

# IRC — Plumbing



2021 GROUP A PUBLIC COMMENT AGENDA

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DAVID L. LAWRENCE CONVENTION CENTER  
PITTSBURGH, PA

## 2021 Public Comment Agenda

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## RP10-21

### **Proposed Change as Submitted**

**Proponents:** Edward R. Osann, Natural Resources Defense Council, representing Natural Resources Defense Council (eosann@nrdc.org); Sharon Bonesteel, Salt River Project, representing Salt River Project (sharon.bonesteel@srpnet.com); 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 75 feet (22 860 mm) ~~100 feet (30 480 mm)~~. Water heaters and recirculating system piping shall be considered to be sources of hot water.

**Reason:** 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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### **Public Hearing Results**

**Committee Action:**

**Disapproved**

**Committee Reason:** The 100 feet was just put in the code in the last cycle. Builders are having a difficult time making distances of less than 85 feet. Cost will no doubt be increased if the number is lowered to 75 feet. In a moderately-sized ranch home, a 100 foot limit is difficult to attain. (11-0)

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### **Individual Consideration Agenda**

#### **Public Comment 1:**

**IRC:** P2905.3

**Proponents:** Ed Osann, representing Natural Resources Defense Council (eosann@nrdc.org) requests As Modified by Public Comment

**Modify as follows:**

### **2021 International Residential Code**

**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 85 feet (25 908 mm) ~~75 feet (22 860 mm)~~. Water heaters and recirculating system piping shall be considered to be sources of hot water.

**Commenter's Reason:** As with the original proposal, this modification via public comment is intended to save energy as well as water compared with the current code, with its maximum hot water pipe length of 100 feet. The committee reason statement suggests, in part, that some builders

may be offering new home designs with a maximum hot water pipe length of 85 feet without great difficulty. This comment would codify an 85-foot maximum length, which is far more accommodating than the 50-foot length limit currently in the International Plumbing Code. While the proposal as submitted (75-foot max) would be preferable, an 85-foot maximum offers a 15% improvement in the amount of hot water that must be purged to the drain before hot water arrives at a sink or shower.

In rejecting the proposal as submitted, the IRC-P Committee lost sight of the moment we're in -- we need to take every reasonable step to reduce fossil fuel emissions (which are embedded in most domestic hot water) as soon as possible. Avoiding plumbing system designs that perpetuate the waste of hot water for the life of the building is certainly a step we should take today.

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

Public Comment# 2973

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### **Public Comment 2:**

**Proponents:** Anthony Floyd, representing City of Scottsdale (afloyd@scottsdaleaz.gov); David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests As Submitted

**Commenter's Reason:** The current code language permits up to 100 feet of total developed length from the hot water source to the furthest hot water fixture. The volume of water wasted in a typical 3/4 inch nominal pipe size with a length of 100 feet is 300 ounces or 2.3 gallons. Without a central hot water supply core, manifold distribution or demand-initiated recirculation system, this volume of hot water is typically wasted every time an occupant turns on a faucet or showerhead, while waiting for the delivery of hot water. This inefficient delivery of hot water is a useless waste of water and energy. The associated water wasted in a 75 or greater length hot water pipe should not substitute for less wasteful hot water delivery. The IPC limits the total developed length of hot water piping to 50 feet for non-residential projects. The 75 feet maximum length of this proposed code change is intended to provide some flexibility for plumbing layout in residential projects governed under the IRC.

**Cost Impact:** The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. Whether this code change will increase or not increase the cost of construction depends on the plumbing layout and hot water distribution system.

Public Comment# 2881

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