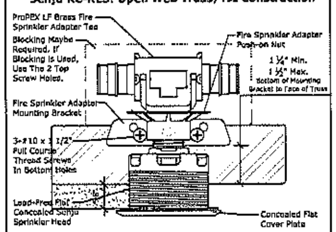
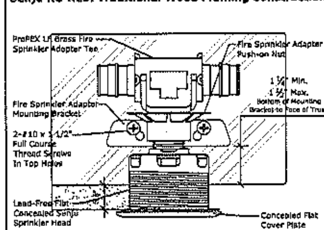
AquaSAFE™ GENERAL NOTES:

1. THIS SYSTEM IS DESIGNED AS PER NFPA 13D 2016 EDITION AS A RESIDENTIAL MULTIPURPOSE SYSTEM SECTION 3.3.11.3.
2. UPONOR COMPANY RESERVES THE EXCLUSIVE RIGHTS TO ALL DETAILS AND DRAWINGS AS SHOWN ON THIS SHEET. THESE DETAILS AND DRAWINGS ARE PROPRIETARY INFORMATION OF UPONOR COMPANY AND UNAUTHORIZED USE MAY BE SUBJECT TO PROSECUTION TO THE FULL EXTENT OF THE LAW.
3. THE DESIGN OF THIS SYSTEM IS DICTATED BY SPECIFIC CEILING HEIGHTS AND ROOM SIZES. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THE CONDITIONS SHOWN ON THESE PLANS ARE EXACTLY AS THEY EXIST IN THE FIELD. DEVIATIONS FROM THE DESIGN MAY CAUSE THE SYSTEM TO BE UNABLE TO CONTROL A FIRE. IF THE BUILDING CONSTRUCTION DIFFERS FROM THE FIRE SPRINKLER PLAN, CONTACT THE SYSTEM DESIGNER IMMEDIATELY.
4. THIS SYSTEM AND THE ACCOMPANYING HYDRAULIC CALCULATIONS ARE DESIGNED IN COMPLIANCE WITH NFPA 13D 2016 EDITION.
5. "STAND-ALONE" OR "MULTIPURPOSE, WET PIPE" SYSTEMS ARE NOT PERMITTED TO USE ANTI-FREEZE.
6. MODIFICATIONS ARE PROHIBITED. SPRINKLERS THAT HAVE BEEN PAINTED, CAULKED, MODIFIED OR DAMAGED MUST BE REPLACED.
7. WATER SHUT OFF VALVE IS NOT PERMITTED THAT ISOLATES THE SPRINKLER SYSTEM.
8. OWNERS MANUAL MUST BE PROVIDED TO THE OWNER.
9. AT THE MAIN SHUT OFF VALVE, A TAG OR A SIGN STATING THE FOLLOWING IS REQUIRED: "WARNING, THE WATER SYSTEM FOR THIS HOME SUPPLIES FIRE SPRINKLERS THAT REQUIRE CERTAIN FLOWS AND PRESSURES TO FIGHT A FIRE. DEVICES THAT RESTRICT THE FLOW OR DECREASE THE PRESSURE OR AUTOMATICALLY SHUT OFF THE WATER TO THE FIRE SPRINKLER SYSTEM, SUCH AS WATER SOFTENERS, FILTRATION SYSTEMS AND AUTOMATIC SHUT OFF VALVES, **SHALL NOT BE ADDED TO THIS SYSTEM** WITHOUT REVIEW OF THE FIRE SPRINKLER SYSTEM BY A FIRE PROTECTION SPECIALIST. **DO NOT REMOVE THIS SIGN**".
10. ALL INTERIOR PIPING TO BE UPONOR "AquaPEX®" UNLESS NOTED.
11. UPONOR "AquaPEX" TUBING TO BE SUPPORTED PER NFPA 13D AND MANUFACTURER'S RECOMMENDATIONS.
12. MINIMUM SPACING BETWEEN SPRINKLERS IS 8'-0" REFER TO SPACING CHARTS FOR MAXIMUM SPACING BETWEEN SPRINKLERS AND FROM WALLS. SPRINKLER HEAD MANUFACTURERS MAY HAVE MORE RESTRICTIVE SPACING LIMITATIONS.
13. SPRINKLERS ARE NOT NECESSARILY CENTERED IN ROOMS DUE TO LIGHT FIXTURES OR OTHER CEILING MOUNTED OBSTRUCTIONS.
14. THE PLUMBING TIE IN CONNECTIONS ARE SCHEMATIC IN NATURE AND CAN BE INSTALLED OFF THE SPRINKLER LOOP ANYWHERE BETWEEN SPRINKLER TO SPRINKLER CONNECTION.
15. THIS SUGGESTED LAYOUT IS BASED UPON INFORMATION PROVIDED BY OTHERS. CHANGES IN CONSTRUCTION OR FIELD CONDITIONS MAY OCCUR WHICH MAY REQUIRE CHANGES TO THE LAYOUT. IT IS THE RESPONSIBILITY OF THE INSTALLER TO NOTIFY UPONOR TECHNICAL SERVICES OF SUCH CHANGES.
16. NFPA 13D 8.2.5* OBSTRUCTIONS TO RESIDENTIAL SPRINKLERS
 - 8.2.5.6* SHADOW AREAS SHALL BE PERMITTED IN THE PROTECTION AREA OF A SPRINKLER AS LONG AS THE CUMULATIVE DRY AREAS DO NOT EXCEED 15 FT² PER SPRINKLER.
 - 8.2.5.7 SMALL AREAS CREATED BY ARCHITECTURAL FEATURES, SUCH AS PLANTER BOX WINDOWS, BAY WINDOWS, AND SIMILAR FEATURES, SHALL BE EVALUATED AS FOLLOWS:
   (1) WHERE NO ADDITIONAL FLOOR AREA IS CREATED BY THE ARCHITECTURAL FEATURE, NO ADDITIONAL SPRINKLER PROTECTION IS REQUIRED.
   (2) WHERE ADDITIONAL FLOOR AREA IS CREATED BY AN ARCHITECTURAL FEATURE, NO ADDITIONAL SPRINKLER PROTECTION IS REQUIRED, PROVIDED ALL OF THE FOLLOWING CONDITIONS ARE MET:
     (a) THE FLOOR AREA SHALL NOT EXCEED 18 FT² (1.7 M²)
     (b) THE FLOOR AREA SHALL NOT BE GREATER THAN 2 FT IN DEPTH AT THE DEEPEST POINT OF THE ARCHITECTURAL FEATURE TO THE PLANE OF THE PRIMARY WALL WHERE MEASURED ALONG THE FINISHED FLOOR.
     (c) THE FLOOR SHALL NOT BE GREATER THAN 9FT IN LENGTH WHERE MEASURED ALONG THE PLANE OF THE PRIMARY WALL.
     (d) MEASURED FROM THE DEEPEST POINT OF THE ARCHITECTURAL FEATURE TO THE SPRINKLER SHALL NOT EXCEED THE MAXIMUM LISTED SPACING OF THE SPRINKLER.
   (3) THE HYDRAULIC DESIGN SHALL NOT BE REQUIRED TO CONSIDER THE AREA CREATED BY THE ARCHITECTURAL FEATURE.
17. NFPA 13D 8.3 LOCATION OF SPRINKLERS.
 - 8.3.1 SPRINKLERS SHALL BE INSTALLED IN ALL AREAS EXCEPT WHERE OMISSION IS PERMITTED BY 8.3.2 THROUGH 8.3.8.
 - 8.3.2 SPRINKLERS SHALL NOT BE REQUIRED IN BATHROOMS OF 55 FT² (5.1 M²) AND LESS
 - 8.3.3 SPRINKLERS SHALL NOT BE REQUIRED IN CLOTHES CLOSETS, LINEN CLOSETS, AND PANTRIES THAT MEET ALL OF THE FOLLOWING CONDITIONS:
   (1) THE AREA OF THE SPACE DOES NOT EXCEED 24 FT² (2.2 M²).
   (2) THE WALLS AND CEILINGS ARE SURFACED WITH NONCOMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIALS AS DEFINED IN NFPA 220, STANDARD ON TYPES OF BUILDING CONSTRUCTION.
 - 8.3.4* SPRINKLERS SHALL NOT BE REQUIRED IN GARAGES, OPEN ATTACHED PORCHES, CARPORTS, AND SIMILAR STRUCTURES
 - 8.3.5 SPRINKLERS SHALL NOT BE REQUIRED IN ATTICS WITH OR WITHOUT STORAGE, PENTHOUSE EQUIPMENT ROOMS, ELEVATOR MACHINE ROOMS, CONCEALED SPACES DEDICATED EXCLUSIVELY TO AND CONTAINING ONLY DWELLING UNIT VENTILATION EQUIPMENT, FLOOR/CEILING SPACES, ELEVATOR SHAFTS, CRAWL SPACES, AND OTHER CONCEALED SPACES THAT ARE NOT USED OR INTENDED FOR LIVING PURPOSES.
 - 8.3.5.1 SUCH SPACES THAT CONTAIN FUEL-FIRED EQUIPMENT SHALL ALSO COMPLY WITH 8.3.5.1.1 OR 8.3.5.1.2.
 - 8.3.5.1.1 WHERE THE FUEL-FIRED EQUIPMENT IS ABOVE ALL OF THE OCCUPIED AREAS OF THE DWELLING UNIT, NO SPRINKLER PROTECTION SHALL BE REQUIRED IN THE CONCEALED SPACE.
 - 8.3.5.1.2 WHERE FUEL-FIRED EQUIPMENT IS BELOW OR ON THE SAME LEVEL AS OCCUPIED AREAS OF THE DWELLING UNIT, AT LEAST ONE QUICKRESPONSE INTERMEDIATE TEMPERATURE SPRINKLER SHALL BE INSTALLED ABOVE THE EQUIPMENT OR AT THE WALL SEPARATING THE SPACE WITH THE FUEL-FIRED EQUIPMENT FROM THE OCCUPIED SPACE.
 - 8.3.6 SPRINKLERS SHALL NOT BE REQUIRED IN COVERED, UNHEATED PROJECTIONS OF THE BUILDING AT ENTRANCES/EXITS AS LONG AS THE DWELLING UNIT HAS ANOTHER MEANS OF EGRESS.
 - 8.3.7 SPRINKLERS SHALL NOT BE REQUIRED FOR CEILING POCKETS THAT MEET THE FOLLOWING CONDITIONS:
   (1) THE TOTAL VOLUME OF ALL UNPROTECTED CEILING POCKETS IN A COMPARTMENT DOES NOT EXCEED 100 FT³ (2.83 M³).
   (2) THE ENTIRE FLOOR UNDER THE UNPROTECTED CEILING POCKET IS PROTECTED BY THE SPRINKLERS AT THE LOWER CEILING ELEVATION.
   (3)* THE INTERIOR FINISH OF THE UNPROTECTED CEILING POCKET EXCLUDING DECORATIVE TREATMENTS IS NONCOMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIAL.
   (4) SKYLIGHTS NOT EXCEEDING 32 FT² (2.97 M²) SHALL BE PERMITTED TO HAVE A PLASTIC COVER.
 - 8.3.8 SPRINKLERS SHALL NOT BE REQUIRED IN CLOSETS IN GARAGES AND EXTERIOR CLOSETS (REGARDLESS OF SIZE) LOCATED ON EXTERIOR BALCONIES, EXTERIOR BREEZEWAYS/CORRIDORS, OR ACCESSED FROM OUTDOORS WHERE THE CLOSET DOES NOT HAVE DOORS OR UNPROTECTED PENETRATIONS DIRECTLY INTO THE DWELLING UNIT.
 - 8.3.9 SPRINKLERS SHALL BE INSTALLED IN ANY CLOSET USED FOR HEATING AND/OR AIR-CONDITIONING EQUIPMENT, WASHERS AND/OR DRYERS, OR WATER HEATERS EXCEPT AS ALLOWED BY 8.3.8.
18. INSULATION GUIDE LINES PER NFPA 13D.
 - 9.1.1* WET PIPE SYSTEMS IN AREAS ABOVE 40°F. A WET PIPE SYSTEM SHALL BE PERMITTED TO BE TO BE USED WHERE ALL PIPING IS INSTALLED IN AREAS MAINTAINED ABOVE 40°F, INCLUDING AREAS PROPERLY INSULATED TO MAINTAIN 40°F.
 - A.9.1.1 IN AREAS SUBJECT TO FREEZING, CARE SHOULD BE TAKEN IN UNHEATED ATTIC SPACES TO COVER SPRINKLER PIPING COMPLETELY WITH INSULATION. INSTALLATION SHOULD FOLLOW THE GUIDELINES OF THE INSULATION MANUFACTURER. FIGURE A.9.1.1(A) THROUGH FIGURE A.9.1.1(F) SHOW SEVERAL METHODS THAT CAN BE CONSIDERED. THESE ARE FOR ILLUSTRATIVE PURPOSES ONLY. CONSULTATION WITH THE GENERAL CONTRACTOR AND/OR OWNER IS RECOMMENDED TO ENSURE PROPER METHODS AND MATERIALS ARE USED TO MAKE SURE 40°F WILL BE MAINTAINED.

Senju RC-RES: Open Web Truss/TJI Construction

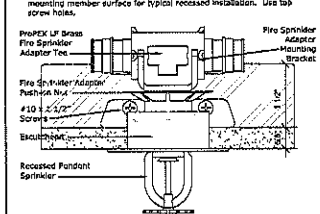


Senju RC-RES: Traditional Wood Framing Construction



Recessed Assembly Sprinkler Placement

Align bottom of fire sprinkler mounting bracket to bottom of mounting member surface for typical recessed installation. Use top screw holes.



Insulation Recommendations

In areas subject to freezing, care should be taken in unheated attic spaces to cover Uponor AquaPEX tubing completely with insulation. Insulation should follow the guidelines of the insulation manufacturer. See Uponor Document "**Uponor AquaSAFE Attic Insulation Guidelines**" for attic installation guidelines (Provided in Contractors Documents package or online at www.Uponorpro.com).

Extreme Temperature Installations

AquaSAFE Residential Fire Safety systems are often installed in attics or other areas exposed to temperature extremes of heat and/or cold. Follow the recommended extreme weather installation instructions to isolate and protect system components from extreme temperatures. Because this system also delivers domestic cold water directly to plumbing fixtures, Uponor highly recommends that you protect the tubing with adequate insulation in warm weather areas to minimize heating of the cold water supply.

Installation methods include, but are not limited to:

- Tenting over the fire sprinkler piping.
- Additional layers of batt insulation.
- Increased depth of blown-in insulation.

Caution: If you will be installing spray foam insulation, make sure to protect all components during application. Consult with the spray foam manufacturer to ensure compatibility with all products before application.

Consultation with local building officials is encouraged to ensure compliance with local building codes.

Bending PEX Tubing

The minimum bend radius of Uponor PEX tubing in any direction is six times the outside diameter (6 x OD).
Bend supports are available for 3/8", 1/2", 3/4" and 1" Uponor AquaPEX tubing to facilitate 90-degree rigid bends.

Recommended Tubing Length Between Fittings	
Fitting Size	**Minimum Tubing Length**
3/8" ProPEX Fitting	2"
1/2" ProPEX Fitting	2 1/2"
3/4" ProPEX Fitting	3 1/2"
1" ProPEX Fitting	4 1/2"
1 1/4" ProPEX Fitting	5 1/2"

Exposed Installation Requirements.

Uponor AquaPEX™ tubing (white) and ProPEX™ EP Fittings and ProPEX™ Brass Fittings are approved for exposed installation where the following conditions are met. (UL 1821 Approved)

Exposed Wood Joist Ceiling Assemblies.

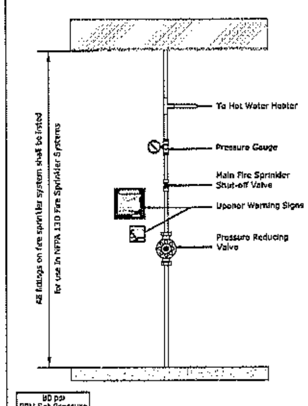
1. Joists are of dimensional lumber, engineered wood, wood I-joist or open web wood joists.
2. Joist are of depths from 6-16 inches (152-204 mm).
3. Joist are of spacing from 12-24 inches (305-610 mm) on center.
4. Joists can be exposed after installation.
5. Metal pipe hangers spaced at maximum 24 inches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

Metal Tubing Support.

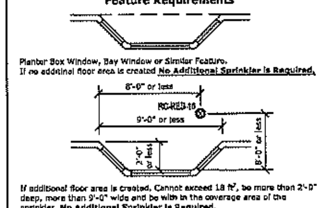
1. Metal tubing supports designed for plastic tubing shall be used.
2. Do not use supports that will damage the tubing. Inspect metal supports for sharp edges.
3. Do not rigidly anchor Uponor AquaPEX™ tubing with supports. Allow enough tubing for freedom of movement to expand and contract.

High Upstream Pressure

If the upstream pressure exceeds 80 psi a pressure reducing valve may need to be installed. Some jurisdictions may require a pressure reducing valve regardless of upstream pressure.



See General Notes 8.2.5.7 for Architectural Feature Requirements

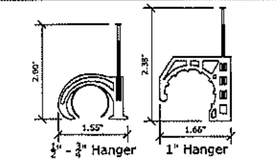


Planter Box Window, Bay Window or Similar Feature.
If no additional floor area is created **No Additional Sprinkler is Required.**

If additional floor area is created. Cannot exceed 18 ft², be more than 2'-0" deep, more than 9'-0" wide and be with in the coverage area of the sprinkler. **No Additional Sprinkler is Required.**

NFPA 13D Table 7.5.5.3 Distances From Heat Sources

Heat Source	Ordinary Temp. 135°-170°	Intermediate Temp. 175°-225°
Side of Fireplace	36"	12"
Front of Fireplace	60"	36"
Wood Burning Stove	42"	12"
Kitchen Range	18"	9"
Wall Oven	18"	9"
Hot Air Flues	18"	9"
Uninsulated Heat Ducts	18"	9"
Uninsulated Hot Water Pipes	12"	6"
Side of Hot Air Diffuser	24"	12"
Front of Hot Air Diffuser	36"	18"
Hot Water Heater	6"	3"
Furnace	6"	3"
50W-250W Light Fixture	6"	3"
250W-499W Light Fixture	12"	6"



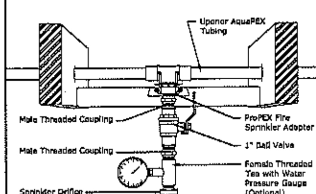
Tubing Support Spacing:

(Anchor AquaPEX Tubing Securely Enough to Support the Tubing, Yet Relaxed Enough to Allow the Tubing to Expand and Contract)

1. Along Horizontal Runs, Install Supports Every 32". If Horizontal Runs are Continuously Supported, Place Tubing Supports at Six-Foot Intervals.
2. Along Vertical Runs, Install Supports Every Four to Five Feet, at Each Floor and at a Mid-story Guide.

In-line Flow Test

The In-line Flow Test can be constructed on site. It performs a flow test to ensure proper system operation and flow (see Figure F001-3).



Flow Test

To ensure the system provides enough water for proper fire sprinkler performance, you should conduct a flow verification test.

Note: The NFPA 13D Installation Standard does not require flow verification.

Before performing a flow verification test, confirm the water pressures by contacting the Water and Sewer Department of your local city. Ensure the available water pressure matches the pressure used in the system design.

Note: The sprinkler plan indicates the most hydraulically remote sprinkler (or pair of sprinklers). For test requirements on other sprinklers, consult your local code.

Note: It is a good idea to notify the fire inspector at least 24 hours prior to performing a flow verification test. This may speed up the inspection process and eliminate the need to repeat the test for the inspector.

Note: See "**AquaSAFE Flow Test Instruction Sheet**" (Provided in Contractors Documents package or online at www.Uponorpro.com) for more information on Flow Test Setup, Assembly, Performing the Test and Troubleshooting. If there are any questions please contact Uponor.

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DISCLAIMER

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SALES REP:

55 RIVERVIEW STREET

PORTLAND, ME 04102

PROJECT NUMBER:	19010F	COMPANY:	BRIAN JOHNSON P&H
DRAWN BY:	BRENT KOTULA, SET IV	CONTACT:	BRIAN JOHNSON
CHECKED BY:	MELISA RODRIGUEZ	CONTACT PH. NUMBER:	207-468-8077
DESIGN LINE:	SET IV	ALLIANCE ID:	1472
CUSTOMER NUMBER:	116632	PLOT DATE:	8/19/16
SQUARE FEET:	1926 SQ. FT.	SHEET SCALE:	3/4" = 1'-0"

REVISIONS

NO.	DATE	DESCRIPTION

SHEET DESCRIPTION
GENERAL NOTES & DETAILS

SHEET NUMBER
F001

\\WAWAVS0111\Wsdesign\Archive\US\TechService\2016\19010 Riverview Street\19010F\Uponor Drawing & Calcs\19010F 55 Riverview Street.dwg 08/19/16 - 10:34 am