

# INTERNATIONAL RESIDENTIAL CODE – PLUMBING

## RP1-09/10

### P2503.5.1

#### Proposed Change as Submitted

**Proponent:** Michael Cudahy, Plastic Pipe and Fittings Association (PPFA) for Plastic Pipe and Fittings Association (PPFA).

**Revise as follows:**

**P2503.5.1 Rough plumbing.** DWV systems shall be tested on completion of the rough piping installation by water or, for piping systems other than plastic, by air with no evidence of leakage. Either test shall be applied to the drainage system in its entirety or in sections after rough piping has been installed, as follows:

1. Water test. Each section shall be filled with water to a point not less than 10 feet (3048 mm) above the highest fitting connection in that section, or to the highest point in the completed system. Water shall be held in the section under test for a period of 15 minutes. The system shall prove leak free by visual inspection.
2. Air test. The portion under test shall be maintained at a gauge pressure of 5 pounds per square inch (psi) (34 kPa) or 10 inches of mercury column (34 kPa). This pressure shall be held without introduction of additional air for a period of 15 minutes.

**Reason:** To carry over the language on air testing of plastic piping systems from the IPC to the IRC. This change would correct an oversight in the IRC section. IPC Section 312.1 "Required tests", contains the specific language: "All plumbing system piping shall be tested with either water or, for piping systems other than plastic, by air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests." The reason for this language is that under some conditions, air testing poses additional risks for installers. The IRC should reflect the same language as found in the IPC.

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

ICCFILENAME: CUDAHY-RP1-P2503.5.1

#### Public Hearing Results

**Committee Action:**

**Disapproved**

**Committee Reason:** Air testing gives the installer a needed alternate method of testing.

**Assembly Action:**

**None**

#### Individual Consideration Agenda

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Michael Cudahy, PPFA (Plastic Pipe and Fittings Association), requests Approval as Submitted.**

**Commenter's Reason:** As was stated by many at the initial hearing, the practice of testing piping systems with compressed gas or air carries with it the potential for injury to anyone on the work site. This practice is not permitted for use with plastic pipe in the IPC, the NSPC, the UPC or in the standards for these piping products.

Physics are no different in the IRC than the IPC. If a catastrophic failure occurs during a water test, someone might get wet. If a catastrophic failure occurs during an air test, workers can be, and have been, blinded, injured or killed. That is a significant difference in outcome. This code should be consistent with the others in regards to this safe work practice issue.

PPFA encourages that this item be approved as submitted.

Final Action: AS AM AMPC\_\_\_ D

**RP9-09/10**  
**2904 (New)**

**Proposed Change as Submitted**

**Proponent:** Guy Tomberlin, Fairfax County, Virginia representing the Virginia Plumbing and Mechanical Inspectors Association (VPMIA) and the Virginia Building and Code Officials Association (VBCOA)

**Add new text as follows:**

**SECTION 2904**  
**HOT WATER SUPPLY SYSTEMS**

**2904.1 Where required.** Hot water shall be supplied to all plumbing fixtures and equipment utilized for bathing, washing or culinary purposes.

**P2904.2 Hot water supply temperature maintenance.** Where the developed length of hot water piping from the source of hot water supply to the furthest fixture exceeds 40 feet (12192 mm), the hot water supply system shall be provided with a recirculating pump system to maintain hot water temperature to a point that is not further than 40 feet (12 192 mm) in developed pipe length from any fixture.

**P2904.2.1 Piping insulation.** Circulating hot water system piping shall be insulated in accordance with Section N1103.4.

**P2904.2.2 Hot water system controls.** Circulating hot water system pump controls shall be in accordance with Section N1103.4.

**2904.2.3 Recirculating pump.** Where a thermostatic mixing valve is used in a system with a hot water recirculating pump, the hot water or tempered water return line shall be routed to the coldwater inlet pipe of the water heater and the cold water inlet pipe or the hot water return connection of the thermostatic mixing valve.

**Reason:** Current IRC provides no guidance for the hot water piping installed in a dwelling unit. Several hundred feet of hot water piping can be installed with no regard to energy conservation. Water heaters are being installed in remote locations based on space allotment. Significant water and energy are wasted waiting for the hot water to get to the fixture. These are similar to the provisions that have always been included in the IPC .

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

ICCFILENAME: TOMBERLIN-RP3-P2904 NEW

**Public Hearing Results**

**Committee Action:**

**Disapproved**

**Committee Reason:** Fifty feet is too short of a distance. Language doesn't account for "home run" type systems. Circulating systems are too expensive. No data to support the need for these systems in a home.

**Assembly Action:**

**Approved as Modified**

**P2904.2 Hot water supply temperature maintenance.** Where the developed length of hot water piping from the source of hot water supply to the furthest fixture exceeds ~~40~~ 50 feet (~~12192~~ 15240mm), the hot water supply system shall be provided with a recirculating pump system to maintain hot water temperature to a point that is not further than ~~40~~ 50 feet (~~12 192~~ 15240mm) in developed pipe length from any fixture.

## Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

### *Public Comment 1:*

**Michael Cudahy, representing self, requests Approved as Modified by this Public Comment.**

Modify the proposal as follows:

**P2904.2 Hot water supply temperature maintenance.** Where the developed length of hot water piping from the source of hot water supply to the furthest fixture exceeds 50 feet (15240 mm), the hot water supply system shall be provided with a ~~recirculating pump~~ hot water priming system to maintain hot water temperature to a point that is ~~cause the source of hot water to be~~ not further than 50 20 feet (6096 mm) in developed pipe length from any fixture.

**Commenter's Reason:** While common recirculation systems do reduce the wait time for hot water at fixtures, they actually waste *more energy via heat loss* in the pipe and a small amount of energy to use the pump. The waste occurs whenever the system is pumping, either 24/7, or even on a timer.

Modern "on demand" *hot water priming systems* exist that use a motion detector or control button to "prime" the hot water loop, and stop as soon as the temperature in the line by the serviced fixture increases slightly when measured by a thermocouple.

These systems are a dramatic improvement over traditional recirculation systems as they save *both* water and energy and are the greener option for homes. Pumps run for only minutes a day, not hours.

Without this modification, this proposal will save *water* but waste *energy*.

If the code is to encourage conservation, hot water priming systems, not recirculation systems, are the greener option.

I suspect others in the area of greenbuilding and water and energy conservation will recommend this type of technology and I urge the FAH support this and similar recommendations.

Also, a fifty foot "run out" fixture branch from a loop seems like an excessive length. Twenty feet seems completely achievable.

### *Public Comment 2:*

**Robert Hall, representing Viega LLC, requests Disapproval.**

**Commenter's Reason:** Fifty feet is an arbitrary distance with no technical merit. Such a code change will cause undue expense to the builder and homeowner. Energy evaluation reports substantiate energy savings and efficiency of hot water systems by comparing different piping methods such as, two-pipe and home-run systems. Other factors include the type of piping materials (copper, CPVC, or PEX), sizing pipe to accommodate fixture flow rate, and of course the distance from the water heater to the fixture. All of the afore mentioned items should be considered prior to making a decision weather or not a circulation pump is needed. The 50 feet "best guess" approach should be disapproved!

### *Public Comment 3:*

**Gary Kozan, representing Ridgeway Plumbing, requests Disapproval.**

This code change, appropriately DISAPPROVED 8-3 by the IRC committee, is much too costly and restrictive. It mandates the installation of hot water circulating systems, while disregarding other available techniques of improving hot water delivery time by using "home-run" systems, reduced pipe sizing, and piping overhead rather than below ground.

Practically every new home has at least one plumbing fixture that exceeds 50 feet developed length from the water heater. That's not far at all. Approving this change would mean installing a hot water recirculation system in every new home. Such a system, consisting of an additional hot water return line, an insulated circulation loop, circulating pump, controls, and a power source, would cost at least \$500 per house.

A properly designed hot water system takes into account the fixture type, flow rate, frequency of use, and pipe size, as well as the distance from the hot water source. For example, a ¾" pipe holds twice as much water as a ½" pipe, and four times as much as 3/8". Also, underground hot water pipes will cool down quicker than piping run overhead.

Homeowners do not tolerate a long wait for hot water to the kitchen sink and master bath. This can usually be overcome by direct hot water runs, sized appropriately. Seldom-used fixtures such as powder rooms, guest baths, bar sinks, etc. yield negligible energy and water savings. Experienced plumbing contractors already know when a hot water circulating system is called for, and when it is not. I urge disapproval.

Final Action:        AS            AM            AMPC\_\_\_\_\_        D

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**RP12-09/10**  
**P2904.1**

**Proposed Change as Submitted**

**Proponent:** Richard J. Prospal, on behalf of The American Society of Sanitary Engineering

**1. Revise as follows:**

**P2904.1 General.** Where installed, residential fire sprinkler systems, or portions thereof, shall be in accordance with NFPA 13D or Section P2904, which shall be considered equivalent to NFPA 13D. 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 supply domestic water to both fire sprinklers and plumbing fixtures. Installers of multipurpose fire sprinkler systems shall meet the requirements of ASSE 7010. A stand-alone sprinkler shall system shall be separate and independent from the water distribution system. A backflow preventer shall not be required to separate a stand-alone system from the water distribution system.

**2. Add standard to Chapter 44 as follows:**

**ASSE**  
7010 - 2008, Professional Qualifications Standard for Plumbing-Based Residential Fire Protection Systems  
Installers for One and Two-Family Dwellings

**Reason:** The installers of multipurpose residential fire sprinkler systems must be qualified and pass a certification process assuring the general public of their knowledge of NFPA 13D and Section P2904.

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

**Analysis:** Review of proposed new standard, ASSE 7010-2008, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

ICCFILENAME: PROSPAL-RP-1-P2904.1

**Public Hearing Results**

**Committee Action:**

**Disapproved**

**Committee Reason:** The proposed standard does not meet ICC criteria and the added requirement may conflict with some state backflow prevention programs.

**Assembly Action:**

**None**

**Individual Consideration Agenda**

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**James Bickford, CBO, Chief Plumbing Inspector, City of Pompano Beach, Florida, requests Approval as Submitted.**

**Commenter's Reason:** The staff analysis that the ASSE 7010 standard does not comply with ICC criteria is a bit confusing. This standard is an ANSI accredited consensus document. The committee reason for rejection is also incorrect, this document does not have any impact on backflow requirements. The ASSE 7010 is a Professional Qualification Standard for installers of plumbing based residential fire sprinkler systems. The object of the ASSE 7010 standard is to verify minimum knowledge needed to install residential fire sprinkler systems. This standard is an ANSI consensus document which has no impact on backflow requirements. Adoption of this standard would verify that installers of Residential Fire Sprinkler systems have the skills needed to install these important life safety systems.

Final Action: AS AM AMPC\_\_\_\_\_ D