

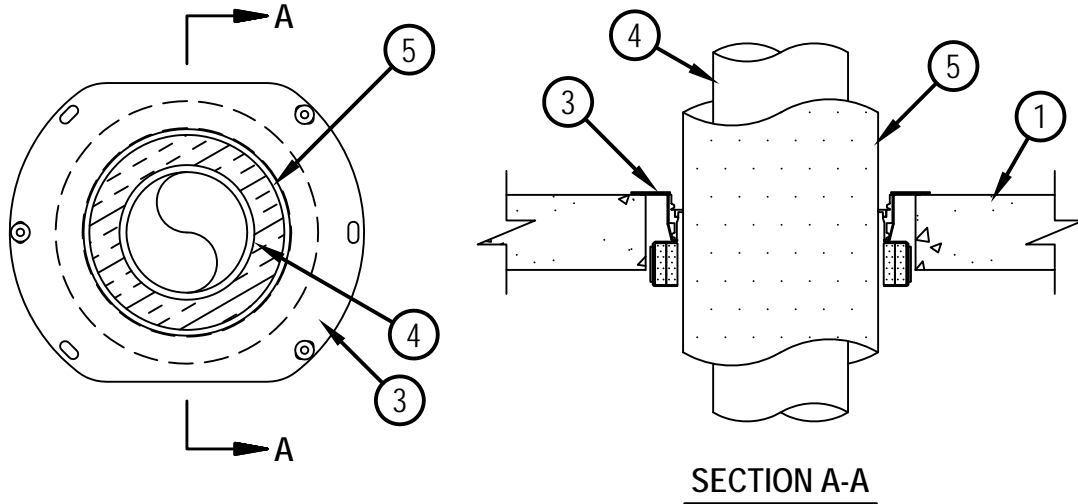


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Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

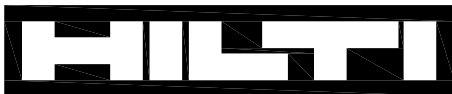
System No. F-A-5046

FA 5046

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 2 and 3 Hr (See Items 1 and 1A)	F Ratings — 2 and 3 Hr (See Items 1 and 1A)
T Ratings — 0 and 1/2 Hr (See Item 2)	FT Ratings — 0 and 1/2 Hr (See Item 2)
	FH Ratings — 2 and 3 Hr (See Items 1 and 1A)
	FTH Ratings — 0 and 1/2 Hr (See Item 2)



1. Floor Assembly — Min 2-1/2 in. (64 mm) to max 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. When concrete thickness is min 4-1/2 in. (114 mm), F Rating is 3 hr.
- 1A. Floor Assembly — (Optional, Not Shown) — The fire rated concrete and steel deck floor assembly shall be constructed of the materials and in the manner specified in the individual D700, D800 or D900 Series designs in the UL Fire Resistance Directory and as summarized below:
 - A. Concrete — Min 2-1/2 in. (64 mm) to max 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete, as measured over crest of fluted steel deck. When concrete topping thickness is min 4-1/2 in. (114 mm), the F and FH Ratings are 3 hr.
 - B. Steel Floor and Form Units* — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Metallic Sleeve — (Optional, Not Shown) - Nom 4, 5 or 6 in. (102, 127 or 152 mm) diam Schedule 10 (or heavier) steel sleeve cast or grouted into floor assembly, flush with floor surfaces. When metallic sleeve is used, the T, FT and FTH Ratings are 0 Hr.
- 2A. Sheet Metal Sleeve — (Optional, Not Shown) - Nom 4, 5, 6 or 9 in. (102, 127, 152 or 229 mm) diam, min 26 ga galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and flush with the top surface of the concrete floor. When sheet metal sleeve is used, the T, FT and FTH Ratings are 0 Hr.



Hilti Firestop Systems

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	FTH Ratings — 0 and 1/2 Hr (See Item 2)

3. Firestop Device* — Drop-in firestop device installed in core-drilled or sleeved opening in concrete floor assembly in accordance with accompanying installation instructions. The firestop device flange should be secured to the top surface of the floor with three 1/4 in. (6 mm) diam by min 1-1/4 in. (32 mm) long steel expansion bolts or screw anchors (installed in a triangular fashion through holes provided). As alternates to the anchors specified above, Hilti 1/4 in. (6 mm) diam by 1-1/4 in. (32 mm) long KWIK-CON II+ concrete screw anchor, Hilti 1/4 in. (6 mm) diam by 1-3/4 in. (45 mm) long KWIK-BOLT 3 steel expansion anchor or Hilti 1/4 in. (6 mm) by 3/4 in. (19 mm) long Metal HIT Anchor may be used. In addition, for nom 2 in. (51 mm), 3 in. (76 mm) and 4 in. (102 mm) firestop devices, four 11/16 in. (18 mm) long Hilti X-GH P18 MX steel fasteners may be installed through the steel flange, two on each side. The firestop devices shall be installed as detailed in the following table:

Nom Pipe or Tube (Item 4) Diam, In. (mm)	Insulation Type (Item 5 or 5A) and Thickness, In. (mm)	Firestop Device	Core Hole or Sleeve Diam, In. (mm)
1/2 (13)	3/4 or 1 (19 or 25) AB/PVC	CFS-DID 2"MD	4 (102)
1 (25)	3/4 or 1 (19 or 25) AB/PVC	CFS-DID 3"MD	5 (127)
2 (51)	3/4 or 1 (19 or 25) AB/PVC	CFS-DID 4"MD	6 (152)
4 (102)	3/4 or 1 (19 or 25) AB/PVC	CFS-DID 6"MD	9 (229)
1/2 (13)	1 (25) Glass Fiber	CFS-DID 2"MD	4 (102)
1 (25)	1 (25) Glass Fiber	CFS-DID 3"MD	5 (127)
1 (25)	1-1/2 (38) Glass Fiber	CFS-DID 4"MD	6 (152)
2 (51)	1 (25) Glass Fiber	CFS-DID 4"MD	6 (152)
2 (51)	2 (51) Glass Fiber	CFS-DID 6"MD	9 (229)
4 (102)	1 (25) Glass Fiber	CFS-DID 6"MD	9 (229)

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-DID 2"MD, CFS-DID 3"MD, CFS-DID 4"MD, CFS-DID 6"MD

4. Through Penetrant — One metallic pipe or tubing to be installed within the firestop device. Pipe or tubing to be rigidly supported on both sides of floor assembly. The following types of pipe or tubing may be used:

- A. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. Iron Pipe — Nom 4 in. (102 mm) diam (or smaller) cast or ductile pipe.
- C. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
- D. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

5. Tube Insulation - Plastics+ — Nom 3/4 or 1 in. (19 or 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 material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.

5A. Pipe Covering* — Nom 1, 1-1/2 or 2 in. (25, 38 or 51 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 SSL tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.

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.

*Bearing the UL Classification Mark



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