

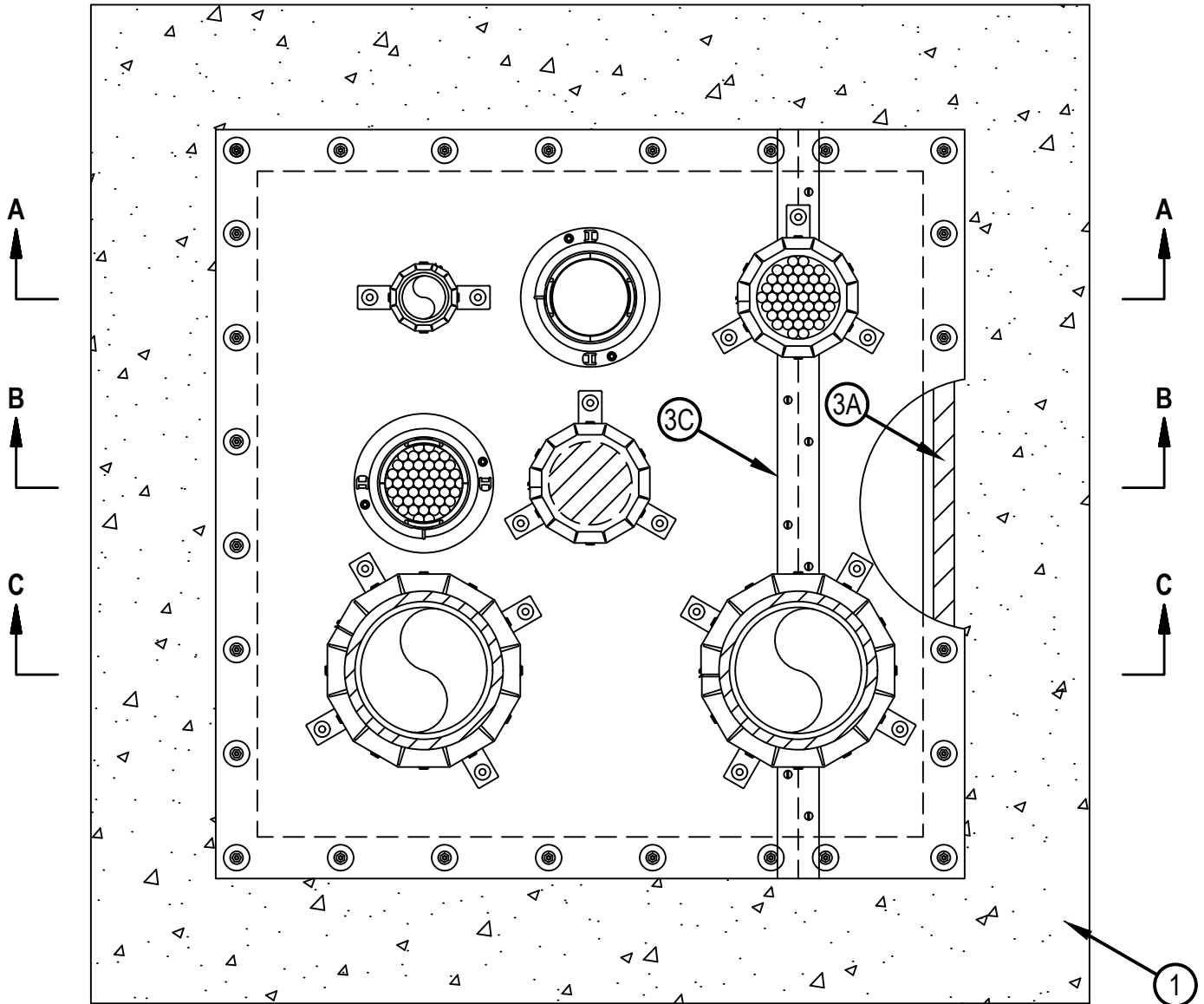


Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

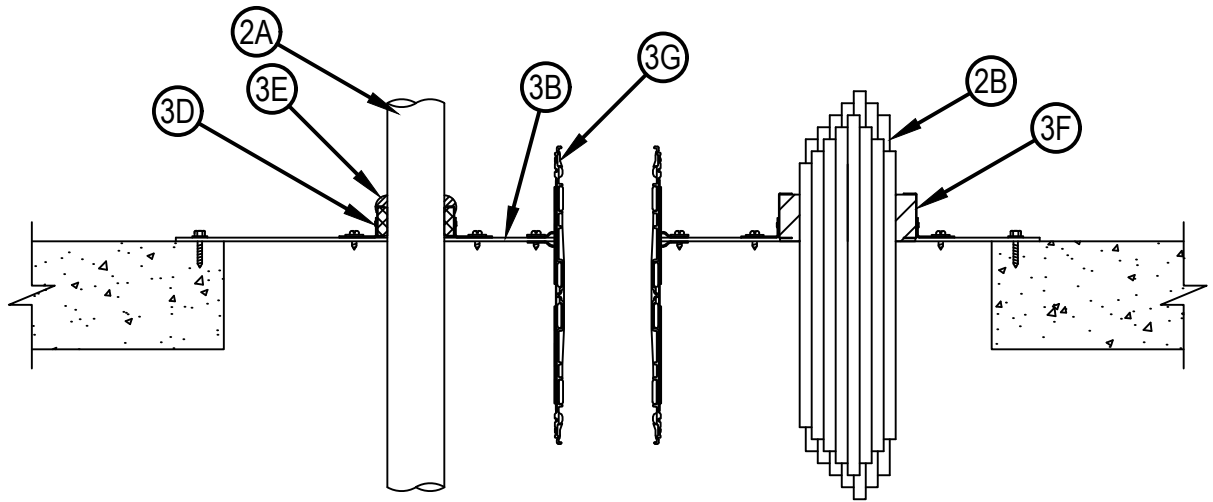
System No. C-AJ-8313

CAJ 8313

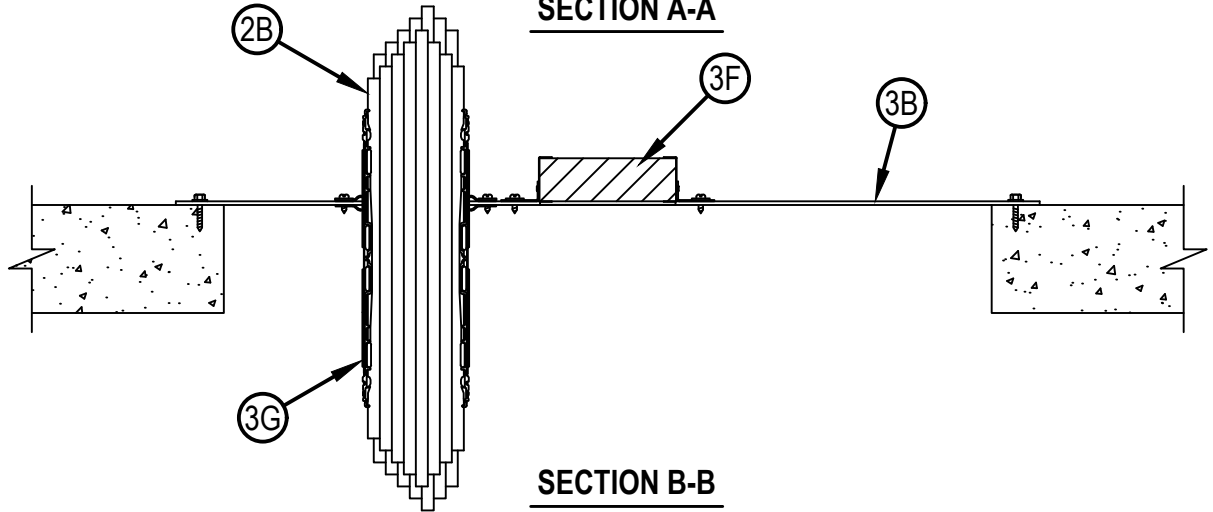
ANSI/UL2079 (ASTM E814)	CAN/ULC S115
F Rating - 2Hr	F Rating - 2Hr
T Rating - 0 Hr	FT Rating — 0 Hr
	FH Rating — 0 Hr
	FTH Ratings — 0 Hr



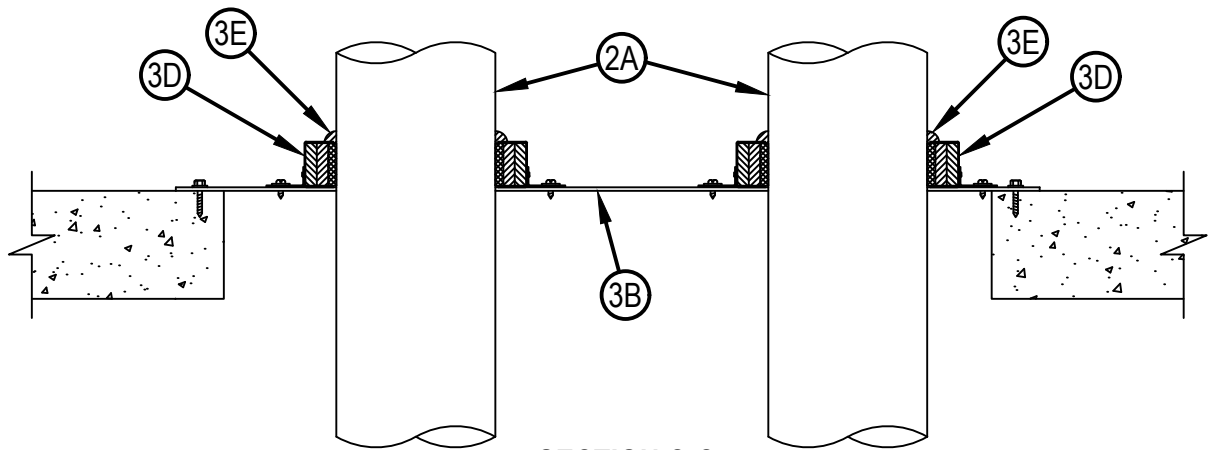
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SECTION A-A



SECTION B-B



SECTION C-C



Hilti Firestop Systems

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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 area of opening 1024 in.² (6606 cm²) with max dimension 32 in. (813 mm). See Concrete Blocks (CAZT) in the Fire Resistance Directory for names of manufacturers.
2. Through-Penetrants — Min annular space between penetrants and periphery of opening is 3-3/4 in. (95 mm) and the min annular between penetrants is 3 in. (76 mm). The following through penetrants may be installed within the opening:
 - A. Nonmetallic pipes — The following nonmetallic pipes may be used:
 - A1. Polyvinyl Chloride (PVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 solid-core PVC pipe.
 - A2. Rigid Nonmetallic Conduit (RNC)+ — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).
 - B. Cables — Within the loading area for the firestop devices (Items 3F and 3G), the cables may represent a 0 to 100 percent visual fill. Cables to be tightly bundled within the device and rigidly supported on both sides of floor assembly. Any combination of the following types of cables may be used:
 - B1. Max 100 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
 - B2. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
 - B3. Max 4/0 AWG Type RHH ground cable.
 - B4. Max 4 pr No. 22 AWG Cat 6 computer cables.
 - B5. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
 - B6. Fiber optic cable with polyvinyl chloride (PVC) or polyethylene (PE) jacket and insulation having a max diam of 3/8 in. (10 mm).
 - B7. Max 3C No. 12 AWG MC cable.
3. Firestop System — The firestop system shall consist of the following:
 - A. Fill, Void or Cavity Materials* — Putty or Sealant — One layer of 1 by 1/8 in. (25 by 3 mm) thick putty strips or 1/2 in. (13 mm) diam bead of sealant positioned under composite sheet around entire perimeter of through opening and over each seam in the composite sheet.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 619T Firestop Putty Roll, FS-ONE MAX Intumescent Firestop Sealant
 - B. Fill, Void or Cavity Materials* — Composite Sheet — Rigid aluminum foil-faced intumescent sheet with steel backer. Sheets cut to lap a min of 2 in. (51 mm) onto floor or wall surfaces. Sheet installed on top surface of floor or both surfaces of wall. Sheet to be installed with the steel backer exposed (aluminum foil facing against floor or wall surface) and secured to floor or wall with min 3/16 in. (4.8 mm) diam by 1-1/4 in. (32 mm) long steel anchor screws in conjunction with min 1-1/4 in. (32 mm) diam steel fender washers. As an alternative to concrete anchors, when composite sheet overlaps a min of 3 in. (76 mm) onto floor or wall surfaces, 1-1/16 in. (27 mm) long Hilti X-GN 27 MX nails in conjunction with min 1-1/4 in. (32 mm) diam steel fender washers may be used. Fasteners to be installed at each corner with max spacing between fasteners not to exceed 6 in. (151 mm). Composite sheet cut to tightly follow the contour of each penetrant with a max space between the penetrant and the composite sheet of 1/4 in. (6 mm). Max diam of opening in composite sheet for installation of Hilti CFS-CC 4" Cable Collar (Item 3F) is 4 in. (102 mm). Max diam of opening in composite sheet for installation of Hilti firestop Speed Sleeve (Item 3G) is 4-1/2 in. (114 mm).
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — Hilti CFS-COS Firestop Composite Sheet
 - C. Steel Cover Strip — Min 24 ga., min 2 in. (51 mm) wide stainless steel strip centered over entire length of butt seam or slit in composite sheet and secured to composite sheet with No. 10 by 3/4 in. (19 mm) steel sheet metal screws and min 3/4 in. (19 mm) diam steel washers spaced a max of 6 in. (152 mm) OC alternating on each side of seam or slit.

D. Firestop Device* — Firestop collar sized to match the nom diam of the nonmetallic pipes. One firestop device required around each nonmetallic pipe flush with top surface of composite sheet in floors. In walls, one firestop device is required around nonmetallic pipes flush with outer surface of composite sheet on each side of wall. Each tab of the collar is secured to the top of the composite sheet in floors, or to outer faces of composite sheet on both sides walls with No. 10 by 3/4 in. (19 mm) long steel sheet metal screws with min 3/4 in. (19 mm) diam steel washers.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 643N 50/1.5", CP 643N 63/2", CP 643N 90/3", CP 643N 110/4", CP 643 160/6

E. Fill, Void or Cavity Materials* — Sealant — Min 1/2 in. (13 mm) diam bead of sealant applied at top of collar at the pipe/collar interface.

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

F. Firestop Device* — Firestop device consisting of a steel collar with plug to be centered over opening and mounted to top surface of composite sheet on top of floor. For walls, one device is required on each side of wall, centered over opening, and mounted to outer faces of composite sheet on both sides. For openings with cables, plug within collar cut to fit tightly around the cable bundle. Collar secured to composite sheet on top side of floor, or on both sides of wall using the anchor hooks provided with the collar. The anchor hooks are to be secured with No. 10 by 3/4 in. (19 mm) long steel sheet metal screws with min 3/4 in. (19 mm) diam steel washers.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-CC 4" Firestop Cable Collar

G. Firestop Device — Firestop device consists of a corrugated steel tube with an inner plastic housing, intumescent material rings and twisted inner fabric smoke seal. For floors, device tube slid into opening in composite sheet such that the top of the device projects 4" from top of composite sheet. For walls, center firestop device tube in wall assembly. Firestop device installed so that both gaskets provided by manufacturer are located between device flange and composite sheet. Device flange secured to composite sheet on top side of floor, or on both sides of wall, with two No. 10 x 3/4" long sheet metal screws through pre-made holes in device flange. The inner fabric seal shall be twisted to completely close off any unused opening within the device.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 653 BA 4" Speed Sleeve, CP 653 4" BA ILS and CFS-SL GA L ILS Speed Sleeve

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

