

# IRC — Plumbing



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

April 11 – May 5, 2021  
Virtual Committee Action Hearings

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

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

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 RP code change proposals may not be included on this list, as they are being heard by another committee.

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# RP1-21

IRC: P2503.5.2

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

## 2021 International Residential Code

Delete and substitute as follows:

**P2503.5.2 Finished plumbing.** After the plumbing fixtures have been set and their traps filled with water, their connections shall be tested and proved gastight or watertight as follows:

1. ~~Watertightness. Each fixture shall be filled and then drained. Traps and fixture connections shall be proven watertight by visual inspection.~~
2. ~~Gastightness. Where required by the local administrative authority, a final test for gastightness of the DWV system shall be made by the smoke or peppermint test as follows:~~
  - 2.1. ~~Smoke test. Introduce a pungent, thick smoke into the system. When the smoke appears at vent terminals, such terminals shall be sealed and a pressure equivalent to a 1-inch water column (249 Pa) shall be applied and maintained for a test period of not less than 15 minutes.~~
  - 2.2. ~~Peppermint test. Introduce 2 ounces (59 mL) of oil of peppermint into the system. Add 10 quarts (9464 mL) of hot water and seal the vent terminals. The odor of peppermint shall not be detected at any trap or other point in the system.~~

**P2503.5.2 Drainage and vent final test.** The final test of the drainage and vent system shall be visual to determine compliance with the provision of this code. Each fixture shall be filled and then drained. Traps and fixture connections shall be proven watertight.

**Reason Statement:** The testing for water and gas tightness of the drainage and vent piping system occurs during the rough-in test when the system is filled with water or air. Thus, there is no reason for testing the piping system again during the final test. The only inspection during final is of the fixture after being set. This is done by visually inspecting the installation and operating the fixture. Any improper connection is obvious during this inspection.

Peppermint testing should have never been introduced into the Residential Code. The International Plumbing Code has never had peppermint testing. The legacy plumbing codes and Uniform Plumbing Code removed the allowance of a peppermint test dating back to the 1980's. Peppermint testing is an archaic test that is completely ineffective for testing plumbing systems. Smoke testing of a residential building's drainage and vent system is unnecessary for a final inspection. If the International Plumbing Code doesn't require smoke testing in commercial buildings, the Residential Code surely should not be mandating such a test.

**Cost Impact:** The code change proposal will decrease the cost of construction  
By removing the requirement for a smoke test, this change will lower the cost of construction.

RP1-21

# RP2-21

IRC: P2704.1

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

## 2021 International Residential Code

### Revise as follows:

**P2704.1 Slip joints.** Slip-joint connections shall be installed only for tubular waste piping and only between the ~~trap~~ outlet of a fixture and the connection to the drainage piping. Slip-joint connections shall be made with an *approved* elastomeric sealing gasket. Slip-joint connections shall be accessible. Such access shall provide an opening that is not less than 12 inches (305 mm) in its smallest dimension.

**Reason Statement:** The term "trap outlet" is confusing. Fixtures have outlets and traps have outlets. The meaning of this section is clarified by eliminating the term "trap".

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

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RP2-21

# RP3-21

IRC: P2704.1

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

## 2021 International Residential Code

### Revise as follows:

**P2704.1 Slip joints.** Slip-joint connections shall be installed only for tubular waste piping and only between the ~~waste trap~~ outlet of a fixture and the connection to the drainage piping. Slip-joint connections shall be made with an *approved* elastomeric sealing gasket. Slip-joint connections shall be accessible. Such access shall provide an opening that is not less than 12 inches (305 mm) in its smallest dimension.

**Reason Statement:** The 2015-2017 PMGCAC successfully changed IRC Section P2704.1 concerning the location of slip joints. However, an error was made at the PMGCAC level that was not noticed by anyone until the 2018 IRC was published. This could not be corrected as Errata as the code reflects exactly how the approved proposal was written.

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 24.

**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.

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RP3-21

# RP4-21

IRC: P2709.3

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

## 2021 International Residential Code

### Revise as follows:

**P2709.3 Installation.** Lining materials shall be sloped<sup>1/4</sup> unit vertical in 12 units horizontal (2-percent slope) to weep holes in the subdrain by means of a smooth, solidly formed subbase, shall be properly recessed and fastened to *approved* backing so as not to occupy the space required for the wall covering, and shall not be nailed or perforated at any point less than 1 inch (25.4 mm) above the finished threshold. The assembly shall be tested in accordance with Section P2503.6

**Reason Statement:** A simple pointer to help the user locate the necessary information that goes hand in hand with the requirements for building a shower receptor.

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

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RP4-21



# RP5-21

IRC: P2717.2

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

## 2021 International Residential Code

Revise as follows:

**P2717.2 Sink and dishwasher. Dishwasher waste connection.** ~~The combined discharge from a dishwasher and a one- or two-compartment sink, with or without a food waste disposer, shall be served by a trap of not less than 1½ inches (38 mm) in outside diameter. The dishwasher discharge pipe or tubing shall rise to the underside of the counter and be fastened or otherwise held in that position before connecting to the head of the food waste disposer or to a wye fitting in the sink tailpiece. The waste connection of a dishwasher shall connect directly to a wye branch fitting on the tailpiece of the kitchen sink, directly to the dishwasher connection of a food waste disposer, or through an air break to a standpipe. The waste line of the dishwasher shall rise and be securely fastened to the underside of the sink rim or countertop and to the top of the standpipe.~~

**Reason Statement:** This is basically an editorial cleanup. The language in the IPC is straight forward and to the point. The language about trap size is redundant as it's covered by Table P3201.7. It is important that the waste connection be firmly fastened to the top of the standpipe due to it being a pumped waste.

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

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RP5-21

# RP6-21

IRC: P2801.1

**Proponents:** Glenn Mathewson, representing Self (glenn@glenmathewson.com)

## 2021 International Residential Code

**Revise as follows:**

~~**P2801.1 Required.** Hot water shall be supplied to plumbing fixtures and plumbing appliances intended for bathing, washing or culinary purposes.~~

**Reason Statement:** This is the only provision in Chapter 28 that is not related to the installation of water heating equipment. That's because it doesn't belong in Chapter 28 and is already covered in Section R306.4. 306.4 references various fixtures that require hot water. P2801.1, however, specifies human activities directly, such as "bathing, washing, and culinary purposes", as opposed to fixtures. This is an unnecessary complication, redundancy, and potential conflict within the single IRC. A "pot filler" over a range is for "culinary purposes" and a hose bib is used for "washing" cars, but these fixtures are not listed in R306.4, because they don't require hot water. R306.4 is all that is needed to scope where hot water is required.

Here is some history on these two provisions that will reveal this is baggage from the collaboration of multiple code organizations, and we should feel comfortable in cleaning it up for 2024.

The provision P2801.1 first appeared in the 1986 CABO dwelling code, section 2408.1 and was ironically one of only two provisions in the "water heater" section 2408. This would later become its own chapter in the 1995 edition (Chapter 33). It stated the same phrase "bathing, washing, or culinary purposes". In this same 1986 code, section 207 (the equivalent to 306.4 today) already required hot water for ALL fixtures, except for water closets. A redundancy and potential conflict was born, but where did it come from?

I'm not sure why it was first added to the CABO in 1986, because the phrase "bathing, washing, culinary purposes" comes from the BOCA Basic Plumbing Code P-1606.1 as far back as 1975. (the limit to my research access).

Section 207 in the CABO code required hot and cold water to all fixtures, except water closets, since the first 1971 edition. This would have likely come from one of the building official organizations involved. To discover which it was, I looked to see which of the legacy building codes carried it forward in their own code, after the 1971 CABO.

Nothing in the 1975 BOCA about fixtures and hot water. Nothing in the 1975 SBCCI dwelling house pamphlet. Nothing in the 1973 UBC dwelling house construction code. So... where did it come from? Well, many forget the fourth legacy code in the original CABO code, from the American Insurance Association (AIA).

In the 1967 National Building Code, by AIA, section 1401.2 required hot water to the kitchen sink (a specific fixture). In the 1975 edition of this same code, Section 607.2(a) we find the start of the list of fixtures we see today in 2021 IRC Section 306.4 (lavatory, bathtub, shower...)

So, it turns out that the insurance industry was the first to require hot water to specific fixtures (in a building code) and is the origin to Section R306.4. It was only complicated with additional provisions from the BOCA plumbing code in 1986, and looks pretty much the same today.

Let's respect this history and the compromises made to create a single residential code in the 70's, but let's also move on from nearly 40 years of conflicting redundancy. One provision is all that is necessary and that's R306.4

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. There is no anticipated change in average construction costs associated with this proposal.

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RP6-21

# RP7-21

IRC: P2801.6.3 (New)

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

## 2021 International Residential Code

**Add new text as follows:**

**P2801.6.3 Appliance, equipment and insulation in pans.** Where appliances, equipment or insulation are subject to water damage when auxiliary drain pans fill, such portions of the appliance, equipment and insulation shall be installed above the flood level rim of the pan. Supports located inside the pan to support the appliance or equipment shall be water resistant and approved.

**Reason Statement:** It's important that the IRC be consistent with the IPC, IMC and IFGC. This language is the same found in the IPC and will provide more consistent enforcement.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. These requirements already exist and will not increase the cost of construction.

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RP7-21

# RP8-21

IRC: P2903.6 (New)

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

## 2021 International Residential Code

**Add new text as follows:**

**P2903.6 Existing piping used for grounding.** Existing metallic water service piping used for electrical grounding shall not be replaced with non-metallic pipe or tubing until other approved means of grounding is provided.

**Reason Statement:** The replacement of a portion of that metal piping system with non-metallic piping could interrupt the continuity of the electrical grounding system thereby creating a potentially hazardous situation. This language is already in the IPC Section 601.3 and needs to be in the IRC as it would apply to one and two-family units as well and will bring consistency to the two codes.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. These requirements already exist and will not increase the cost of construction.

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RP8-21

# RP9-21

IRC: P2904.1

**Proponents:** John Cecil, representing self (jcecil@msn.com)

## 2021 International Residential Code

**Revise as follows:**

**P2904.1 General.** The design and installation of residential fire sprinkler systems shall be in accordance with NFPA 13D or Section P2904, which shall be considered to be equivalent to NFPA 13D. Partial residential sprinkler systems shall be permitted to be installed only in buildings not required to be equipped with a residential sprinkler system. Section P2904 shall apply to stand-alone and multipurpose wet-pipe sprinkler systems that do not include the use of antifreeze. A multipurpose fire sprinkler system shall provide domestic water to both fire sprinklers and plumbing fixtures. A stand-alone sprinkler system shall be ~~separate and independent~~ separated from the water distribution system by a dual check valve. ~~A backflow preventer shall not be required to separate a sprinkler system from the water distribution system, provided that the sprinkler system complies with all of the following:~~

- ~~1. The system complies with NFPA 13D or Section P2904.~~
- ~~2. The piping material complies with Section P2906.~~
- ~~3. The system does not contain antifreeze.~~
- ~~4. The system does not have a fire department connection.~~

**Reason Statement:** The Sprinkler System would be considered a "Dead end" that is over 5', which was/ is against Code, the sprinkler's brass heads have lead in them and will state "not to be used with potable water", some sprinkler use Black steel pipe, or Galvanized pipe, and the "Cutting Oil" used to make the threads is toxic. Section 2902.5.1 states that boilers without chemicals shall have backflow devices, so if they are required, should not the Sprinkler also be required to have backflow protection. Section 2902.1 says, "Connections shall not be made to a potable water supply in a manner that COULD CONTAMINATE THE WATER SUPPLY", I would think this statement alone should require the use of a Dual Check valve, to stop the cross connection.

**Bibliography:** IRC

**Cost Impact:** The code change proposal will increase the cost of construction  
The cost would be minimal, about \$40.00 - \$50.00 for a 1" Dual check valve.

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RP9-21

# RP10-21

IRC: P2905.3

**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); Anthony Floyd, City of Scottsdale, representing City of Scottsdale (afloyd@scottsdaleaz.gov); David Collins, representing The Preview Group, Inc. (dcollins@preview-group.com)

## 2021 International Residential Code

Revise as follows:

**P2905.3 Hot water supply to fixtures.** The *developed length* of hot water piping, from the source of the hot water to the fixtures that require hot water, shall not exceed ~~100~~ 75 feet ( ~~30480~~ 22860 mm). Water heaters and recirculating system piping shall be considered to be sources of hot water.

**Reason Statement:** This proposal reduces the current limit on domestic hot water supply line length by 25%, from 100 feet to 75 feet. Lengthy hot water piping wastes water and energy while occupants wait for hot water to arrive at outlets for bathing, washing, and culinary purposes. Hot water in supply pipes cools down between draws, and the longer the pipe length, the more cooled-down hot water will need to be purged by the next user. The water sitting in the pipe will be purged, and a nearly equal volume of water will lose heat to the pipe wall on its way to the outlet, and be purged as well. Pipe insulation will partially reduce the volumes to be purged, but note that current I-Codes do not require insulation of piping less than 3/4", and 1/2" piping is widely used to supply sinks and showers. Reducing the maximum length from 100 feet to 75 feet will reduce the volume of water in DHW supply lines and the consequent volume of purged water. 75 feet will provide ample flexibility for designers to locate DHW outlets in sufficient proximity to the hot water heater to meet this requirement, more flexibility than the 50-foot limit on DHW pipe length currently in the IPC. Note also that reduced pipe length will reduce the waiting time for building occupants.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. The code change proposal can be met through design changes without adding to construction costs. Reduced pipe length may result in cost savings for labor and materials.

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RP10-21

# RP11-21

IRC: P3101.5

**Proponents:** Gregory Wilson, representing FEMA (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

## 2021 International Residential Code

**Revise as follows:**

**P3101.5 Flood resistance.** In flood hazard areas as established by Table R301.2, vents shall be located at or above the elevation required in Section ~~R322.1~~ R322.2 (flood hazard areas including A Zones) or ~~R322.2~~ R322.3 (coastal high-hazard areas including V Zones and Coastal A Zones, where designated).

**Reason Statement:** This proposal is editorial in nature. This proposal is to correct references to section numbers for flood resistance requirements. Code proposal RB93-07/08 was approved for inclusion in the 2009 IRC and (among many other changes) revised Section P3101.5 to reference the elevation requirements of R324.2.1 or R324.3.2. In the process of renumbering Section R324 to Section R322, it appears the P3101.5 reference to the section numbers were inadvertently revised incorrectly. For consistency with other cross references in the IRC the proposed change refers to the secondary subsection level, not the third-order subsection.

Additionally, the proposal clarifies that Section R322.3 applies to Coastal A Zones in addition to V Zones; the proposed revision to the parenthetical matches the title of Section R322.3, which has applied to Coastal A Zones since the 2015 IRC.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. The code change proposal is editorial and does not change requirements.

RP11-21

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# RP12-21

IRC: P3301.1

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

## 2021 International Residential Code

**Revise as follows:**

**P3301.1 Scope.** The provisions of this chapter shall govern the materials, design, construction and installation of storm drainage. Primary and secondary roof drainage systems shall comply with Section R903.4.

**Reason Statement:** This is a simple common sense pointer directing the user to the proper section as roof drainage goes hand in hand with storm drainage.

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

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RP12-21