

UPONOR Inc.
2000 Argentia Road, Plaza 1, Suite 200
Mississauga, ON L5N 1W1
CANADA

September 1, 2015

RE: USE OF 18 INCH DEPTH OPEN WEB WOOD I-JOISTS WITH UPONOR AQUASAFE™ PIPES AND FITTINGS WITH QAI LISTED P321-4 ASSEMBLY 1 UL 1821 COMPLYING EXPOSED JOIST INSTALLTION

To Ms. Haemi Pollett:

QAI Laboratories Ltd. (QAI) is an International Accreditation Service, Inc. (IAS) accredited testing (TL-220), inspection (AA-723), certification body (PCA-119) and a Standards Council of Canada (SCC) accredited body for the testing, certification, and follow up inspections for fire-resistance of building materials and elements and building material combustibility.

At the request of UPONOR, QAI has reviewed QAI listing P321-4 Assembly 1, for UPONOR Aquasafe™ Pipe and Fitting Systems for use with alternate 18 inch open web wood I-joists spaced 12 inches to 24 inches on center. The published QAI listing can be found at the address below, and in attachments to this letter.

http://www.qai.org/Listing_Pages/QAI_Listing_P321-1_UPONOR_Inc.htm

QAI Listing P321-4 Assembly 1 outlines approval for use with exposed wood i-joists of dimensional lumber, engineered wood, wood I-joist (including open web wood i-joist), were joists are spaced 12 inches to 24 inches on center, with pipe hangers spaced at maximum 24 inches on center when UPONOR Aquasafe™ Pipe and Fitting Systems include listed automatic sprinklers of maximum activation temperature of 155°F.

Use of open web wood i-joists of 18 inches depth would allow greater dissipation of heat during testing to UL 1821 for installations where joists are left exposed, with joists spaced at 12 inches to 24 inches, and Aquasafe™ Pipe and Fitting Systems support system is maintained at maximum 24 inches on center, and are installed with listed automatic sprinklers of maximum activation temperature of 155°F.

The use of 18 inch depth open web wood I-joists when installed otherwise in accordance with QAI Listing P321-4 Assembly 1 maintains compliance with UL 1821.

If you require further information please feel free to contact the undersigned.

Sincerely, **QAI Laboratories Ltd.**



Jay Klassen
Special Projects Manager – Building Products



Matt Lansdowne
Business Manager - Building Products

Attachment: QAI Listing P321-4 (2 Pages)



Directory of Listed Products



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PLUMBING PRODUCTS LISTING PROGRAM

Class: Fire Protection – Pipe and Fittings

Customer: UPONOR, INC.

Location: Apple Valley, Minnesota

Listing No.: P321-4

Project No.:

Effective Date: May 22, 2015

Last Revised: N/A

Expires: N/A

Standards: UL 1821 "Thermoplastic Sprinkler Pipe and Fittings for Fire Protection Service".
ULC/ORD C199P "Combustible Piping for Sprinkler Systems"

Product: UPONOR AquaSAFE™ Pipe and Fitting System

Website: www.uponor-usa.com

Component(s):

Component:	Nominal Pipe Size:
UPONOR AquaPEX™ PEX piping (white)	1/2", 3/4", 1", 1 1/4", 1 1/2" & 2" 13, 19, 25, 32, 38, 51 mm
ProPEX™ EP Coupling	1/2", 3/4", 1", 1 1/4", 1 1/2" & 2" 13, 19, 25, 32, 38, 51 mm
ProPEX™ Brass Coupling	1/2", 3/4", 1", 1 1/4", 1 1/2" & 2" 13, 19, 25, 32, 38, 51 mm
ProPEX™ EP Elbow	1/2", 3/4", 1", 1 1/4", 1 1/2" & 2" 13, 19, 25, 32, 38, 51 mm
ProPEX™ Brass Elbow	1/2", 3/4", 1" 13, 19, 25 mm
ProPEX™ EP Tee	1/2", 3/4", 1", 1 1/4", 1 1/2" & 2" 13, 19, 25, 32, 38, 51 mm
ProPEX™ Brass Tee	1/2", 3/4", 1", 1 1/4", 1 1/2" & 2" 13, 19, 25, 32, 38, 51 mm
ProPEX™ Brass Sweat Adapter	1/2", 3/4", 1", 1 1/4", 1 1/2" & 2" 13, 19, 25, 32, 38, 51 mm
ProPEX™ Brass Male Thread Adapter	1/2", 3/4", 1", 1 1/4", 1 1/2" & 2" 13, 19, 25, 32, 38, 51 mm
ProPEX™ Brass Female Thread Adapter	1/2", 3/4", 1", 1 1/4", 1 1/2" & 2" 13, 19, 25, 32, 38, 51 mm
ProPEX™ Fire Sprinkler Adapter	3/4", 1" 19, 25 mm

Sprinklers: All automatic sprinklers must be listed by an approved agency to ANSI/UL 1626, "Residential Sprinklers for Fire Protection Service" for use in the noted assemblies of this listing.

Maximum System Pressure: 130 psi

Markings: All PEX pipe, connectors, and other accessories (if sufficient space is available) shall be permanently marked with the following content where visible after installation:

- Manufacturer's name or trademark
- Model Name

- Standard: UL 1821; ULC/ORD 199P
- Nominal Size
- QAI Logo with 'c' and 'us' indicator
- Manufacturing Traceability Label - Production date code

Limitations: Installation in accordance with ANSI/NFPA 13D "Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes" is required.

APPROVED INSTALLATIONS

Assembly 1: Exposed Wood Joist Ceiling Assemblies

UPONOR AquaSAFE™ 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, wood I-joist or open web wood joists (wood floor trusses).
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. Metal pipe hangers spaced at maximum 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

UPONOR AquaSAFE™ 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. 1/2 inch (13 mm) code complying plywood or solid sheathing.
2. Metal pipe hangers spaced at maximum 24 inches (610 mm) on center are used.
3. Listed residential automatic sprinklers of maximum activation temperature rating of 155°F (68°C).

PEX pipe and fittings are not intended for use in areas where the maximum ambient temperature exceeds 120°F. 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.

This system is not intended for outdoor application.

Installation and Design Manual: Special installation and design criteria relative to pipe-hanger spacing, piping and sprinkler restraint, sprinkler temperature rating, piping location, testing location, testing procedures and friction loss characteristics are specified in the UPONOR AquaSAFE™ System Installation Guide (dated May 2015).

Note: These products are subjected to limitations as specified above and must be installed in accordance with the manufacturers' instructions. Authorities having jurisdiction should be consulted regarding allowable applications. See manufacturer's listings for other standards listed under QAI certification programs.

The materials, products or systems listed herein have been qualified to bear the QAI Listing Mark under the conditions stated with each Listing. Only those products bearing the QAI Listing Mark are considered to be listed by QAI.

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Questions regarding this listing may be directed to info@qai.org. Please include the listing number in the request.