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Underwriters Laboratories, Inc.  
to UL 1479

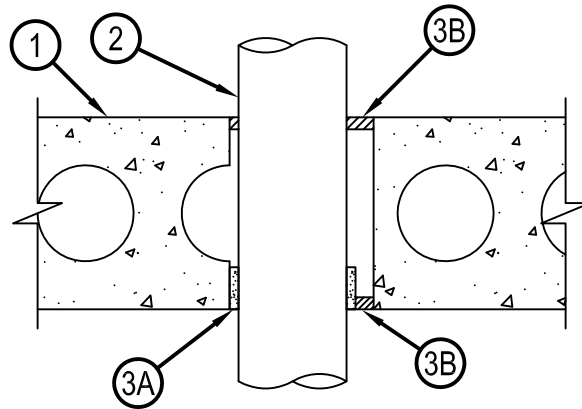
## System No. F-B-2029

F Rating — 3 Hr

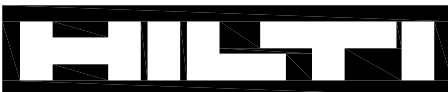
T Rating — 0 and 2 Hr (See Item 2)

W Rating — Class I (See Item 3B)

FB 2029



1. Floor Assembly — Min 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Floor assembly may also be constructed of any 8 in. (203 mm) thick UL Classified hollow-core Precast Concrete Units\*. Max diameter of opening is 6 in. (152 mm). See Precast Concrete Units (CFTV) and Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Through Penetrants — One nonmetallic pipe to be installed eccentrically or concentrically within the firestop system. See Table under Item 3B for annular space between pipe and edge of opening. Pipe to be rigidly supported on both sides of floor assembly. The following types and sizes of nonmetallic pipes may be used:
  - A. Polyvinyl Chloride (PVC) Pipe — Nom 1-1/2, 2, 3 or 4 in. (38, 51, 76 or 102 mm) diam Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
  - B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 1-1/2, 2, 3 or 4 in. (38, 51, 76 or 102 mm) diam SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
  - C. Rigid Nonmetallic Conduit+ — Nom 1-1/2, 2, 3 or 4 in. (38, 51, 76 or 102 mm) diam Schedule 40 PVC conduit installed in accordance with the National Electrical Code, (NFPA No. 70).
  - D. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 1-1/2, 2, 3 or 4 in. (38, 51, 76 or 102 mm) diam Schedule 40 cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.  
The hourly T Rating for the firestop system is 0 hr except that, when nom 2 in. (51 mm) diam ABS pipe is used, the T Rating is 2 hr.
3. Firestop System — The firestop system shall consist of the following:
  - A. Fill, Void or Cavity Material\* - Wrap Strip — See Table under Item 3B for min size of intumescent wrap strip. One layer of wrap strip tightly wrapped around the pipe with ends butted and held in place with integral tape. Wrap strip installed flush with bottom surface of floor.  
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP648-S- 1.5" US, CP648-S- 2" US, CP648-S- 3" US, CP648-S- 4" US
  - B. Fill, Void or Cavity Materials\* — Sealant is applied within annular space between penetrant and periphery of opening, flush with top surface of floor, and within annular space between wrap strip and periphery of opening, flush with bottom surface of floor. In walls, sealant is applied within annular space between wrap strip and periphery of opening, flush with both wall surfaces. For nom 4 in. (102 mm) diam pipes, min 1/2 in. (13 mm) thickness of fill material is required. For nom 3 in. (102 mm) diam or smaller pipes, min 1/4 in. (6 mm) thickness of fill material is required. An additional 1/4 in. (6 mm) bead of sealant to be installed at wrap strip/concrete interface at bottom surface of floor or both surfaces of wall. W Rating applies only when CP 601S, CP 604, CFS-S SIL GG or CFS-S SIL SL Sealant is used.  
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant, CP 601S Sealant, CFS-S SIL GG, CFS-S SIL SL or CP 604 Sealant.



**Hilti Firestop Systems**

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January 20, 2015

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Nom Pipe Diam, in. (mm)	Wrap Strip	Wrap Strip Size, thick x width, in. (mm)	Max Diam of Opening, in. (mm)	Annular Space, in. (mm)	
				Min	Max
1-1/2 (38)	CP648S -1.5" US	3/16 x 1 (5 x 25)	2-1/2 (64)	3/16 (5)	7/16 (11)
2 (51)	CP 648S - 2" US	3/16 x 1 (5 x 25)	3 (76)	3/16 (5)	7/16 (11)
3 (76)	CP 648S - 3" US	3/16 x 1-3/4 (5 x 44)	4 (102)	3/16 (5)	5/16 (8)
4 (102)	CP 648S - 4" US	3/8 x 1-3/4 (10 x 44)	6 (152)	1/2 (13)	1 (25)

C. Packing Material (not shown) — Min 1/2 in. (13 mm) thickness of 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation firmly packed into annular space and recessed from the top surface of floor to accommodate the required thickness of fill material. Required only when CP 604, CFS-S SIL GG or CFS-S SIL SL Sealant is used.

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

