

# XHEZ.F-A-2221 - Through-penetration Firestop Systems

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

## XHEZ - Through-penetration Firestop Systems

## XHEZ7 - Through-penetration Firestop Systems Certified for Canada

See General Information for Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems Certified for Canada

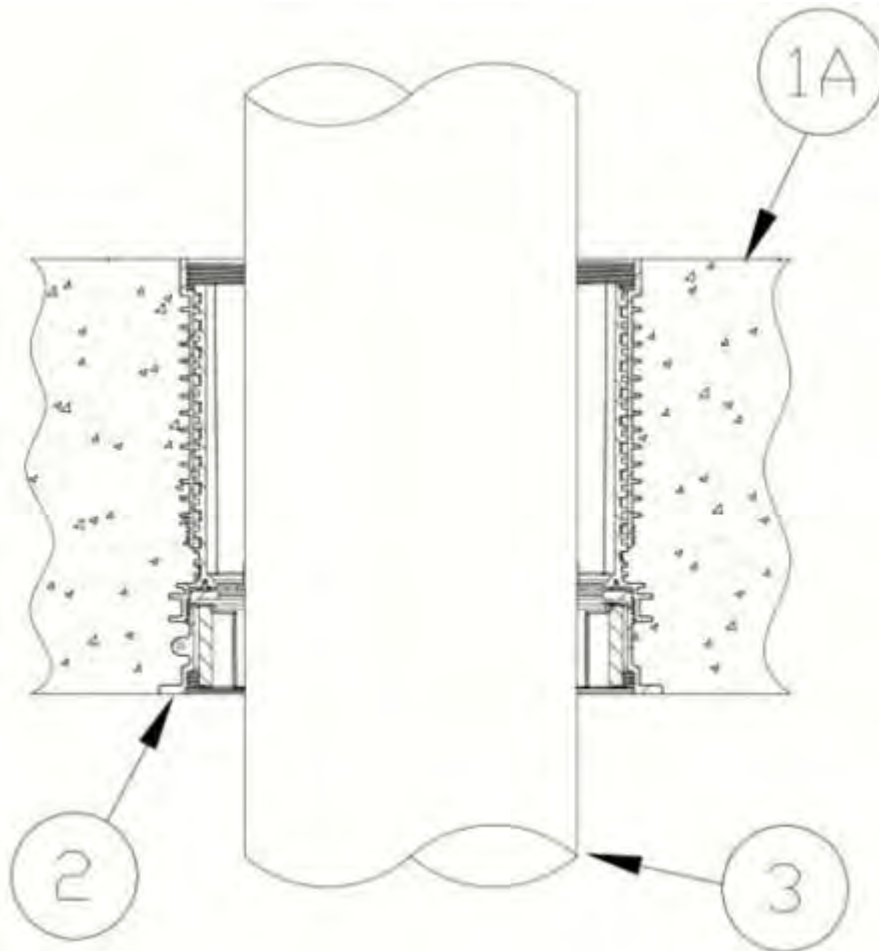
### System No. F-A-2221

June 24, 2020

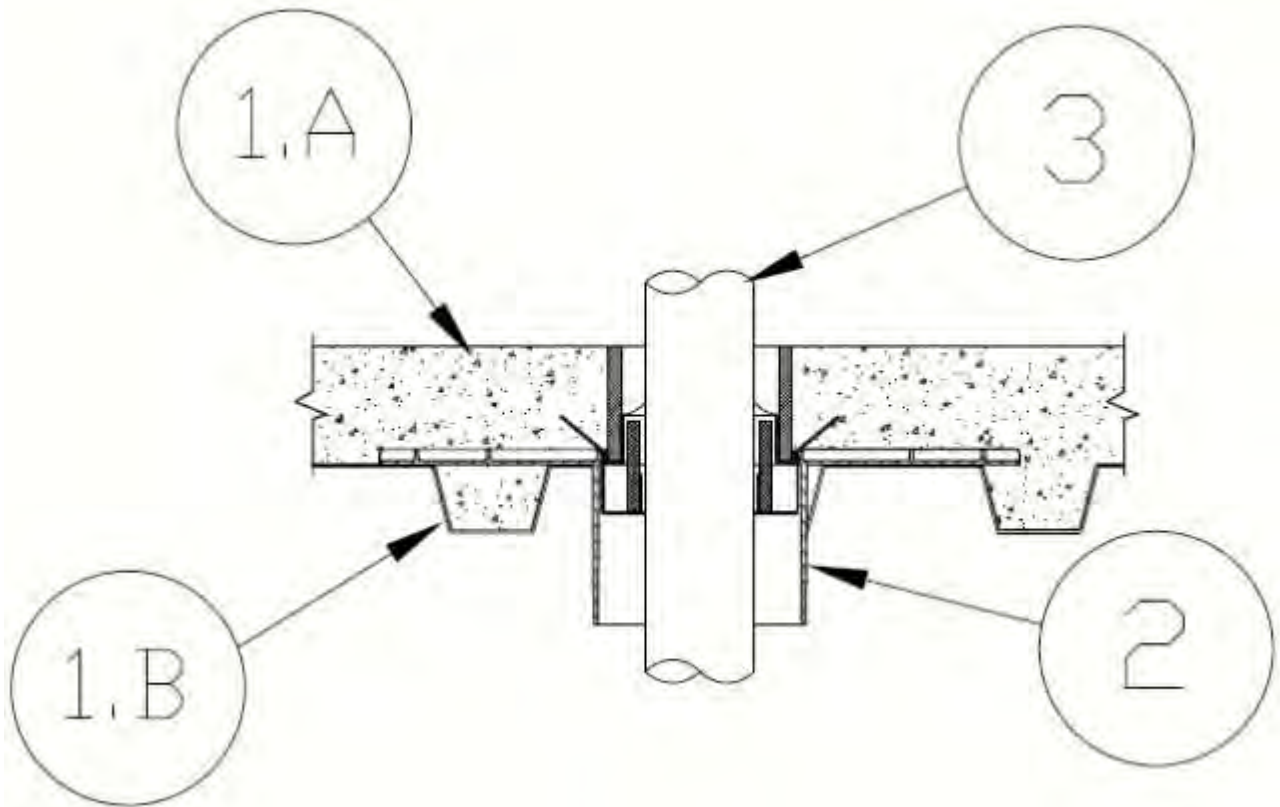
**ANSI/UL1479 (ASTM E814)**

**CAN/ULC S115**

F Ratings — 2 and 3 Hr (See Item 3)	F Ratings — 2 and 3 Hr (See Item 3)
T Ratings — 0 and 3 Hr (See Item 3)	FT Ratings — 0 and 3 Hr (See Item 3)
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Ratings — 2 and 3 Hr (See Item 3)
L Rating At 400 F — Less Than 1 CFM/sq ft	FTH Ratings — 0 and 3 Hr (See Item 3)
W Rating — Class 1 (See Item 4 and 5 and table)	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft



Configuration A



Configuration B

**System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.**

**Config B only. System tested with a pressure differential of 50 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side .**

1. **Floor Assembly** — The fire-rated concrete and fluted steel deck floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:

A. **Concrete** — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete topping, as measured over crests of fluted floor units and over top of device base.

B. **Steel Floor and Form Units\*** — Composite or noncomposite nom 3 in. (76 mm) deep fluted galv units as specified in the individual Floor-Ceiling design. Diam of opening cut through fluted floor unit to be maximum 1/4 in. (6 mm) larger than outside diameter of bottom extension portion of firestop device base.

1A. **Floor Assembly** — (As an alternate to item 1) — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete measured over top of device base.

2. **Firestop Device\*** — Cast in place firestop device permanently embedded during concrete placement or grouted in concrete assembly in accordance with accompanying installation instructions. The device shall be installed flush with top and bottom surfaces of floor. For Conf A HFP devices and optional accessories (not shown) includes sleeve extension, water module, aerator adapter, deck adapter and/or water dam installed in accordance with installation instructions. For Conf B devices, optional accessory (not shown) includes aerator adapter installed in accordance with the installation instructions. The devices are sized to accommodate the following nom pipe sizes:

<b>Nom Pipe Diam in. (mm)</b>	<b>Conf A Firestop Devices Concrete Slab (Shown)</b>	<b>Conf A Firestop Devices Concrete Fluted Deck (Not Shown)</b>	<b>Conf B Firestop Devices Concrete Slab (Not Shown)</b>	<b>Conf B Firestop Devices Concrete Fluted Deck Shown</b>
1/2 to 1-1/4* (13 to 32*)	HFP-P1, HFP-P1B	add HFPCD1	WD-PL-0200, OPS-PL-0100	CD-PL-0200, CD-OPS-PL-0100
1-1/4 to 2 (32 to 51)	HFP-P2, HFP-P2B	add HFPCD2	WD-PL-0300, OPS-PL-0200	CD-PL-0300, CD-OPS-PL-0200
2 to 3 (51 to 76)	HFP-P3, HFP-P3B	add HFPCD3	WD-PL-0400, OPS-PL-0300	CD-PL-0400, CD-OPS-PL-0300
3 to 4 (76 to 102)	HFP-P4, HFP-P4B	add HFPCD4	WD-PL-0500, OPS-PL-0400	CD-PL-0500, CD-OPS-PL-0400
4 to 5 (102 to 127)	HFP-P5, HFP-P5B	add HFPCD5	NA	NA
5 to 6 (127 to 152)	HFP-P6, HFP-P6B	add HFPCD6-DC	WD-PL-0800, OPS-PL-0600	CD-PL-0800, CD-OPS-PL-0600

\*Refer to W & L Rating table below

Penetrant diameters are allowed up to two even device sizes smaller than permitted in the table above, the use of Items 4B and 5 is required.

**HOLDRITE** — HydroFlame CD-PL, HydroFlame CD-OPS-PL,WD-PL, OPS-PL, HydroFlame HFP-Px and HFP-PxB

3. **Through Penetrant** — One nonmetallic pipe or conduit to be installed within the firestop device. Pipe or conduit to be installed in accordance with firestop device installation instructions and rigidly supported on both sides of floor assembly. The following types of pipe, conduit or tubing may be used:

A. **Polyvinyl Chloride (PVC) Pipe** — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

A1. **Polyvinyl Chloride (PVC) Pipe** — As an alternate to Item A, Nom 6 in. (152 mm) diam (or smaller) solid or cellular core Schedule 40 polyvinyl chloride (PVC) pipe.

**IPEX INC** — System 15 piping

**When nom 5 in. or 6 in. (127 to 152 mm) diam PVC pipe is used, F Rating is 2 hr (HFP devices only, F rating is 3 hr) and T Rating is 0. When max 4 in. (102 mm) diam PVC pipe is used, F Rating is 3 hr and T Rating is 3 hr.**

B. **Rigid Nonmetallic Conduit+** — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70). **When nom 5 in. or 6 in. (127 or 152 mm) diam PVC conduit is used, F Rating is 2 hr (HFP devices only, F Rating is 3 hr) and T Rating is 0 hr. When max 4 in. (102 mm) diam PVC conduit is used, F Rating is 3 hr and T Rating is 3 hr.**

C. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 6 in. (152 mm) diam (or smaller) SDR 13.5 (or heavier) or Schedule 40 CPVC pipe for use in closed (process or supply) piping systems.

C1. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — As an alternate to Item C Nom 6 in. (152 mm) diam (or smaller) SDR 13.5 CPVC for use in closed (process or supply) piping systems.

**IPEX INC** — AquaRise

**When nom 5 in. or 6 in. (127 or 152 mm) diam CPVC pipe is used, F Rating is 2 hr (HFP devices only, F Rating is 3 hr) and T Rating is 0 hr. When max 4 in. (102 mm) diam CPVC pipe is used, F Rating is 3 hr and T Rating is 3 hr.**

D. **Acrylonitrile Butadiene Styrene (ABS) Pipe** — Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. **When max 4 in. (102 mm) diam ABS pipe is used, F Rating is 3 hr and T Rating is 3 hr.**

E. **Cross-Linked Polyethylene (PEX) Tubing** — Nom 2 in. (51 mm) diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems. (HFP series devices only) Nom 3 in. (76 mm) diam (or smaller) SDR PEX tubing in closed (process or supply) piping systems. **When max 3 in. (51 mm) diam PEX pipe is used, F Rating is 3 hr and T Rating is 3 hr.**

E1. **Sharkbite PEX Pipe** — As an alternate to Item E, Nom 2 in. (51 mm) diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems. (HFP series devices only) Nom 3 in. (76 mm) diam (or smaller) SDR PEX tubing in closed (process or supply) piping systems. **When max 3 in. (51 mm) diam PEX pipe is used, F Rating is 3 hr and T Rating is 3 hr.**

F. **Polypropylene (PP) Pipe (for use with HFP series devices only)** — — Nom 3 in. (76 mm) diam (or smaller) Aquatherm SDR 7.4 or 11 PP pipe for use in closed (process or supply) piping systems. **When max 3 in. (76 mm) diam AquaTherm PP pipe is used, F Rating is 3 hr and T Rating is 3 hr.**

F1 **Nupi - Niron PP-RCT Pipe** — As an alternate to Item F, Nom 3 in. (76 mm) diam (or smaller) Aquatherm SDR 7.4 or 11 PP pipe for use in closed (process or supply) piping systems. **When max 3 in. (76 mm) diam Niron PP-RCT pipe is used, F Rating is 3 hr and T Rating is 3 hr.**

4. **Packing Material** — (Optional, Not Shown) — Min 2 in. (51 mm) depth of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation tightly-packed into annular space with its top surface flush with the top surface of the floor. When optional sealant (Item 5) is used, top surface of packing material to be recessed min 1/4 in. (6 mm) from top surface of floor.

4A. **Packing Material** — (Optional instead of 4, Not Shown) — Foam backer rod firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor as required to accommodate the required thickness of fill material.

4B. **Packing Material** — (Optional instead of Item 4, Not Shown) — For Configuration A only. When penetrant diameters are smaller than the device size range in the table above, Min. 3-3/4 in. depth from floor surface or to fullest extent possible to top of inner seal of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation tightly-packed into annular space between penetrant and device, flush with the top surface of the floor. When optional sealant (Item 5) is used, top surface of packing material to be recessed min 1/4 in. (6 mm) from top surface of floor.

5. **Fill, Void or Cavity Material\* — Sealant** — (Optional, Not Shown) — Min 1/4 in. (6 mm) thickness of sealant applied within the annulus, flush with the top surface of floor. A Min 1/2 in. (13 mm) thickness of sealant applied within the annulus, flush with the top surface of floor to attain W-Rating. Conf B (Only), Sealant to lap min 1/2 in. (13 mm) onto top surface of concrete around perimeter of firestop device. As an alternate when sealant is optional 100% silicone sealant can be used.

**For Configuration A (ONLY), the W Rating and L Ratings apply according to the Table below.**

Device size	Penetrant with (IPS) Diam in. (mm)	Penetrant with (CTS) Diam in. (mm)	W RATING	L Rating
HFP-x1, HFP-x1B	1/2 to 1 (13 to 25)	1/2 to 1-1/4 (13 to 32)	YES	YES
HFP-x2, HFP-x2B	1-1/4 to 2 (32 to 51)	1-1/2 to 2 (38 to 51)	YES	YES
HFP-x2, HFP-x2B	N/A	1-1/4 (32)	YES, with Items 4 or 4A& 5 Above	YES, with Items 4 or 4A& 5 Above
HFP-x3, HFP-x3B	2 to 3 (51 to 76)	2-1/2 to 3 (64 to 76)	YES	YES
HFP-x3, HFP-x3B	N/A	2 (51)	YES, with Items 4 or 4A & 5 Above	YES, with Items 4 or 4A & 5 Above
HFP-x4, HFP-x4B	3 to 4 (76 to 102)	3-1/2 to 4 (89 to 102)	YES	YES
HFP-x4, HFP-x4B	N/A	3 (76)	YES, with Items 4 or 4A & 5 Above	YES, with Items 4 or 4A & 5 Above
HFP-x5, HFP-x5B	4 to 5 (102 to 127)	5 (127)	YES	YES
HFP-x5, HFP-x5B	N/A	4 (102)	YES, with Items 4 or 4A & 5 Above	YES, with Items 4 or 4A & 5 Above
HFP-x6, HFP-x6B	5 to 6 (127 to 152)	6 (152)	YES	YES
HFP-x6, HFP-x6B	N/A	5 (127)	YES, with Items 4 or 4A & 5 Above	YES, with Items 4 or 4A & 5 Above

Note: IPS is Iron pipe diameter standard and CTS is Copper tube diameter standard/

If inner seal is torn or compromised in any way, Items 4 and Item 5 can be used to achieve W and L Ratings. When the penetrant is smaller than the device range sealant (Item 5) must be used to obtain W and L Rating

**For Configuration B (ONLY), W Rating and L Ratings apply only when packing material (Item 4), and (Item 5) sealant are used.**

**RELIANCE WORLDWIDE CORPORATION DBA HOLDRITE HYDROFLAME** — HydroFlame 100, HydroFlame 200, HydroFlame 300SL, HydroFlame 300 CG

**\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

+Bearing the UL Listing Mark

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