



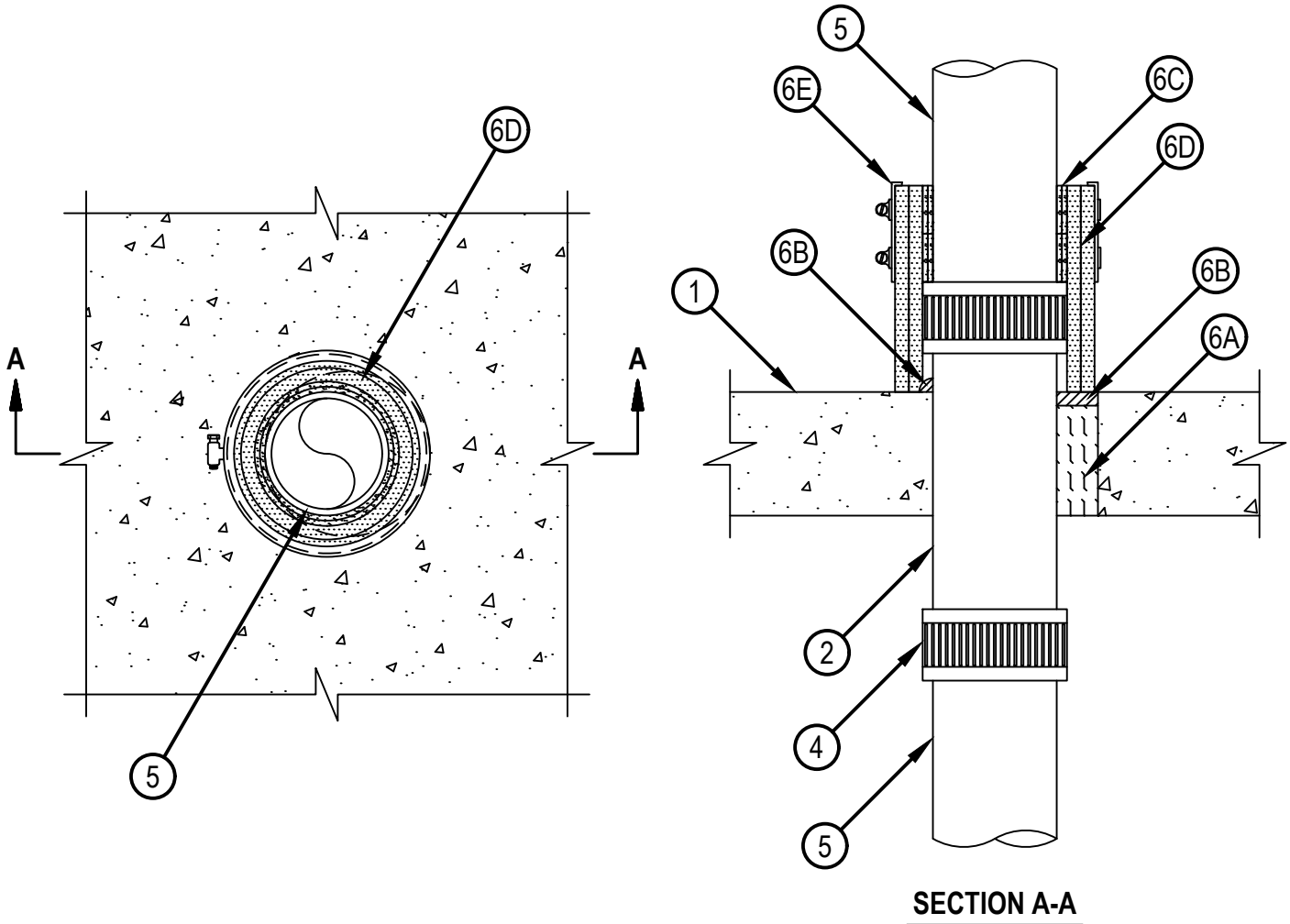
Classified by  
Underwriters Laboratories, Inc.  
to CAN/ULC-S115

## System No. F-A-1228

F Rating — 2 Hr  
FT Rating — 1/4 Hr  
FH Rating — 0 Hr  
FTH Rating — 0 Hr



FA 1228



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 Assembly — Min 114 mm (4-1/2 in.) thick reinforced lightweight or normal weight (1600-2400 kg/m<sup>3</sup> or 100-150 pcf) concrete. Floor may also be constructed of any min 152 mm (6 in) thick UL Classified hollow-core Precast Concrete Units\*. Max diam of opening is 152 mm (6 in.). See Precast Concrete Units (CFTV) categories in the Fire Resistance Directory for names of manufacturers.
2. Through Penetrants — One metallic pipe to be installed concentrically or eccentrically within the firestop system. Pipe to be rigidly supported on both surfaces of the floor assembly. The annular space shall be 0 in. (point contact) to max 1-1/2 in. (38 mm). Metallic pipe to may extend a min 38 mm (1-3/8 in.) below the bottom surface of the floor and a min 70 mm (2-3/4 in.) above the top surface of the floor. The following types and sizes of metallic pipes, may be used:
  - A. Steel Pipe — Nom 102 mm (4 in.) diam (or smaller) Schedule 10 (or heavier) steel pipe.
  - B. Iron Pipe — Nom 102 mm (4 in.) diam (or smaller) cast or ductile iron pipe.
3. Riser Clamp — (Not Shown) Metallic riser clamps sized to fit the outer circumference of the metallic through penetrant and installed flush with top surface of the floor in accordance with the manufacturer's installation instructions.



**Hilti Firestop Systems**

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4. Compression Coupling — Metallic pipe (Item 2) to be secured to the nonmetallic pipe (Item 5) with compression type high pressure pipe coupling with elastomeric gasket and a stainless steel jacket with stainless steel band clamps.
5. Nonmetallic Pipe — One nonmetallic pipe to be secured to both ends of the metallic through penetrant (Item 2) by means of a compression coupling (Item 4) . Pipe to be rigidly supported on both surfaces of the floor assembly. The following type and size of nonmetallic pipe, may be used:
  - A. Polyvinyl Chloride (PVC) Pipe — Nom 102 mm (4 in) diam (or smaller) Schedule 40 PVC solid or cellular core pipe for use in open (drain, waste and vent) and closed (process or supply) piping systems.
6. Firestop System — The firestop system shall consist of the following:
  - A. Packing Material — Min 4 in. (102 mm) thickness of min 64 kg/m<sup>3</sup> (4 pcf) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of hollow-core precast concrete unit as required to accommodate the required thickness of fill material.
  - B. Fill, Void or Cavity Material\* — Sealant — Prior to the installation of the pipe covering material, min 13 mm (1/2 in. ) thickness of fill material applied within the annulus, flush with the top surface of floor. At the point of contact location between pipe and concrete, a min 13 mm(1/2 in.) diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and both surfaces hollow-core precast concrete unit. When installing in hollow-core precast concrete unit, a min 13 mm (1/2 in.) thickness of fill material applied within the annulus, flush with the both surfaces of floor.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant.
  - C. Fill, Void or Cavity Material\* — Wrap Strip – Two stacks of nom 4.8 mm (3/16 in.) thick by 45 mm (1-3/4 in.) wide intumescent wrap strip. Each stack consisting of two layers of wrap strip continuously wrapped around the outer circumference of the nonmetallic pipe with butted ends and secured together by means of tape on the top surface of the floor. Bottom stack of wrap strip to be abutted against the top surface of the compression coupling. Bottom edge of the top stack of wrap strip to be abutted against the top edge of the bottom stack of wrap strip.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP648-E 45/1-3/4 in." Firestop Wrap Strip
  - D. Pipe Covering Material\*— Nom 13 mm (1/2 in. ) thick by min 191 mm (7-1/2 in.) wide flexible sheet material continuously wrapped around the outer circumference of the penetrant/wrap strip/compression coupling assembly twice with a min 51 mm (2 in.) overlap. Bottom edge of insulation installed and butted against top surface of floor. Nom 76 mm (3 in.) wide aluminum foil tape centered over the full height of the longitudinal seam of the outer layer of pipe covering material. Top edge of pipe covering material to be flush with top stack of wrap strip (Item 6C).

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFP-ES Endo-Shield
  - E. Steel Collar — Steel collar fabricated from coils of precut min 1.6 mm (0.016 in.) thick (No. 28 gauge) galv steel available from fill material manufacturer. Collar shall be nom 44 mm (1-3/4 in.) deep with 25 mm (1 in.) wide by 52 mm (2 in.) long anchor tabs on 44 mm (1-3/4 in) centers. The anchor tabs to be unbent positioned downwards. The opposite side incorporates retainer tabs, 13 mm (1/2 in.) wide by 4.8 mm (3/16 in.) long, pre-bent toward the penetrant surface and installed over the top surface of the pipe covering material (Item 6D). Collar shall be tightly wrapped over the pipe covering material, overlapping min. 25 mm (1 in.) at seam. A nom 13 mm (1/2 in) ) wide stainless steel hose clamp shall be secured to the collar at its mid-height.

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

