

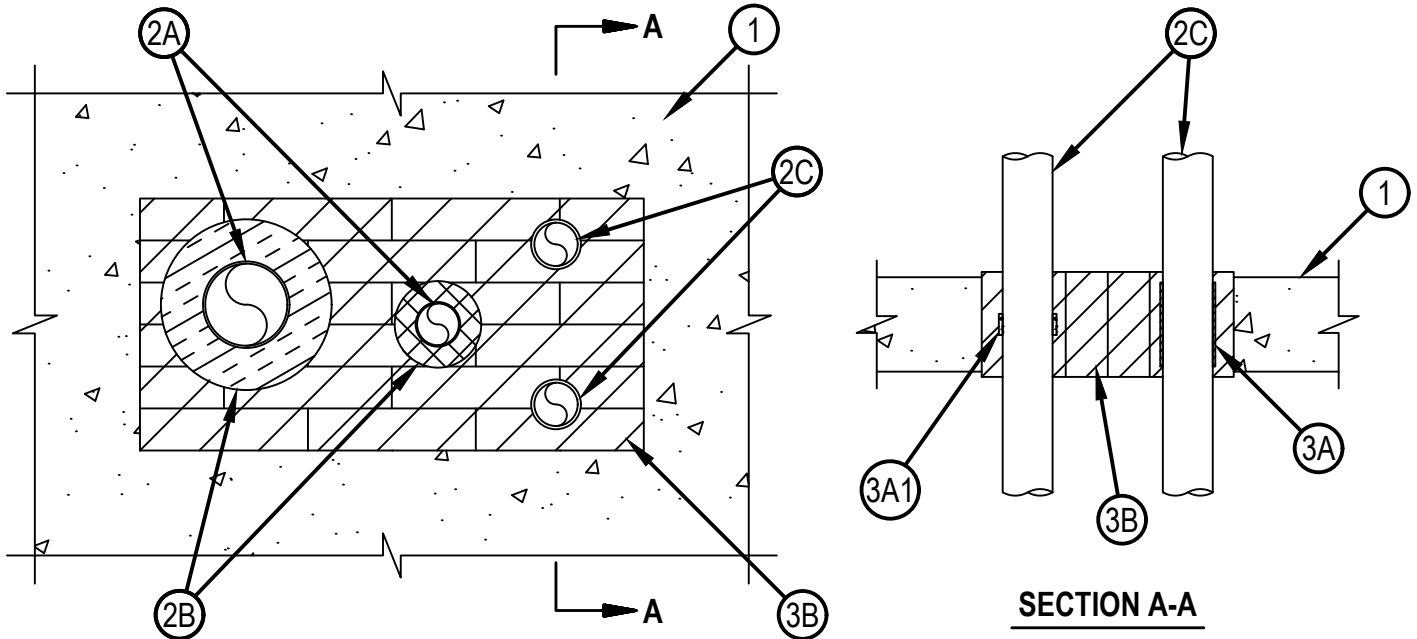


Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. C-AJ-8211

CAJ 8211

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Ratings — 0, 1-1/4 and 1-3/4 Hr (See Item 2)	FT Ratings — 0, 1-1/4 and 1-3/4 Hr (See Item 2)
	FH Rating — 2 Hr
	FTH Ratings — 0, 1-1/4 and 1-3/4 Hr (See Item 2)



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) concrete floor or wall. Wall may also be constructed of any UL Classified Concrete Blocks*. Max area of opening is 288 in² (1858 cm²) with maximum dimension of 24 in. (610 mm).
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Through-Penetrants — One or more penetrants to be installed within the opening. The total number of through-penetrants is dependent on the size of the opening and types and sizes of the penetrants. Any combination of the penetrants described below may be used unless noted below provided that the following parameters relative to the annular spaces and the spacings between the penetrants are maintained. The min spacing between adjacent penetrants shall be 3 in. (76 mm). The annular space between penetrants and the periphery of opening shall be min 1 in. (25 mm). Penetrants to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used.
 - A. Metallic Pipes — The following types and sizes of metallic pipes or tubing may be used.
 - A1. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tube.
 - A2. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
 - A3. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
 - A4. Iron Pipe — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
 - B. Pipe Insulation — One of the following types of pipe insulation shall be used on each metallic penetrant (Item 2A), except that a maximum of two metallic penetrants with diam not exceeding 3 in. (76 mm) may be installed in the opening with no pipe insulation.. The hourly T, FT and FTH Ratings are 0 hr when metallic penetrants with no pipe insulation are installed in the firestop system.



Hilti Firestop Systems

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See Pipe and Equipment Covering —Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

B2. Tube Insulation-Plastics+++ — Nom 1 in. (25 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. May be used on metallic penetrants with diam not exceeding 2 in. (51 mm). The hourly T, FT and FTH Ratings shall not exceed 1-1/4 hr when metallic penetrants with this tube insulation are installed in the firestop system.

See Plastics+++—(QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.

C. Nonmetallic Through-Penetrants — The following types and sizes of nonmetallic penetrants may be used.

C1. Polyvinyl Chloride (PVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. Canadian certification applies to closed pipes only.

C2. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.

The hourly T, FT and FTH Ratings are 0 hr when nonmetallic penetrants with Item 3A1 protection are installed in the firestop system. The hourly T, FT and FTH Ratings shall not exceed 1-3/4 hr when nonmetallic penetrants with Item 3A protection are installed in the firestop system.

D. Cables — (Not Shown) Max 2 in. (51 mm) diam tight bundle of cables may be installed within the opening and rigidly supported on both sides of floor or wall assembly. Any combination of the following types and sizes of metallic conductor or fiber optic cable may be used: The hourly T, FT and FTH Ratings are 0 hr when cables are installed in the firestop system.

A. Max 500 kcmil single copper conductor power cable with thermoplastic insulation and polyvinyl chloride (PVC) jacket.

B. Max 300 pair No. 24 AWG copper conductor telecommunication cables with PVC insulation and jacket material.

C. Max 7/C copper conductor No. 12 AWG multiconductor power and control cables with PVC or cross-linked polyethylene (XLPE) insulation and PVC jacket.

D. Multiple fiber optical communication cables jacketed with PVC and having a max outside diam of 1/2 in. (13 mm).

E. Max 3/C copper conductor No. 12 AWG with bare aluminum ground, PVC insulated steel Metal-Clad cable.

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

A. Fill Void or Cavity Materials*-Sealant — For nonmetallic penetrants, nom 4 in. (102 mm) high by nom 1/16 in. (1.59 mm) thick layer of sealant to be applied to outer circumference of pipe approximately centered in thickness of wall or floor, prior to installation of fire block.

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

A1. Fill, Void or Cavity Material* — Wrap Strip - As an alternate to Item 3A for nonmetallic pipes, one layer of nom 3/16 in. (4.8 mm) thick by 1 in. (25 mm) wide intumescent wrap strip is wrapped around pipe with ends butted and held in place with tape. Wrap strip nominally centered in thickness of wall or floor.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP648-E- W25/1" Wrap Strip

B. Fill Void or Cavity Materials*-Fire Blocks — Fire blocks installed with 5 in. (127 mm) dimension projecting through opening, centered within thickness of floor or wall assembly. In concrete block walls, fire block to fill entire thickness of wall opening unless wall is solid filled. Blocks to be firmly packed and completely fill the entire area of opening around penetrants.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-BL Firestop Block

C. Fill Void or Cavity Materials* — (Not Shown) Fill material applied to fill any voids that may exist between and around penetrants and fire blocks within the opening. Fill material to be applied from both sides of wall or top surface of floor.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant or CP618 Putty

Note: CP 618 Putty is not suitable for use with CPVC (Item 2C2).

+++Bearing the UL Recognized Component Marking

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



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