

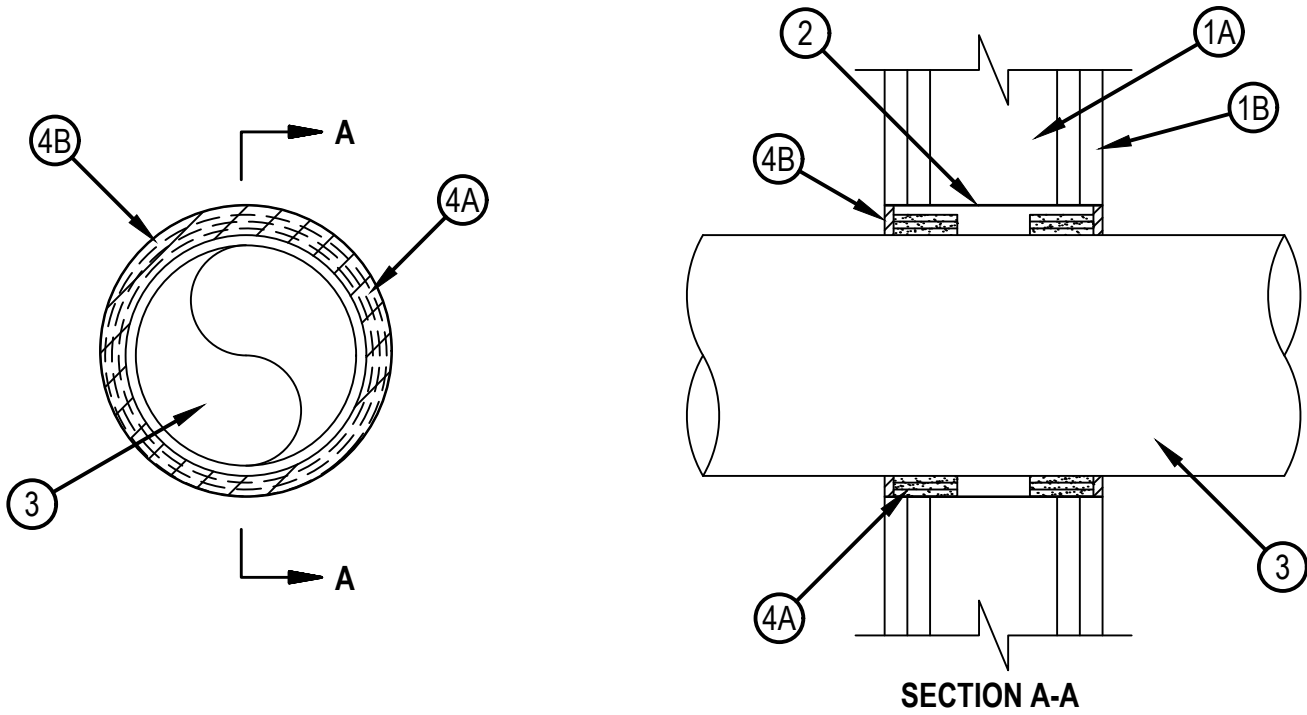


Classified by
Underwriters Laboratories, Inc.
to UL 1479

System No. W-L-2649

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

WL 2649



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.
 - B. 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).
2. 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 ends of sleeve to finish any gaps between sleeve and cut edge of gypsum board at both sides of wall.
3. 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) Coprax 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.



Hilti Firestop Systems

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- 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.
- 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) Aquatechnik 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.



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