

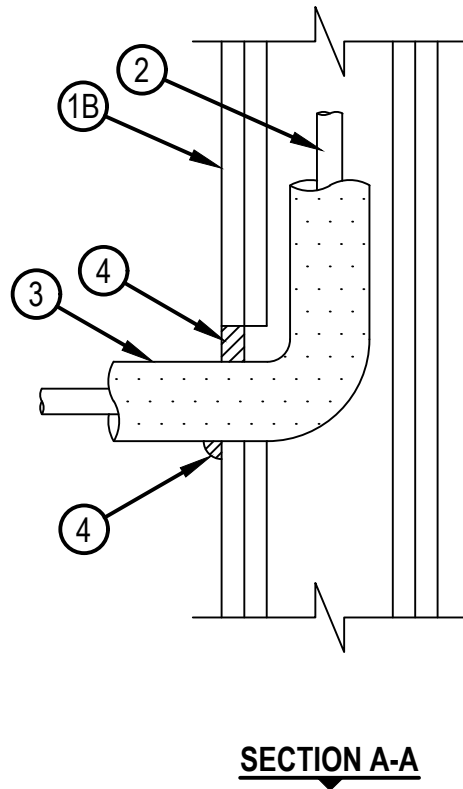
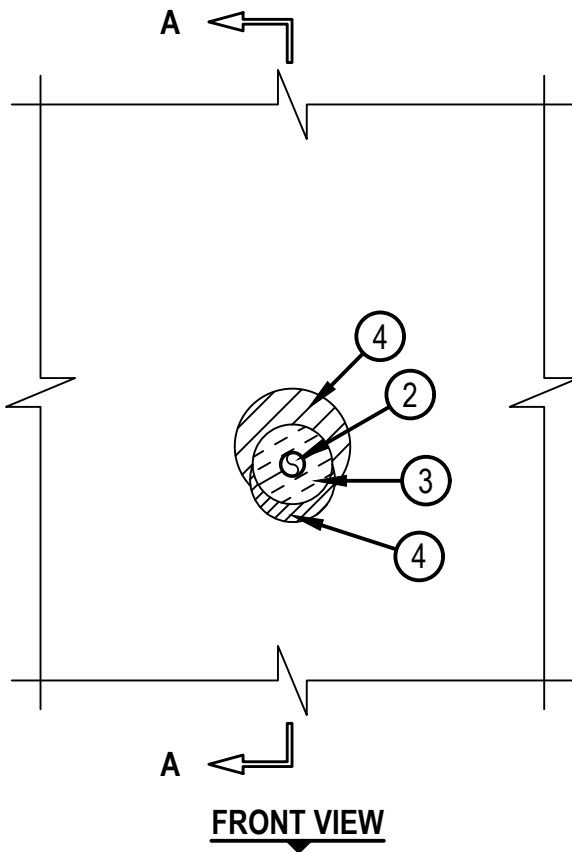


Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. W-L-5387

WL 5387

ANSI/UL 1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 1 and 2 Hr (See Item 1)	FT Ratings — 1 and 2 Hr (See Item 1)
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Item 1)
L Rating At 400 F — Less Than 1 CFM/sq ft	FTH Ratings — 1 and 2 Hr (See Item 1)
	L Rating At Ambient — Less Than 5.1 L/s/m ²
	L Rating At 204°C — Less Than 5.1 L/s/m ²



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 described in the individual U300, U400, V400 or W400 Series Wall and 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 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC.
 - B. Gypsum Board* — The gypsum board type, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. The max diam of opening is dependent upon the type of insulation used as shown in the table below.
- The hourly F, T, FT, FH and FTH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrants — One metallic pipe or tubing to be installed concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported. The following types and sizes of metallic pipes or tubing may be used:
- A. Steel Pipe — Nom 1 in. (25.4 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
 - B. Iron Pipe — Nom 1 in. (25.4 mm) diam (or smaller) cast or ductile iron pipe.
 - C. Copper Tubing — Nom 1 in. (25.4 mm) diam (or smaller) Type L (or heavier) copper tube.
 - D. Copper Pipe — Nom 1 in. (24.5 mm) diam (or smaller) Regular (or heavier) copper pipe.
3. Pipe Covering — The metallic penetrant (pipe or tubing) may be insulated with the following types of pipe coverings:
- A. Tube Insulation - Plastic+ — Tube insulation may be installed on the metallic pipe or tube. The following types may be used:
 - A1. Acrylonitrile Butadiene/Polyvinyl Chloride (NBR/PVC, AB/PVC) — Min 1/2 in. (13 mm) to max 3/4 in. (19 mm) thick flexible foam furnished in the form of tubing. The annular space between insulated penetrant and periphery of opening shall be in accordance with the table below.
 - A2. Ethylene Propylene Diene Monomer (EPDM) — Min 1/2 in (13 mm) to max 3/4 in. (19 mm) thick rubber furnished in the form of tubing. The annular space between insulated penetrant and periphery of opening shall be in accordance with the table below

See Plastics+ (QMFZ2) category in the Plastic Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.
 - B. Pipe Covering* — Min 1/2 to max 1 in. (13 or 25 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m³) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between insulated penetrant and periphery of opening shall be in accordance with the table below. Note: when Glass fiber insulation is use the L -Rating at Ambient is 4 4 CFM/sq ft (20.4 L/s/m²).
- See Pipe and Equipment Covering - Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

Insulation Type	Size of Opening in. (mm)	Minimum Annular Space in.	Maximum Annular Space, in. (mm)	Continuous POC (Point of Contact)
NBR, AB/PVC	4 (102)	0, Point contact	1-1/2 (38)	No
Glass Fiber	5 (127)	0, Point contact	2-1/4 (57)	Yes

4. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of sealant applied between pipe insulation and gypsum board on penetrated side of wall assembly, flush with surface of wall. At the point or continuous contact locations between gypsum board and pipe covering, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe covering/gypsum board interface.

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.