dispensing systems that dispense interceptor performance additives to grease interceptors shall not be installed except where such systems dispense microbes for the enhancement of aerobic bioremediation of grease and other organic material, or for inhibiting growth of pathogenic organisms by anaerobic methods. Such microbial dispensing systems shall be installed only where the grease interceptor manufacturer's instructions allow such systems, the local sewer authority approves, and the systems conform to ASME A112.14.6. Systems that discharge emulsifiers, chemicals or enzymes to grease interceptors shall be prohibited.

**1003.3.5 Hydromechanical grease interceptors, fats, oils and greases disposal systems and automatic grease removal devices.** Hydromechanical grease interceptors; fats, oils, and greases disposal systems and automatic grease removal devices shall be sized in accordance with local sewer authority approved sizing standard, ASME A112.14.3, ASME A112.14.4, ASME A112.14.6, CSA B481.3 or PDI G101. Hydromechanical grease interceptors; fats, oils, and greases disposal systems and automatic grease removal devices shall be designed and tested in accordance with ASME A112.14.3, ASME A112.14.4, CSA B481.1, PDI G101 or PDI G102. Hydromechanical grease interceptors; fats, oils, and greases disposal systems and automatic grease removal devices shall be installed in accordance with the manufacturer's instructions. Where manufacturer's instructions are not provided, hydromechanical grease interceptors; fats, oils, and greases disposal systems and automatic grease removal devices shall be installed in compliance with ASME A112.14.3, ASME A112.14.4, ASME A112.14.6, CSA B481.3 or PDI G101.

**1003.3.7 Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems.** The required capacity of gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be determined, an approved local sewer authority's sizing standard or by multiplying the peak drain flow into the interceptor in gallons per minute by a retention time of 30 minutes. Gravity grease interceptors shall be designed and tested in accordance with IAPMO/ANSI Z1001. Gravity grease interceptors with fats, oils, and greases disposal systems shall be designed and tested in accordance with ASME A112.14.6 and IAPMO/ANSI Z1001. Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be installed in accordance with manufacturer's instructions. Where manufacturer's instructions are not provided, gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be installed in compliance with ASME A112.14.6 and IAPMO/ANSI Z1001.

**Reason Statement:** The reason to add local sewer authority to allow for sizing is because these interceptors ultimately will fall under the jurisdiction of the sewer authority. Many sewer authorities are adopting Fats Oils and Grease (FOG) ordinances that dictate the cleaning schedules, size, and material that can be used. Sewer authorities have been given this power by their states as well as the EPA. According to the EPA *The National Pretreatment Program already provides the necessary regulatory tools and authority to local pretreatment programs for controlling interference problems. Under the provisions of Part 403.5(c)(1) & (2), a POTW must establish and enforce specific local limits for industrial users to prevent interference with the operation of the municipally-owned treatment works in the following circumstances: (1) POTWs with approved pretreatment programs; (2) POTWs that have experienced Interference or Pass-Through and such violation is likely to recur.*

**Bibliography:** EPA- *National Pretreatment Program (40 CFR 403) Controlling Fats, Oils, and Grease Discharges from Food Service Establishments* -September 2012

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
The cost of construction is not easily discerned from allowing sewer authorities to take more of a roll in the sizing and approval of an interceptor. In some cases costs may go up because concrete interceptors are banned. Other times cost may decrease because of a different size interceptor is approved to be installed from the authority.





# P132-21

IPC: 1002.4.1.1

**Proponents:** Edward R. Osann, Natural Resources Defense Council, representing Natural Resources Defense Council (eosann@nrdc.org)

## 2021 International Plumbing Code

**Revise as follows:**

**1002.4.1.1 Potable water-supplied trap seal primer valve.** A potable water-supplied trap seal primer valve shall supply water to the trap. Water-supplied trap seal primer valves shall conform to ASSE 1018, and shall be of the type that uses not more than 30 gallons per year per trap. The discharge pipe from the trap seal primer valve shall connect to the trap above the trap seal on the inlet side of the trap.

**Reason Statement:** A potable water-supplied trap seal primer that is unrestricted can discharge 300 to 500 gallons a year to a single trap. By comparison, a 2-inch trap, for example, actually requires less than 1/2 gallon per year to maintain the trap seal. Trap seal primer valves that limit the amount of water discharged to 8 gallons per year have been on the market for several years.

The maximum of 30 gallons of discharge per year per trap in this proposal is contained in both the International Green Construction Code (IgCC) and the Water Efficiency and Sanitation Standard for the Built Environment (WESand). It is time to bring this common sense requirement into the IPC to prevent the unnecessary waste of drinking water and avoid the extra water and sewer charges that building owners will face that are attributable to such waste.

**Bibliography:** 2017 Water Efficiency and Sanitation Standard for the Built Environment (WESand), International Association of Plumbing and Mechanical Officials, 2017, Sec. 416.1.

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

This proposal applies to only one of the four available compliance paths where trap seal protection is required, and thus will not increase the cost of construction.

---

P132-21

# P133-21 Part I

IPC: 202 (New), 1003.1 (New), 1003.2 (New), 1003.3 (New), 1003.4 (New), ASME Chapter 15 (New)

**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**

**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

# P133-21 Part II

IRC: 202 (New), P3202 (New), P3202.1 (New), P3202.2 (New), P3202.3 (New), P3202.4 (New), ASME Chapter 44 (New)

**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 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:

### **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 Statement: 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 above and additional educational materials are available at [PlumbingResearchGroup.org](http://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.

---

P133-21 Part II

# P134-21

IPC: 1003.3.2

**Proponents:** Brent Werlein, representing City of Virginia Beach-Public Utilities (bwerlein@vbgov.com)

## 2021 International Plumbing Code

Revise as follows:

**1003.3.2 Food waste disposers restriction.** ~~A food waste disposer shall not discharge to a grease interceptor.~~

When allowed to be installed by the local sewer authority, a food waste disposer shall discharge into a solids interceptor before discharging into a hydromechanical grease interceptor. The solids interceptor shall sized to handle the same flow rate as the hydromechanical grease interceptor. A solids interceptor shall not be required to be installed before a gravity grease interceptor. Solids interceptors shall be cleaned in accordance with the manufacturer's requirements or the requirements of the local sewer authority.

**Reason Statement:** In many cases a FWD is used as a catch all drain that will allow FOG to bypass the interceptor and impact the public gravity sewer system. FWD also add a large solids loading component to the sanitary sewer system that can also cause issues down the line at pump stations as well as the treatment plant.

**Cost Impact:** The code change proposal will increase the cost of construction

The cost of construction will increase in the case of hydromechanical grease interceptors because a solids interceptor will now need to be installed. In cases where a sewer authority has banned their use, then the cost wouldn't go up. In the case of gravity grease interceptors, the cost will not increase as it will not need a solids interceptor.

---

P134-21

## **P135-21**

**IPC: TABLE 1102.7, TABLE 1102.4, ASTM Chapter 15 (New)**

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.com)

## **2021 International Plumbing Code**

**Revise as follows:**



**TABLE 1102.7**  
**PIPE FITTINGS**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F2306/F2306M; <u>ASTM F2763</u>

**TABLE 1102.4  
BUILDING STORM SEWER PIPE**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F667; ASTM F2306/F2306M; ASTM F2648/F2648M; <u>ASTM F2763</u>

Add new standard(s) as follows:

# ASTM

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

**F2763-16: Standard Specification for 12 to 60 in. [300 to 1500 mm] Dual and Triple Profile-Wall Polyethylene (PE) Pipe and Fittings for Sanitary Sewer Applications**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F2763-16 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.

**Reason Statement:** ASTM F2763 is proposed for addition to table 1102.4 - BUILDING STORM SEWER PIPE because it has a uniform pipe stiffness of no less than 46 psi. The pipe was developed for the sanitary sewer market, but because of its high performance the product excellent for use in storm drainage applications. ASTM F2763 also covers fittings, which is why it is being proposed for addition to Table 1102.7 - PIPE FITTINGS

**Bibliography:** ASTM F2763 - Standard Specification for 12 to 60 in. [300 to 1500 mm] Dual and Triple Profile-Wall Polyethylene (PE) Pipe and Fittings for Sanitary Sewer Applications

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
Based on the products ASTM F2763 pipe is competing against, the installation costs could be less but certainly not more.

P135-21

## **P136-21**

**IPC: TABLE 1102.4, CSA Chapter 15 (New)**

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.com)

### **2021 International Plumbing Code**

**Revise as follows:**

**TABLE 1102.4  
BUILDING STORM SEWER PIPE**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F667; ASTM F2306/F2306M; ASTM F2648/F2648M; <u>CSA B182.8</u>

Add new standard(s) as follows:

**CSA**

CSA Group  
8501 East Pleasant Valley Road  
Cleveland OH 44131-5516

**B182.8-18: Profile Polyethylene (PE) Storm Sewer and Drainage Pipe and Fittings**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, CSA B182.8-18 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.

**Reason Statement:** CSA 182.8 is the standard for profile polyethylene (PE) storm sewer and drainage pipe and fittings. The standard is commonly referenced in Canada. The reference will help tie both standards together.

**Bibliography:** CSA B182.8 - Profile polyethylene (PE) storm sewer and drainage pipe and fittings

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
The addition of CSA B182.8 is similar to existing ASTM standards in Table 1102.4 and will not increase or decrease the cost of construction.

P136-21

# **P137-21**

IPC: TABLE 1102.4

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

## **2021 International Plumbing Code**

Revise as follows:

**TABLE 1102.4  
BUILDING STORM SEWER PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM F628; ASTM F1488; CSA B181.1; CSA B182.1; <u>ASTM F1476</u>
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301; <u>ASTM F1476</u>
Concrete pipe	ASTM C14; ASTM C76; CSA A257.1; CSA A257.2 ; <u>ASTM F1476</u>
Copper or copper-alloy tubing (Type K, L, M or DWV)	ASTM B75; ASTM B88; ASTM B251; ASTM B306 ; <u>ASTM F1476</u>
Polyethylene (PE) plastic pipe	ASTM F667; ASTM F2306/F2306M; ASTM F2648/F2648M ; <u>ASTM F1476</u>
Polypropylene (PP) pipe	ASTM F2881; CSA B182.13 ; <u>ASTM F1476</u>
Polyvinyl chloride (PVC) plastic pipe (Type DWV, SDR26, SDR35, SDR41, PS50 or PS100) in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2665; ASTM D3034; ASTM F891; ASTM F1488; CSA B181.2; CSA B182.2; CSA B182.4 ; <u>ASTM F1476</u>
Stainless steel drainage systems, Type 316L	ASME A112.3.1 ; <u>ASTM F1476</u>
Vitrified clay pipe	ASTM C4; ASTM C700 ; <u>ASTM F1476</u>

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019)

**Cost Impact:** The code change proposal will decrease the cost of construction

The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

P137-21

## **P138-21**

**IPC: TABLE 1102.7, TABLE 1102.4, ASTM Chapter 15 (New)**

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.com)

## **2021 International Plumbing Code**

**Revise as follows:**

**TABLE 1102.7**  
**PIPE FITTINGS**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polypropylene (PP) plastic pipe	ASTM F2764



TABLE 1102.4  
BUILDING STORM SEWER PIPE

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polypropylene (PP) pipe	ASTM F2764; ASTM F2881; CSA B182.13

Add new standard(s) as follows:

**ASTM**

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

**F2764/2764M-19: Standard Specification for 6 to 60 in. [150 to 1500 mm] Polypropylene (PP) Corrugated Double and Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F2764/2764M-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.

**Reason Statement:** ASTM F2764/F2764M is being proposed for addition to Table 1102.4 - BUILDING STORM SEWER PIPE because it is an excellent storm sewer product. On projects where a higher performing corrugated polypropylene pipe is desired, ASTM F2764/F2764M should be called out over ASTM F2881, which is already a part of Table 1102.4. ASTM F2764/F2764M is also a fittings standard, which is why it is being recommended for addition to Table 1102.7 - PIPE FITTINGS.

**Bibliography:** ASTM F2764/F2764M - Standard Specification for 6 to 60 in. [150 to 1500 mm] Polypropylene (PP) Corrugated Double and Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. Although the ASTM F2764/F2764M is more expensive than listed standard ASTM F2881, based on installation requirements it may be more or less expensive to install.

P138-21

## **P139-21**

**IPC: TABLE 1102.7, ASTM Chapter 15 (New)**

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.com)

## **2021 International Plumbing Code**

**Revise as follows:**

TABLE 1102.7  
PIPE FITTINGS

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polypropylene (PP) plastic pipe	ASTM F2881/F2881M

Add new standard(s) as follows:

**ASTM**

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

**F2881/F2881M-19: Standard Specification for 12 to 60 in. [300 to 1500 mm] Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F2881/F2881M-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.

**Reason Statement:** ASTM F2881/F2881M exists in Table 1102.4 - BUILDING STORM SEWER PIPE and inadvertently was not added to Table 1102.7 - PIPE FITTINGS. The standard covers fittings that are commonly used in storm sewers.

**Bibliography:** ASTM F2881/F2881M - Standard Specification for 12 to 60 in. [300 to 1500 mm] Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. Based on installation requirements, these fittings may be more or less expensive than existing systems.

P139-21

# **P140-21 Part I**

**IPC: TABLE 1102.5**

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.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**

**Revise as follows:**

**TABLE 1102.5**  
**SUBSOIL DRAIN PIPE**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F405; ASTM F667; CSA B182.1; CSA B182.6; CSA B182.8

P140-21 Part I

---

## **P140-21 Part II**

IRC: TABLE P3009.11, TABLE P3302.1

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (shawn.coombs@ads-pipe.com)

### **2021 International Residential Code**

Revise as follows:

**TABLE P3009.11**  
**DISTRIBUTION PIPE**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F405

**TABLE P3302.1**  
**SUBSOIL DRAIN PIPE**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F405; CSA B182.1; CSA B182.6; CSA B182.8

**Reason Statement:** ASTM F405 was withdrawn by ASTM. The content of F405 for the most part is contained in ASTM F667, which is already referenced in Table 1102.5, and is proposed for addition to IRC Tables P3009.11 and P3302.1 (see proposal 7039).

**Bibliography:** ASTM F405 - Standard Specification for Corrugated Polyethylene (PE) Pipe and Fittings (Withdrawn 2015)  
ASTM F667/F667M - Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
The products specified in ASTM F405 were moved to ASTM F667. The impact to construction is neutral.

P140-21 Part II



## **P141-21**

IPC: TABLE 1102.7

**Proponents:** John Wilson, representing Teekay Couplings (john.wilson@teekaycouplings.com)

### **2021 International Plumbing Code**

Revise as follows:

**TABLE 1102.7  
PIPE FITTINGS**

<b>MATERIAL</b>	<b>STANDARD</b>
Acrylonitrile butadiene styrene (ABS) plastic	ASTM D2661; ASTM D3311; CSA B181.1 ; <a href="#">ASTM F1476</a>
Cast iron	ASME B16.4; ASME B16.12; ASTM A74; ASTM A888; CISPI 301 ; <a href="#">ASTM F1476</a>
Coextruded composite ABS and drain DR-PS in PS35, PS50, PS100, PS140, PS200	ASTM D2751 ; <a href="#">ASTM F1476</a>
Coextruded composite ABS DWV Schedule 40 IPS pipe (solid or cellular core)	ASTM D2661; ASTM D3311; ASTM F628 ; <a href="#">ASTM F1476</a>
Coextruded composite PVC DWV Schedule 40 IPS-DR, PS140, PS200 (solid or cellular core)	ASTM D2665; ASTM D3311; ASTM F891 ; <a href="#">ASTM F1476</a>
Coextruded composite PVC sewer and drain DR-PS in PS35, PS50, PS100, PS140, PS200	ASTM D3034 ; <a href="#">ASTM F1476</a>
Copper or copper alloy	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.23; ASME B16.26; ASME B16.29 ; <a href="#">ASTM F1476</a>
Gray iron and ductile iron	AWWA C110/A21.10 ; <a href="#">ASTM F1476: AWWA C227 - 17</a>
Malleable iron	ASME B16.3 ; <a href="#">ASTM F1476</a>
Plastic, general	ASTM F409
Polyethylene (PE) plastic pipe	ASTM F2306/F2306M ; <a href="#">ASTM F1476</a>
Polyvinyl chloride (PVC) plastic	ASTM D2665; ASTM D3311; ASTM F1866 ; <a href="#">ASTM F1476</a>
Stainless steel drainage systems, Type 316L	ASME A112.3.1 ; <a href="#">ASTM F1476</a>
Steel	ASME B16.9; ASME B16.11; ASME B16.28 ; <a href="#">ASTM F1476</a>

**Reason Statement:** The ASTM F1476 specification provides the performance characteristics and qualification tests required for gasketed mechanical couplings (GMC) including groove-type mechanical couplings for grooved end pipe, mechanical restraint couplings for plain end pipe and mechanical compression couplings for plain end pipe. These couplings are for use at temperatures within the recommended temperature range of their respective gaskets. Couplings manufactured to perform to this standard are utilized around the world for many pipework systems for civils, water, oil & gas, marine, plumbing and mechanical installations with a wide range of pipe materials. Gasketed mechanical pipe couplings allow pipes to be permanently joined without the need for welding, soldering or brazing, eliminating the need for on-site hot work. No pipe threading, grooving, or alternative preparation is required. This gives the system designer and contractor access to a widely used and accepted modern construction method in today's industry. Health and safety benefits come from the simple tools required and the use of plain end pipe. There is no heating, welding or manipulation of material on site, so handling is easy and safe. The coupling is light in weight, has no loose parts and all materials are REACH and RoHS compliant and manufactured under an ISO 9001 quality programme. Gaskets are NSF 61 compliant. The high-level performance of GMCs allows gravity systems to be uprated. For example, where CISPI 310 states that thrust restraint systems are required, a GMC can fulfil the regulation. Global manufacturers of hubless pipe systems utilize GMCs in sensitive locations as part of their overall systems.

**Bibliography:** ASTM F1476-2007(R2019) / AWWA C227-17

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
The inclusion of Gasketed Mechanical Couplings to ASTM F1476, will enhance the performance and ease of installation of pipe systems. Allowing excellent pressure and axial thrust restraint performance additional system security when rapid installation is required. These pipe couplings successfully are utilized globally on pipe systems. Reducing pipework failures. No Hot works or special tooling is required

P141-21

# **P142-21**

**IPC: TABLE 1102.4, TABLE 1102.7, ASTM Chapter 15 (New)**

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.com)

## **2021 International Plumbing Code**

**Revise as follows:**

**TABLE 1102.4**  
**BUILDING STORM SEWER PIPE**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F667; ASTM F2306/F2306M; ASTM F2648/F2648M; <u>ASTM F2947</u>

TABLE 1102.7  
PIPE FITTINGS

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F2306/F2306M; ASTM F2947/F2947M

Add new standard(s) as follows:

**ASTM**

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

**F2947/F2947M-20: Standard Specification for 150 to 1500 mm [6 to 60 in.] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Sanitary Sewer Applications**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F2947/F2947M-20 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.

**Reason Statement:** ASTM F2947/F2947 is proposed for addition to Table 1102.4 - BUILDING STORM SEWER PIPE because it is a annular corrugated high performing sanitary sewer pipe made from recycled material with a variable pipe stiffness based on diameter. This product normally is used for sanitary sewer applications, but is being proposed for storm drainage systems for communities who want enhanced hydraulics, corrosion resistant, improved stiffness, and high performing joints. ASTM F2947/F2947M is also being proposed for addition to Table 1102.7 because fittings are also called out in the standard.

**Bibliography:** ASTM F2947/F2947M - Standard Specification for 150 to 1500 mm [6 to 60 in] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Sanitary Sewer Applications

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
Based on how the product is installed and what the other allowable materials are, ASTM F2947/F2947M may have a higher or lower installed cost.

P142-21

# **P143-21 Part I**

IPC: TABLE 1102.7

**Proponents:** Shawn Coombs, representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.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**

Revise as follows:

**TABLE 1102.7  
PIPE FITTINGS**

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F2306/F2306M; <u>ASTM F667/F667M</u>

**Staff Analysis:** ASTM F667/F667M is in the current edition of the code.

P143-21 Part I

---

## **P143-21 Part II**

IRC: TABLE P3302.1, TABLE P3009.11, ASTM Chapter 44 (New)

**Proponents:** Shawn Coombs, representing Advanced Drainage Systems, Inc. (shawn.coombs@ads-pipe.com)

### **2021 International Residential Code**

Revise as follows:



**TABLE P3302.1  
SUBSOIL DRAIN PIPE**

<b>MATERIAL</b>	<b>STANDARD</b>
Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301
Polyethylene (PE) plastic pipe	ASTM F405; <u>ASTM F667/F667M</u> ; CSA B182.1; CSA B182.6; CSA B182.8
Polyvinyl chloride (PVC) plastic pipe (type sewer pipe, SDR 35, PS25, PS50 or PS100)	ASTM D2729; ASTM D3034; ASTM F891; CSA B182.2; CSA B182.4
Stainless steel drainage systems, Type 316L	ASME A112.3.1
Vitrified clay pipe	ASTM C4; ASTM C700

TABLE P3009.11  
DISTRIBUTION PIPE

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F405; <u>ASTM F667/F667M</u>

Add new standard(s) as follows:

# ASTM

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

**F667/F667M-16: Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F667/F667M-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.

**Reason Statement:** ASTM F667/F667M covers pipe and fittings. The proposal to add this standard to Table 1102.7 - Pipe Fittings is just to highlight that the pipe standard listed on Table 1102.4 and 1102.5 covers fittings as well as pipe. It is also appropriate to add ASTM F667/F667M to the IRC Table P3302.1 - Subsoil Drain Pipe and Table P3009.1 - Distribution Pipe since ASTM F405 is listed in these standards as well, and ASTM F667/F667M is a replacement for ASTM F405.

**Bibliography:** ASTM F667/F667M - Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. The addition of ASTM F667/F667M to Table 1102.7, Table P3302.1, and Table P3009.11 doesn't impact construction cost. It simply highlights that the standard covers pipe and fittings.

P143-21 Part II

# **P144-21**

**IPC: TABLE 1102.7, ASTM Chapter 15 (New)**

**Proponents:** Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (Shawn.coombs@ads-pipe.com)

## **2021 International Plumbing Code**

**Revise as follows:**

TABLE 1102.7  
PIPE FITTINGS

Portions of table not shown remain unchanged.

MATERIAL	STANDARD
Polyvinyl chloride (PVC) plastic	ASTM D2665; ASTM D3311; ASTM F1866; <u>ASTM F3202</u>

Add new standard(s) as follows:

**ASTM**

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

**F3202-19a: Standard Specification for Solid Wall Poly (Vinyl Chloride) PVC Fittings for Joining Corrugated Wall High Density Polyethylene (PE) and Propylene (PP) Piping**

**Staff Analysis:** A review of the standard(s) proposed for inclusion in the code, ASTM F3202-19a 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.

**Reason Statement:** ASTM F3202 is proposed for addition to Table 1102.7 - PIPE FITTINGS because the fittings are used when connecting to structures and when higher quality connections (fittings) are desired for Polyethylene (PP) and Polypropylene (PP) Pipe. It is a relatively new standard that was created in 2019.

**Bibliography:** ASTM F3202 - Standard Specification for Solid Wall Poly (Vinyl Chloride) PVC Fittings for Joining Corrugated Wall High Density Polyethylene (PE) and Polypropylene (PP) piping.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
Based on installation requirements these fittings may be less or more expensive than Polypropylene (PP) or Polyethylene (PE) fittings.

P144-21

# P145-21

IPC: [F] 1202.1

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

## 2021 International Plumbing Code

**Revise as follows:**

**[F] 1202.1 Nonflammable medical gases.** Nonflammable medical gas systems, inhalation anesthetic systems and vacuum piping systems shall be installed, tested and labeled based upon a risk assessment conducted in accordance with NFPA 99.

**Exceptions:**

1. This section shall not apply to portable systems or cylinder storage.
2. Vacuum system exhaust terminations shall comply with the *International Mechanical Code*.

**Reason Statement:** Provide addition clarity in medical gas installations to include a risk assessment analysis as required by NFPA 99. In order to meet federal conditions of participation health care facilities must comply with system and equipment according to the requirements listed in NFPA 99, Health Care Facilities Code (K901, K902, K903, K904, K905, K911, K906, K912, K914, K915, K916 and K931). Systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities.

This proposal is submitted by the ICC Committee on Healthcare (CHC). The CHC was established by the ICC Board to evaluate and assess contemporary code issues relating to healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. In 2020 the CHC held several virtual meeting, which included members of the committees as well as any interested parties, to discuss and debate the proposed changes. Information on the CHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CHC effort can be downloaded from the CHC website at CHC.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction  
This change aligns with existing federal requirements for the healthcare industry.

---

P145-21

# P146-21

IPC: 1302.2, 1302.2.1, 1302.6.1, 1302.14 (New)

**Proponents:** Taylor Chang, San Francisco Public Utilities Commission, representing San Francisco Public Utilities Commission (tachang@sfgwater.org)

## 2021 International Plumbing Code

Revise as follows:

**1302.2 Sources.** On-site nonpotable water reuse systems shall collect waste discharge from only the following sources: bathtubs, showers, lavatories, clothes washers and laundry trays. Where *approved* and as appropriate for the intended application, water and wastewater from other nonpotable sources shall be collected for reuse by on-site nonpotable water reuse systems.

**1302.2.1 Prohibited sources.** ~~Wastewater containing urine or fecal matter shall not be diverted to on-site nonpotable water reuse systems and shall discharge to the sanitary drainage system of the building or premises in accordance with Chapter 7.~~ Reverse osmosis system reject water, water softener discharge water, kitchen sink wastewater, dishwasher wastewater and wastewater discharged from wet-hood scrubbers shall not be collected for reuse in an on-site nonpotable water reuse system.

**1302.6.1 Graywater or wastewater used for fixture flushing.** Graywater or wastewater used for flushing water closets and urinals shall be disinfected and treated by an on-site water reuse treatment system complying with NSF 350 or other approved methods.

Add new text as follows:

**1302.14 Odor control.** The designed operation and maintenance methods for treatment, storage, distribution, and reuse of onsite sources of non-potable water shall incorporate provisions to reduce, control, or eliminate odors as appropriate for the intended application.

**Reason Statement:** The option for collecting, treating, and reusing wastewater onsite should be explicitly allowed in the plumbing code due to the opportunity to save potable water and the ability for systems to be designed and operated safely. The concept and technology has been proven effective by many examples of successful systems in operation around the world today. This proposal seeks to remove the existing prohibition and instead, allow wastewater to be collected for reuse onsite where approved by Authority Having Jurisdiction and appropriate for the application. Onsite wastewater treatment and reuse should be allowed in the plumbing code because of the significant opportunity to improve the water efficiency of buildings and reduce valuable potable water being used for non-potable purposes. For example, a commercial office building treating and reusing wastewater onsite can offset 100% of a building's toilet and urinal flushing demand, which can represent up to 70% of a building's total indoor potable water demands. In San Francisco, the San Francisco Public Utilities Commission headquarters building treats wastewater onsite for toilet and urinal flushing, reducing the use of potable water within the building by roughly 50%.

In addition, the treatment and reuse of wastewater onsite can be done safely for meeting both indoor water demands such as toilet flushing and outdoor water demands such as landscape irrigation. This practice is being done safely in areas that have established water quality standards for the treatment and reuse of wastewater onsite. Standards such NSF 350 and IGC 324 exist to guide the safe implementation of onsite wastewater treatment. Water quality standards are also evolving as public health regulators and utilities from across the country are adopting a health risk-based water quality approach that applies to onsite non-potable water sources including wastewater, graywater, and rainwater. This risk-based water quality framework focuses on the removal of pathogens and ensures the water is being treated appropriately for the end use.

Furthermore, onsite treatment and reuse of wastewater is an accepted practice in California, Oregon, Colorado, New York, and other states as well as internationally in Australia. Cities such as San Francisco and Portland have been successfully operating onsite wastewater treatment systems with no public health violations. One example from Portland, Oregon is the Hassalo on Eighth eco-district, a cluster of residential, commercial, and mixed-use buildings collecting all of the district's wastewater onsite and reusing it for toilet flushing and irrigation. This system saves up to 7 million gallons of potable water per year. Another example from New York City is the Solaire Building, which has been successfully operating an onsite wastewater treatment system for over a decade to meet the building's toilet flushing, cooling tower makeup, and irrigation demands. Finally, an example from Sydney, Australia is 1 Bligh Street, a commercial high rise tower offsetting 100% of the building's non-potable water demands by reusing wastewater onsite.

### Bibliography:

- Link to San Francisco Public Utilities Commission (SFPUC) Onsite Water Reuse Program web page: [www.sfgwater.org/np](http://www.sfgwater.org/np)
- Link to SFPUC Guidebook for Onsite Water Reuse Program: <https://sfgwater.org/Modules/ShowDocument.aspx?documentID=11629>
- Link to SFPUC Onsite Water Reuse Projects Case Studies: <https://sfgwater.org/Modules/ShowDocument.aspx?documentID=7089>
- Link to the report Risk-Based Framework for the Development of Public Health Guidance for Decentralized Non-Potable Water Systems: <https://sfgwater.org/Modules/ShowDocument.aspx?documentID=10493>
- Link to the National Blue Ribbon Commission's Guidebook for Developing and Implementing Regulations for Onsite Non-potable Water Systems: <https://sfgwater.org/Modules/ShowDocument.aspx?documentID=11586>
- Link to National Blue Ribbon Commission's Guidance Manual for designing and permitting onsite non-potable water systems: <https://sfgwater.org/modules/showdocument.aspx?documentid=15071>
- Link to National Blue Ribbon Commission's report Making the Utility Case for Onsite Non-potable Water Systems: <https://sfgwater.org/Modules/ShowDocument.aspx?documentID=12142>

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

The proposal to remove the existing prohibition of onsite wastewater reuse will not increase the cost of construction. The proposal is allowing for onsite wastewater reuse systems as an option, but not mandating they be installed. Buildings that choose to install a system would experience increased construction costs to install storage tanks, treatment, and collection and distribution piping. However, buildings can also realize ongoing monetary savings on water and sewer bills by reusing wastewater onsite because they use less potable water and send a reduced flow of wastewater to the sewer. An analysis was conducted that looked at the amount of wastewater that could be treated and reused onsite in an example new mixed-use development in San Francisco. Using the water utility's rate schedule to estimate the financial savings, the analysis showed installing an onsite wastewater reuse system could result in an estimated savings of about \$50,000 annually on the example project's water bill. Furthermore, with the rising cost of water, the return on investment will continue to improve.

---

P146-21

# P147-21 Part I

IPC: APPENDIX G (New), SECTION G101 (New), G101.1 (New), G101.2 (New), SECTION G102 (New), G102.1 (New), SECTION G103 (New), G103.1 (New), G103.2 (New), G103.3 (New), G103.4 (New), G103.5 (New), G103.6 (New), G103.7 (New), SECTION G104 (New), G104.1 (New), SECTION G105 (New), G105.1 (New), G106.1 (New), TABLE G106.1 (New)

**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 utilizing 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 manufacturer'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.**

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

**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

## P147-21 Part II

IRC: APPENDIX AX (New), SECTION AX101 (New), AX101.1 (New), AX101.2 (New), SECTION AX102 (New), AX102.1 (New), SECTION AX103 (New), AX103.1 (New), AX103.2 (New), AX103.3 (New), AX103.4 (New), AX103.5 (New), AX103.6 (New), AX103.7 (New), SECTION AX104 (New), AX104.1 (New), AX105 (New), AX106.1 (New), TABLE AX106.1 (New)

**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**

<b>STANDARD ACRONYM</b>	<b>STANDARD NAME</b>	<b>SECTIONS HEREIN REFERENCED</b>
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

**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.

**Reason Statement:** 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.