

5/26/22, 11:04 AM iq.ulprospector.com_en/profile_XHEZ.W-L-2649 - Through-penetration Firestop Systems | UL Product IQ

UL Product IQ®

XHEZ.W-L-2649 - 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.

Through-penetration Firestop Systems

XHEZ - Through-penetration Firestop Systems

[See General Information for Through-penetration Firestop Systems](#)

System No. W-L-2649

August 2, 2021

F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 1 and 2 Hr (See Item 1)
L Rating At Ambient - 1.2 CFM/sq ft
L Rating At 400°F - Less Than 1 CFM/sq ft

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SECTION A-A

The hourly F and T Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

2. Gypsum Board* — One or two layers of nom 5/8 in. (16 mm) thick gypsum board, as specified in the individual Wall and Partition Design. Maximum diam of opening is 8 in. (203 mm).

3. Steel Sleeve — Cylindrical sleeve fabricated from min 0.016 in. (0.41 mm) thick galv sheet steel (28 gauge or heavier) and having a min 1 in. (25 mm) lap along the longitudinal seam. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the opening and releasing the coil. The ends of the steel sleeve shall be flush with each surface of the wall. Gypsum board compound shall be used at end of sleeve to finish any gaps between sleeve and cut edge of gypsum board at both sides of wall.

4. Through Penetrants — One nonmetallic pipe to be installed concentrically or eccentrically within the firestop system. Annular space within the firestop system is dependent upon the max diam and type of penetrant used as tabulated in Item 4A. Pipe to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes may be used:
A. Polypropylene Random (PP-R) Pipe — Nom 6 in. (160 mm) diam (or smaller) Cosmoplast PP-R SDR 6 pipe for use in closed (process or supply) piping systems.

B. Polypropylene Random (PP-R) Pipe — Nom 6 in. (160 mm) diam (or smaller) Coprac PP-R SDR 6 pipe for use in closed (process or supply) piping systems.

C. Polypropylene Random (PP-R) Pipe — Nom 6 in. (160 mm OD) diam (or smaller) Aquatherm Greenpipe PP-R SDR 7.4 and SDR 11 pipe for use in closed (process or supply) piping systems.

D. High Density Polyethylene (HDPE) Pipe — Nom 6 in. (152 mm) diam (or smaller) SDR11 HDPE pipe for use in closed (process or supply) piping systems.

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E. Polypropylene (PP-RCT) Pipe — Nom 6 in. (160 mm OD) diam (or smaller) Aquatherm Bluepipe PP-R SDR 9 or 11 pipe for use in closed (process or supply) piping systems.

F. Polypropylene (PP-RCT) Pipe — Nom 6 in. (160 mm OD) diam (or smaller) Nupi Americas Niron pipe PP-R SDR 7.3, 9 or 11 pipe for use in closed (process or supply) piping systems.

G. Polypropylene (PP-RCT) Pipe — Nom 6 in. (160 mm OD) diam (or smaller) Aquatech NA Fusion-Tech pipe PP-R SDR 7.4 or 11 pipe for use in closed (process or supply) piping systems.

H. Polypropylene (PP-RCT) Pipe — Nom 6 in. (160 mm OD) diam (or smaller) Uponor pipe PP-R SDR 9 or 11 pipe for use in closed (process or supply) piping systems.

4. Firestop System — The firestop system shall consist of the following:
A. Fill, Void or Cavity Material* — **Wrap Strip** — Nom 3/16 in. (4.8 mm) thick by 1-3/4 in. (44 mm) wide intumescent wrap strip. Layers of wrap strip are continuously wrapped around the pipe with ends tightly butted and held in place with tape. Wrap strip installed within the opening at each side of wall and recessed from both surfaces of wall to accommodate the required thickness of sealant (item 4B). The number of layers for a given size penetrant is shown in table below:
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP648-E W45/1-3/4" Firestop Wrap Strip

Max Pipe Size, in. (mm)	Max Opening Diam, in. (mm)	Annular Space Min, in. (mm)	Annular Space Max, in. (mm)	Number of Layers
3 (90)	4-1/2 (114)	3/16 (4.8)	3/4 (19)	1
4 (110)	6 (152)	3/8 (10)	1-1/8 (29)	2
6 (160)	8 (203)	9/16 (14)	1-3/16 (30)	3

Metric dimensions shown for pipes (items 3A, 3B and 3C) in parenthesis are actual metric OD's marked on pipe.

B. Fill, Void or Cavity Material* — **Sealant** — Min 1/4 in. (6 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. For L Rating, the sealant shall extend over the edge of sleeve and lap onto the gypsum wall surface at both sides of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant

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

Last Updated on 2021-08-02

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6C A617 FIRE STOP - WALLS - FRAMED WALLS - NONMETALLIC PIPE CONDUIT TUBING - F 1HR&2HR - T 1HR&2HR - L 5 - HILTI - XHEZ.W-L-2649
12" = 1'-0"

5/29/22, 8:39 AM iq.ulprospector.com_en/profile_XHEZ.W-L-8081 - Through-penetration Firestop Systems | UL Product IQ

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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. W-L-8081

January 28, 2015

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 and 2 Hr (See Item 1)	F Rating — 1 and 2 Hr (See Item 1)
T Rating — 0 and 1 Hr (See Item 1)	FT Rating — 0 and 1 Hr (See Item 1)
	FH Rating — 1 and 2 Hr (See Item 1)
	FTH Rating — 0 and 1 Hr (See Item 1)

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Section A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

B. Gypsum Board* — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 6 in. (152 mm).

The hourly F, FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T, FT, FTH Ratings of the firestop system are 0 hr for 1 hr fire rated wall assemblies and 1 hr for 2 hr fire rated wall assemblies.

2. Air Conditioning (AC) Line Set — Max of three AC line sets bundled within the opening. Each line set consists of one metallic pipe, one insulated metallic pipe and one electrical cable. The aggregate cross-sectional area of the penetrants does not exceed 84 percent of the cross-sectional area of the wall opening. The annular space between the penetrants and the periphery of opening shall be min 0 in. (point contact) to max 1-1/2 in. (38 mm). Penetrants to be rigidly supported on both sides of wall assembly.

2A. Metallic Pipes — The following types and sizes of metallic pipes, conduits or tubing may be used:
A. Steel Pipe — Nom 1 in. (25 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.

B. Iron Pipe — Nom 1 in. (25 mm) diam (or smaller) cast or ductile iron pipe.

C. Conduit — Nom 1 1/2 in. (38 mm) diam (or smaller) steel conduit or EMT.

D. Copper Pipe or Tube — Nom 1 in. (25 mm) diam (or smaller) Type 1 (or heavier) copper tube or Regular (or heavier) copper pipe.

2B. Cables — Max 4 pair No. 18 AWG (or smaller) thermostat cable with PVC insulation and jacket.

2C. Pipe Covering — The following pipe covering shall be used with the metallic pipes (Types 2A, 2B and 2D only) having a nom diam greater than 1/2 in. (13 mm):
A. Tube Insulation - Plastics* — Nom 1 in. (25 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing.
See **Plastics (QMFZ2)** category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.

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3. Firestop System — The details of the firestop system shall be as follows:
A. Fill, Void or Cavity Material* - Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly. Fill material forced into grouped penetrant interstices to max extent possible within opening.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

B. Fill, Void or Cavity Material* — **Wrap Strip** — Nom 3/16 in. (5 mm) thick by 1-3/4 in. (44 mm) wide intumescent wrap strip. Wrap strip is continuously wrapped around the outer circumference of bundled penetrants two times with ends butted and held in place with tape. Wrap strip installed flush with both surfaces of wall assembly.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP648-E W25/1-3/4" Wrap Strip

C. Steel Collar — Steel collar fabricated from coils of precut min 0.016 in. (0.41 mm) thick (No. 28 gauge) galv steel available from fill material manufacturer. Collar shall be min 1-3/4 in. (44 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs on 1-3/4 in. (44 mm) centers for securement to both surfaces of wall. In addition, collars contain preformed retainer tabs 1/2 in. (13 mm) wide by 3/16 in. (5 mm) long, located opposite the anchor tabs. Collar shall be tightly wrapped over the wrap strip, overlapping min 1 in. (25 mm) at seam and compressed with a min 1/2 in. (13 mm) wide by 0.028 in. (0.71 mm) thick stainless steel band at collar mid-height. Every other anchor tab of collar secured to surface of wall with min 1-1/2 in. (38 mm) long drywall or laminate screws with min 3/4 in. (19 mm) steel washers.

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Last Updated on 2015-01-28

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6A A617 WALLS - FRAMED WALLS - GROUPINGS - F 1HR&2HR - T 1HR&2HR - L NA - HILTI - XHEZ.W-L-8081
12" = 1'-0"

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06/10/2022	Issued for Permit

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