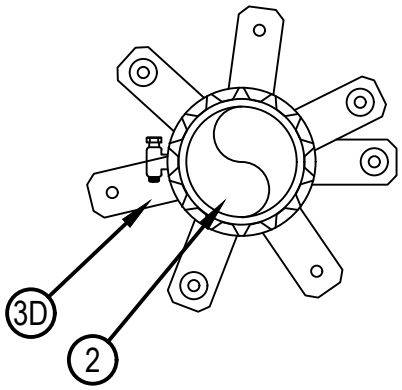
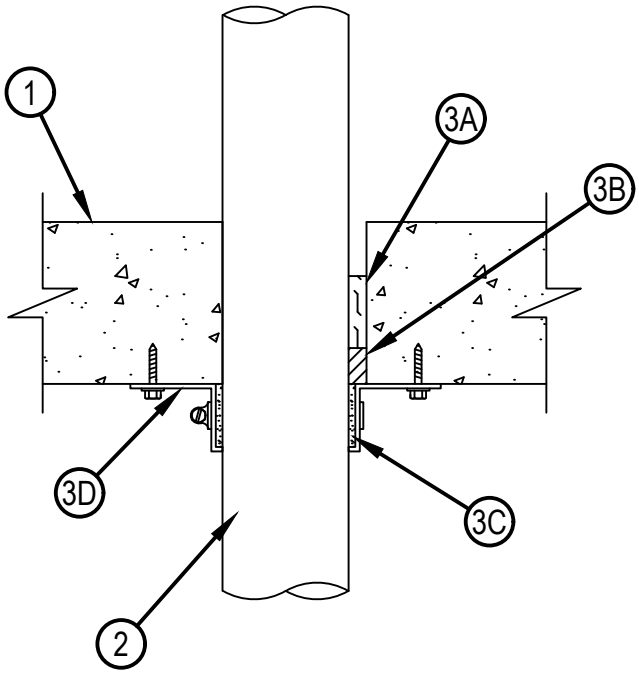
Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. C-AJ-2830

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Ratings — 0 and 2 Hr (See Item 1A)	FT Ratings — 0 and 2 Hr (See Item 1A)
L Rating at Ambient — Less Than 1 CFM/ft²	FH Rating — 2 Hr
L Rating at 400 F — Less Than 1 CFM/ ft²	FTH Ratings — 0 and 2 Hr (See Item 1A)
	L Rating at Ambient — Less Than 5.1 L/s/m²
	L Rating at 204 C — Less Than 5.1 L/s/m²





Hilti Firestop Systems

System No. C-AJ-2830

System tested with a pressure differential of 50 Pa between the exposed and 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) (1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diameter of opening is 4 in. (102 mm).
   See Concrete Blocks (CAZT) in the Fire Resistance Directory for names of manufacturers.

1A. Steel Sleeve — (Optional. Not Shown) - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 (or thinner) steel pipe sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces. The T, FT and FTH Ratings are 0 hr when the steel sleeve is used.

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 min 0 in. (point contact) to max 1/2 in. (13 mm). The following types and sizes of nonmetallic pipes may be used:
   A. Polypropylene Random (PP-R) Pipe — Nom 3 in. (90 mm OD) diam (or smaller) SDR 7.4 or 11 Aquatherm Greenpipe for use in closed (process or supply) or vented (drain, waste and vent) piping systems.
   B. Polypropylene (PP-RCT) Pipe — Nom 3 in. –(90 mm OD) diam (or smaller) SDR 9 or 11 Aquatherm BluePipe for use in closed (process or supply) or vented (drain, waste and vent) piping systems.
   C. Polypropylene (PP-RCT) Pipe — Nom 3 in. (90 mm OD) (or smaller) Nupi Americas Niron pipe SDR 7.3, 9 or 11 for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   D. Polypropylene (PP-RCT) Pipe — Nom 3 in. (90 mm OD) (or smaller) Aquatechnik NA Fusion-Tech pipe SDR 7.4 or 11 for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   E. Polypropylene (PP) Pipe — Nom 3 in. (90 mm OD) (or smaller) Uponor pipe SDR 9 or 11 for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   F. HR Polyvinyl Chloride (PVC-HR) Pipe — Nom 3 in. (76 mm) diam (or smaller) NAPSYS-HR PVC Sch 40 pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

3. Firestop System — The firestop system shall consist of the following:
   A. Packing or Forming Materials — Min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation tightly packed into the opening as a permanent form. Packing material to be recessed from the bottom surface of floor or both surfaces of wall to accommodate the required thickness of sealant (Item 3B).
   B. Fill, Void or Cavity Material* — Min 1 in. (25 mm) thickness of sealant applied within the annulus, flush with bottom surface of floor or with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant
   C. Fill, Void or Cavity Material* — Wrap Strip - Three layers of intumescent wrap strip are continuously wrapped around the pipe with ends held in place with masking or aluminum 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" Firestop Wrap Strip
   D. 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 1-3/4 in. (44 mm) 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.

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