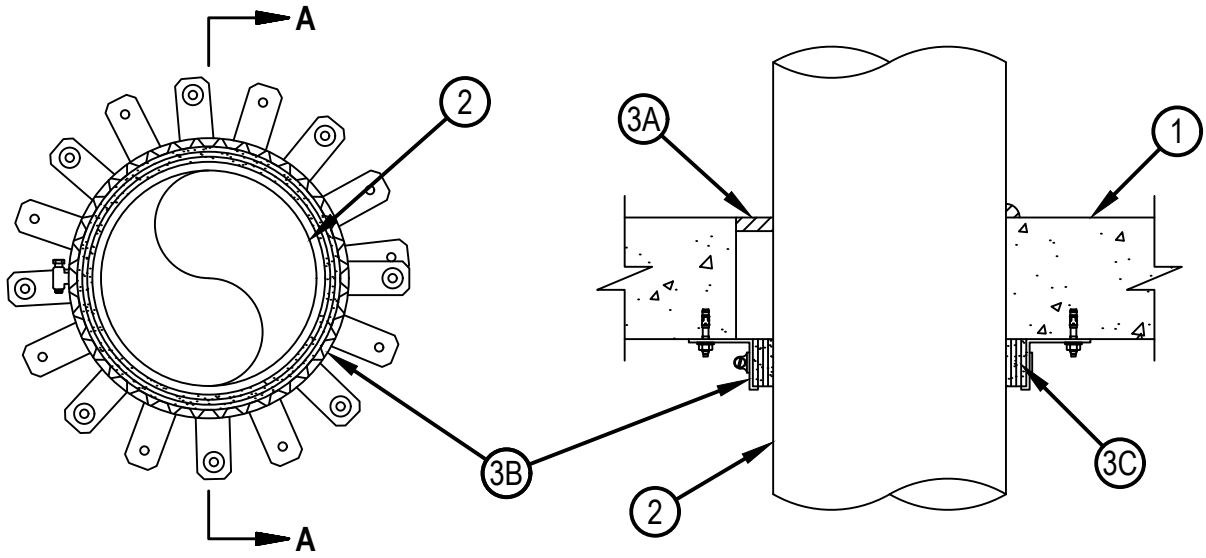
Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. C-AJ-2305

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Ratings — 1-1/2 or 2 Hr (See Item 2)	FT Ratings — 1-1/2 or 2 Hr (See Item 2)
	FH Rating — 2 Hr
	FTH Ratings — 1-1/2 or 2 Hr (See Item 2)



SECTION A-A

System No. C-AJ-2305

System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 10 in. (254 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. Through Penetrants — One nonmetallic pipe to be installed either eccentrically or concentrically within the firestop system. The annular space shall be min 0 in. (point contact) to max 1-1/2 in. (38mm). The max annular space is dependent upon the type of penetrant as shown in the table below. Pipe to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of nonmetallic pipes may be used:
   A. Polyvinyl Chloride (PVC) Pipe — Nom 8 in. (203 mm) diam (or smaller) Schedule 40 cellular or solid 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 8 in. (203 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.
   C. Polyvinyl Chloride (PVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 80 cellular or solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   D. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 or Schedule 80 CPVC pipe for use in closed (process or supply) piping systems.

Item	Min Annular Spacing in. (mm)	Max Annular Spacing in. (mm)	T, FT, and FH Ratings, Hr
2A, 2B	0 (0)	1-3/8 (35)	1-1/2
2C, 2D	0 (0)	1-1/2 (38)	2

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

A. Fill, Void or Cavity Material* — Caulk — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface or bottom of floor or both surfaces of wall. At point contact location between concrete floor and pipe, a min 1/4 in. (6 mm) diam bead of fill material shall be applied to the concrete/pipe interface on top or bottom surface of floor.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant

B. Fill, Void or Cavity Material* — Wrap Strip — Nom 3/16 in. (5 mm) thick by 1-3/4 in. (44 mm) wide intumescent wrap strip. Four layers of wrap strip are continuously wrapped around the through-penetrant with ends held in place with tape. Wrap strip butted tightly against bottom surface of floor or both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP648-E W45/1-3/4" Wrap Strip

C. Steel Collar — Collar fabricated from coils of precut min 0.017 in. (0.4 mm) thick (No. 28 MSG) galv steel available from the sealant manufacturer. Collar shall be nom 1-3/4 in. (44 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchors tabs on 2 in. centers for securement to floor or wall assembly. The anchor tabs shall be bent 90 degree outward for securement to the floor or wall assembly. The opposite side incorporates retainer tabs, 1/2 in. (13 mm) wide by 3/16 in. (5 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. Every other anchor tab of collar secured to concrete slab with 1/4 in. (6 mm) diam by 1-3/4 in. (44 mm) long steel expansion type masonry fasteners, 3/16 in. (5 mm) diam by 1-1/2 in. (38 mm) long steel concrete screws or 0.145 in. (3.7 mm) diam by 1-1/4 in. (32 mm) long powder actuated fasteners utilizing a 1-7/16 in. (36.5 mm) diam by 1/16 in. (1.6 mm) thick steel washer. 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.

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