



Effective Date: July 2023

This listing is subject to re-examination in one year.

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A Subsidiary of the International Code Council®

CSI: DIVISION: 21 00 00—FIRE SUPPRESSION
Section: 21 13 13—Wet-Pipe Sprinkler Systems

Product certification system:

The ICC-ES product certification system includes testing samples taken from the market or supplier's stock, or a combination of both, to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the supplier's quality system.

Products: AquaSAFE™ Fire Sprinkler Pipe and Fittings System

Listee: Uponor, Inc.
5925 148th Street West
Apple Valley, Minnesota 55124
www.uponor-usa.com

Compliance with the following codes:

2024, 2021, 2018, 2015, 2012 and 2009 *International Fire Code*® (IFC)
2024, 2021, 2018, 2015, 2012 and 2009 *International Building Code*® (IBC)
2024, 2021, 2018, 2015, 2012 and 2009 *International Residential Code*® (IRC)
2024, 2021, 2018, 2015, 2012 and 2009 *Uniform Plumbing Code*® (UPC)*
2022, 2019, 2016, 2013 and 2010 *California Plumbing Code* (CPC)
2023, 2020 and 2017 *City of Los Angeles Plumbing Code* (LAPC)
2020 and 2015 *National Building Code of Canada*

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Compliance with the following standards:

ANSI/CAN/UL 1821, Thermoplastic Sprinkler Pipe and Fittings for Fire Protection (4th Ed.)
NSF/ANSI 14-2022, Plastics Piping System Components and Related Materials
NSF/ANSI/CAN 61-2022, Drinking Water System Components – Health Effects
ANSI/NFPA 13D-2022, "Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes."

Identification:

Pipe: Each length of AquaSAFE™ pipe shall be legibly marked with letters not less than 3/16 inch (4.8 mm) high on the outside surface with the following:
Name or trademark of the Manufacturer or private labeler;
a) Generic pipe material (for example, crosslinked polyethylene or PEX);
b) Size, pressure rating, and temperature rating of the pipe;

- c) If the pipe is made to conform to more than one outside dimensional specification for the fire sprinkler application, the outside dimensional specification such as "CTS" for copper tube size or "IPS" for iron pipe size shall be included;
- d) Date and shift of manufacture; and
- e) The ICC-ES PMG listing mark (optional).

Fittings: Each ProPEX fitting shall be legibly marked with the following:

- a) Name or trademark of the Manufacturer or private labeler;
- b) Generic fitting material (for example, PEX);
- c) Size of fitting;
- d) If the fittings are made to conform to more than one outside dimensional specification for the fire sprinkler application, the outside dimensional specification such as "CTS" for copper tube size or "IPS" for iron pipe size shall be included;
- e) The thread designation when the fitting is threaded in accordance with 9.5(c) of ANSI/CAN/UL 1821; and
- f) Year of Manufacture. Fittings manufactured in the last 3 months of a calendar year are allowed to be marked with the following year as the date of manufacture, and fittings manufactured in the first 3 months of a calendar year are allowed to be marked with the previous year as the date of manufacture.

Installation:

AquaSAFE™ Fire Sprinkler Pipe and Fitting Systems are intended for use in wet-pipe systems and are to be installed in accordance with the requirements specified in the manufacturer's installation instructions published installation instructions (Uponor Residential Fire Sprinkler Systems, AquaSAFE™ System Installation Guide - dated August 2016 (4th Printing), ANSI/NFPA 13D, and the applicable fire, building and/or plumbing codes. Any installation and design criteria related to pipe hanger spacings, restraints, pressure or temperature rating, piping location, friction loss characteristics are specified in the manufacturer's installation guide.

Installations of the AquaSAFE™ Pipe and Fitting Systems are to be conducted in accordance with ANSI/NFPA 13D, IRC P2904, IBC 903, UPC 612, CPC 612, LAPC 612 or National Building Code of Canada Clause 3.1.5.19(2) and QAI Laboratory tested and approved assemblies, as applicable.

Assembly 1: Exposed Wood Joist Ceiling Assemblies

The AquaSAFE™ Pipe and Fitting System can be installed and left exposed in wood joist ceiling assemblies where the following conditions are met:

1. Joists are of dimensional lumber, engineered wood, or wood I-joist.
2. Joist are of depths from 6 – 16 inches (152 – 204 mm).
3. Joist are of spacing from 12 – 24 inches (305 – 610 mm) on center.
4. Joists can be exposed after installation.
5. Maximum metal pipe hanger spacing of 24 inches (610 mm) on center are used.
6. Listed residential automatic sprinklers of maximum activation temperature rating of 155°F (68°C).

Assembly 2: Exposed Finished Ceiling Assemblies

The AquaSAFE™ Pipe and Fitting System can be installed exposed across finished ceiling assemblies where the following conditions are met:

1. Ceiling is finished with one of the following approved membranes:
 - I. Minimum 3/8 inch (9.5 mm) thickness code complying gypsum wallboard or;
 - II. Suspended membrane ceiling with lay-in panels or tiles having a minimum weight of 0.35 lb/ft² (1.76 kg/m²) when installed with metallic support grids, or;
 - III. ½ inch (13 mm) code complying plywood or solid sheathing.
2. Maximum metal hanger spacing of 36 inches (914 mm) on center.
3. Listed residential automatic sprinklers of maximum activation temperature rating of 155°F (68°C).

These pipe and fittings are not intended to be installed in outdoor applications or in dry-pipe systems and are intended for use in areas where the maximum ambient temperature does not exceed 120°F (49°C). If the ambient temperature is expected to exceed this limitation, refer to the Installation and Design Manual for additional information on methods to reduce the pipe exposure temperatures.

Models:

The AquaSAFE™ Pipe and Fitting System was evaluated in compliance with ANSI/CAN/UL 1821 and consists for the following components:

Piping: The AQUAPEX™ piping is produced from cross-linked polyethylene compound complying with ASTM F876 and CSA B137.5. AQUAPEX™ (White) PEX 5106 SDR9, available in nominally ¾- to 1-¼ inch diameter (19 to 32 mm) sizes.

Fittings: Two types of fittings are recognized: ProPEX™ EP (Engineered Polymer) or ProPEX™ Brass fittings. The fittings are illustrated in Figure 1.

ProPEX fittings: ProPEX™ fittings are insert-type fittings made of either brass or EP that are used with an external PEX expansion ring. The fitting is installed in the end of PEX tubing by placing a reinforcing expansion ring over the end of the pipe. Using the Milwaukee cold expansion tool, expand the tube and the reinforcing ring per the manufacturer's instruction guide. Insert fitting into the expanded end of the tubing up to the collar stop, and within a short period of time the tubing and ring contract around the fitting. ProPEX AquaSafe listed fittings are available in nominally ¾, 1, and 1-¼ inch diameter (19, 25, and 32 mm) sizes and comply with ASTM F1960.

Rings: ProPEX™ Rings for AquaSafe Systems are available in nominally ¾, 1, and 1-¼ inch diameter (19, 25, and 32 mm) sizes and comply with ASTM F1960.

Conditions of Listing:

1. Installation of the pipe and fitting system shall be in accordance with the requirements specified in the manufacturer's installation instructions published installation instructions (Uponor Residential Fire Sprinkler Systems, AquaSAFE™ System Installation Guide -dated August 2016 (5th Printing), ANSI/NFPA 13D, and the applicable fire, building and/or plumbing codes.
2. The manufacturer's installation instructions should be reviewed and authorities having jurisdiction consulted before installation.
3. The tubing installation must be pressure-tested for leaks in the presence of the code official or the official's designated representative.
4. When installation is in fire-resistive assemblies, evidence of compliance with IBC (penetrations), must be provided to the code official for approval.
5. The piping must not be used as a source of electrical ground.
6. Minimum bending radius is six times the outside pipe diameter of the PEX tube. The outside diameter is the nominal diameter plus 1/8 inch (3.2 mm).
7. AquaSAFE™ Fire Sprinkler Pipe and Fittings are intended for use in wet-pipe systems and are not intended to be installed in outdoor applications or in dry-pipe systems and are intended for use in areas where the maximum ambient temperature does not exceed 120°F (49°C).
8. The pipe and fittings must be protected from exposure to direct sunlight. Pipe and fittings must be protected from physical damage with an oversized sleeve at structural mass penetrations and when the pipe is uncovered. Annular spaces between sleeves and pipes must be filled or tightly caulked in an approved manner.
9. Clearances from heat-producing equipment must be in accordance with the *International Fuel Gas Code*®, the IRC or the UMC, as applicable.
10. The AquaSAFE™ Pipe and Fitting System is manufactured under a quality control program with inspections by ICC-ES.

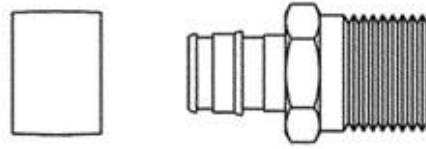


FIGURE 1— PEX RING AND ProPEX FITTINGS

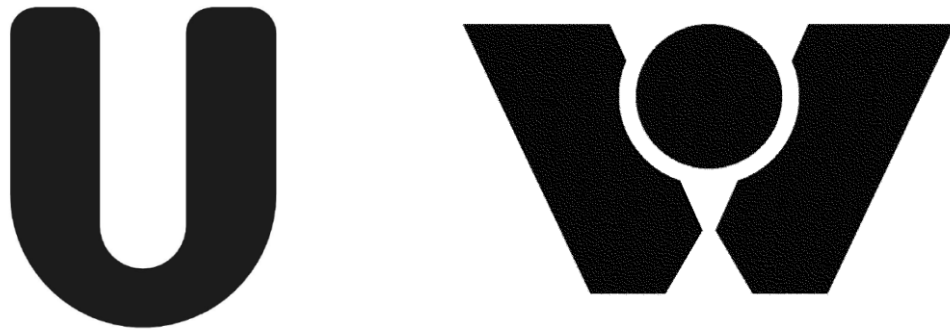


FIGURE 2—UPONOR, Inc. TRADEMARKS