



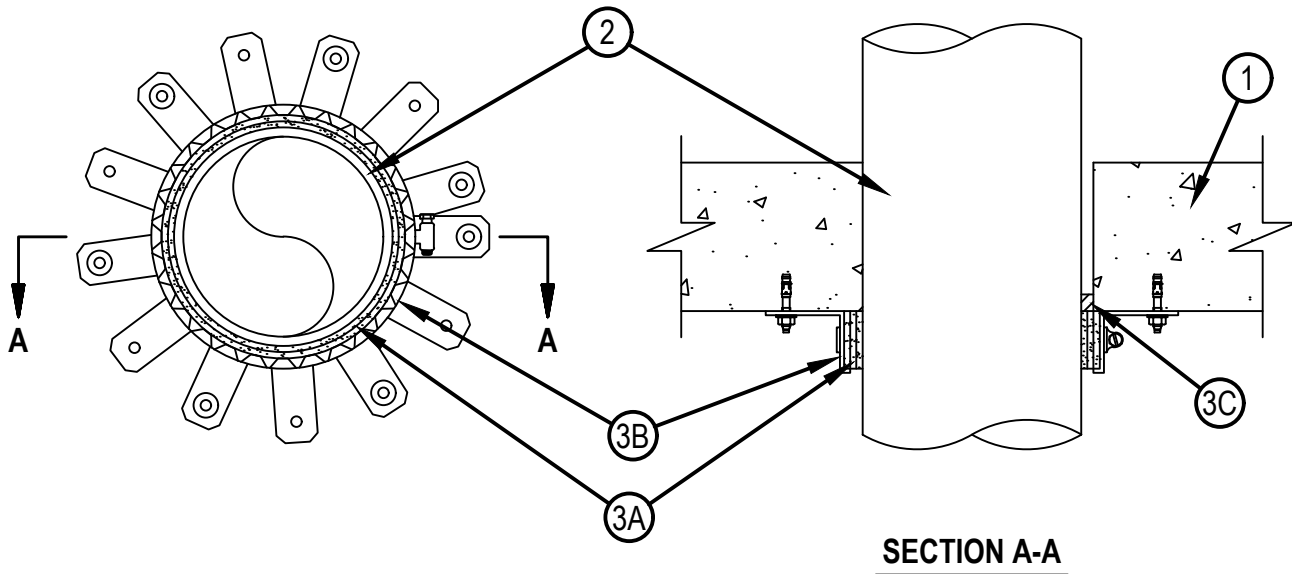
Classified by
Underwriters Laboratories, Inc.
to UL 1479

System No. C-AJ-2371

F Rating - 3 Hr

T Ratings – 2, 2-3/4, and 3 Hr (See Item 2)

CAJ 2371



1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf) (1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diameter of opening is 7 in. (178 mm).
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Through Penetrants — One nonmetallic pipe to be installed concentrically or eccentrically within the firestop system. Annular space between pipe and periphery of opening to be as shown in the table below. The following types and sizes of nonmetallic pipes may be used:
 - A. Polyvinyl Chloride (PVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 solid or cellular core PVC for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) SDR13.5 CPVC for use in closed (process or supply) piping systems.
 - C. Unplasticized Polyvinyl Chloride (UPVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) SDR 41 UPVC for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - D. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 solid or cellular core ABS for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - E. Flame Retardant Polypropylene (FRPP) Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.



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Nom. Diam. of Pipe, in. (mm)	Min./Max. Annular Space, in. (mm)	Number of Steel Bands	T Rating (Hr.)
1-1/2 (38)	0 - 1/4 (6)	1	2 (A,B,D,E) & 2.75 (C)
2 (51)	0 - 1/4 (6)	1	2 (A,B,D,E) & 2.75 (C)
3 (76)	0 - 1/2 (13)	1	2 (A,B,D,E) & 2.75 (C)
4 (102)	0 - 1/2 (13)	1	2 (A,B,D,E) & 2.75 (C)
6 (152)	0 - 3/8 (10)	2	3 (A,B,D,E) & 2.75 (C)

3. Firestop System — The firestop system shall consist of the following:

A. Fill, Void or Cavity Material* — Wrap Strip - Layers of intumescent wrap strip are continuously wrapped around the pipe with end held in place with masking or aluminum tape. Wrap strip butted tightly against bottom surface of floor or both surfaces of wall. Size of wrap strip and number of layers for a given size penetrant are shown in the table below.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP648-E W25/1" or CP648-E W45/1-3/4" Firestop Wrap Strip

Product Designation	Nom. Pipe Size in. (mm)	Pipe Type	Number of Layers	Nom. Wrap Strip Width in. (mm)
CP 648-E W25/1"	3 (76)	A, B, D, E	2	1 (25)
CP 648-E W45/1-3/4"	3 (76)	All	1	1-3/4 (44)
CP 648-E W25/1"	4 (102)	A, B, D, E	2	1 (25)
CP 648-E W45/1-3/4"	4 (102)	All	2	1-3/4 (44)
CP 648-E W45/1-3/4"	6 (152)	All	3	1-3/4 (44)

A1. Fill, Void or Cavity Material* — Wrap Strip — (As an alternate to the wrap strip in Item 3A) - One layer of intumescent wrap strip is continuously wrapped around the pipe with ends butted and held in place with integrated tape. Wrap strip butted tightly against bottom surface of floor or both wall surfaces. Size of wrap strip for a given size penetrant is shown in the table below.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP648-S-1.5" US, CP648-S-2" US, CP648-S-3" US, CP648-S-4" US or CP648-S-6" US Wrap Strip

Product Designation	Pipe Size in. (mm)	Pipe Type	Nom. Wrap Strip Length in. (mm)	Nom. Wrap Strip Thick in. (mm)	Nom. Wrap Strip Width in. (mm)
CP648-S-1.5" US	1-1/2 (38)	A,B,D,E	6.5 (165)	0.18 (0.4)	1 (25)
CP648-S-2" US	2 (51)	A,B,D,E	8 (203)	0.18 (0.4)	1 (25)
CP648-S-3" US	3 (76)	All	11.5 (292)	0.18 (0.4)	1-3/4 (44)
CP648-S-4" US	4 (102)	All	15.1 (383)	0.36 (0.8)	1-3/4 (44)
CP648-S-6" US	6 (152)	All	22.4 (620)	0.53 (1.4)	1-3/4 (44)



Hilti Firestop Systems

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B. Steel Collar — Steel collar fabricated from coils of precut min 0.016 in. (1.6 mm) thick (No. 28 gauge) galv steel available from fill material manufacturer. Collar shall be nom 1 in. (25 mm)(for 1 in.(25 mm) wide wrap strip) or 1-3/4 in. (44 mm)(for 1-3/4 in. (44 mm) wide wrap strip) deep with 1 in. (25 mm) wide by 2 in. (52 mm) long anchor tabs on 1-3/4 in. (44 mm) centers for securement to the underside of floor or both surfaces of wall. The opposite side incorporates retainer tabs, 1/2 in. (13 mm) wide by 3/16 in. (4.8 mm) long, prebent toward the pipe surface. Collar shall be tightly wrapped over the wrap strip, overlapping min. 1 in (25 mm) at seam. A nom 1/2 in. (13 mm) wide stainless steel hose clamp shall be secured to the collar at its mid-height. Optional securement of the collar may be accomplished with two sheet metal screws screwed though the overlapping portion of the collar. The length of the sheet metal screws shall not exceed the thickness of the wrap strip. Every other anchor tab or with 3 equal angle tabs of collar secured to concrete slab at with 1/4 in. (6 mm) diam by 1-3/4 in. (44 mm) long steel expansion type masonry fasteners, 1/4 in.(6 mm) diam by 1-1/2 in. (44 mm) long steel concrete screws or 0.145 in. (3.8mm)diam by 1-1/4 in. (32 mm) long powder actuated fasteners utilizing a 1-7/16 (37 mm) diam by 1/16 in. (1.6 mm) thick steel washer. 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. (44 mm) long KWIK-BOLT 3 steel expansion anchor or Hilti X-DNI 27 P8 S15 powder actuated floor pin with integral nom 9/16 in. diam washer may be used. In floor assemblies, one collar to be used at the bottom of the concrete floor only. In wall assemblies, a collar is used on both surfaces.

C. Fill, Void or Cavity Materials* (Optional, for penetrants other than 2C) — Sealant -Min 1/4 in. (6 mm) thickness of fill material applied within the annulus, flush with bottom surface of floor or both surfaces of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant

C1. Fill, Void or Cavity Materials* (Required when Item 2C UPVC is installed) — Sealant - Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with bottom surface of floor or both surfaces 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.

