

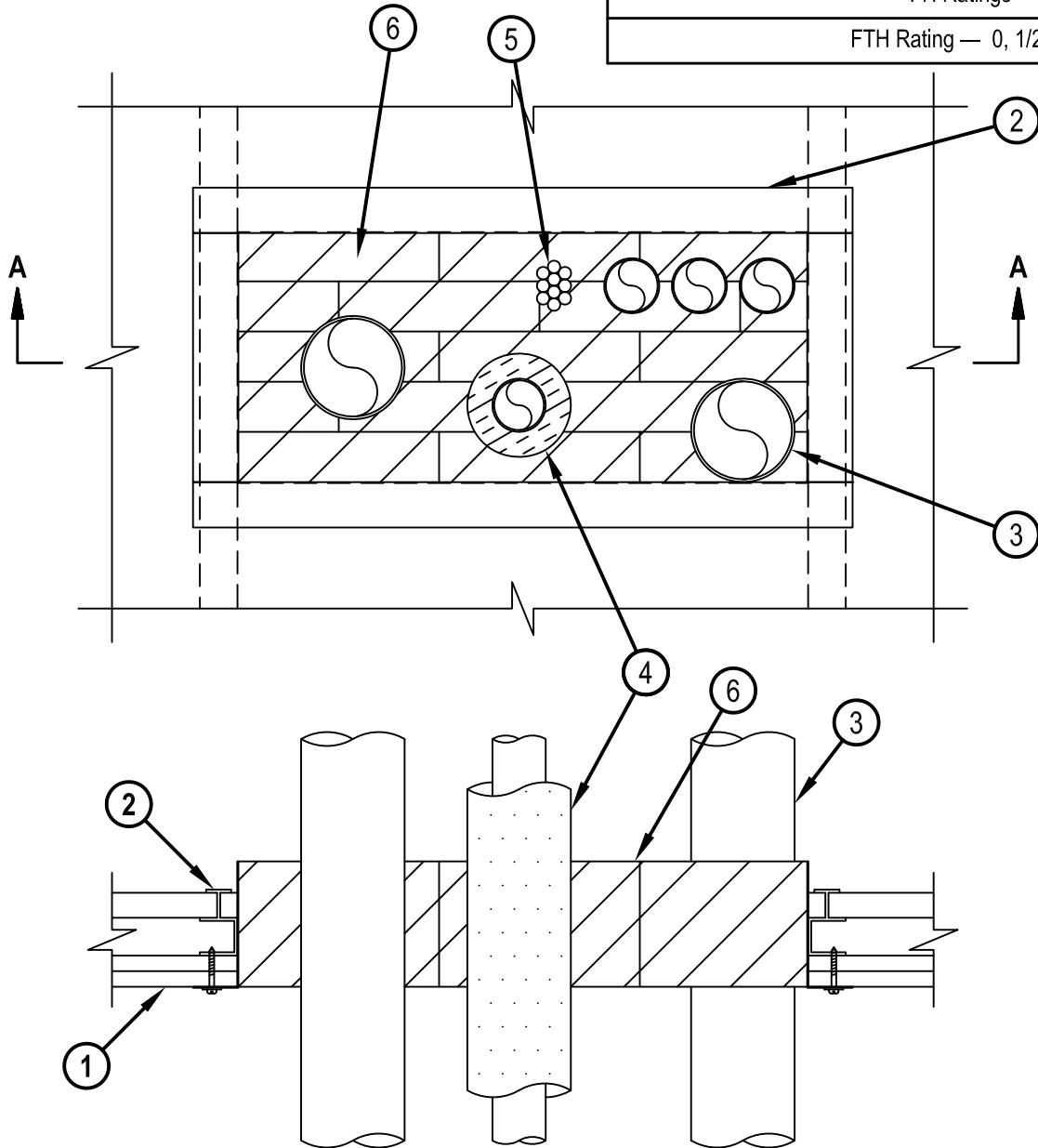


Classified by  
Underwriters Laboratories, Inc.  
to UL 1479 and CAN/ULC-S115

# System No. W-L-8098

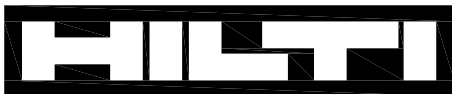
WL 8098

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



1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud shaft wall assembly shall be constructed of the materials and in the manner specified in the individual U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall incorporate the following construction features:

A. Steel Studs — "C-H" or "C-T" shaped studs, min 2-1/2 in. (64 mm) wide by 1-1/2 in. (38 mm) deep, fabricated from min No. 25 gauge (0.6 mm thick) galv steel, spaced max 24 in. (610 mm) OC.



**Hilti Firestop Systems**

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- B. Gypsum Board\* — 1 in. (25 mm) thick, 24 in. (610 mm) wide gypsum liner panels installed vertically.
- C. Gypsum Board\* — 1/2 in. or 5/8 in. (13 or 16 mm) thick, 48 in. (1.2 m) wide gypsum boards. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. The maximum opening is 22-3/4 in. wide by 10 in. tall (578 by 254 mm).

The hourly F, FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

- 2. Sheet Metal Sleeve/Angle — Min 1-3/4 by 5 in. (44 by 127 mm) 24 gauge (or heavier) galvanized steel angle cut to fit all four sides of opening. Sleeve/Angle to be secured to one side of wall through the flanges with min 1-1/2 in. (38 mm) long drywall screws spaced max 8 in. (203 mm) OC around perimeter of opening.
- 2A. Firestop Device\* — Z Frame — (As an alternate to Item 2 above) - Min. 5 in. (127 mm) deep Z-frame cut to length for each side of the opening. Each Z-frame fastened to one side of wall with min 1-1/2 in. (38 mm) long drywall screw spaced max 8 in. (203 mm) OC around perimeter of opening.
- 3. Through-Penetrant — One or more pipes or tubes 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 provided that the following parameters relative to the annular spaces and the spacings between the pipes are maintained. The separation between cable bundle, tubes and insulated tubes shall be min 1/2 in. (13 mm). The annular space between penetrants and the periphery of opening shall be min 1/2 in. (13 mm). Pipes or tubes to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or tubes may be used.
  - A. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tube.
  - B. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
  - C. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
  - D. Iron Pipe — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
  - E. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or rigid steel conduit.The hourly T, FT and FTH Ratings are, 0 hr when a bare copper tube and 1/2 hr a cable bundle are used and 3/4 hr when a copper tube with AB/PVC tube insulation is used.
- 4. Pipe Insulation — (Optional)—The following types of pipe insulation may be used:
  - A. Tube Insulation-Plastics+++ — Nom 3/4 or 1 in. (19 or 25 mm) thick (or thinner) acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing.  
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.
- 5. Cables — Max 2 in. diam tight bundle of cables installed within the opening and rigidly supported on both sides of floor or wall assembly. The space between the cables and periphery of the opening shall be min 1/2 in. (13 mm). Any combination of the following types and sizes of metallic conductor of fiber optic cable may be used:
  - A. Max 25 pair No. 24 AWG copper conductor telecommunication cables with PVC insulation and jacket.
  - B. Max 7/C copper conductor No. 12 AWG multi-conductor power and control cables with PVC or cross-linked polyethylene (XLPE) insulation and PVC jacket.
  - C. Multiple fiber optical communication cables jacketed with PVC and having a max outside diam of 1/2 in. (13 mm).
  - D. Max 3/C copper conductor No. 8 AWG with bare aluminum ground, PVC insulated steel Metal-Clad cable.
  - E. 3/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
  - F. Type R GU/59 coaxial cable with PVC outer jacket.
  - G. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
- 6. Firestop System — The firestop system shall consist of the following:
  - A. Fill Void or Cavity Materials\* - Fire Blocks — Fire blocks installed with 5 in. (127 mm) dimension projecting through opening. Blocks to be firmly packed and completely fill the entire area of opening.  
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-BL Firestop Block
  - B. Fill Void or Cavity Materials\* — Fill material applied to any voids that may exist around penetrants and fire blocks.  
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant or CP618 Firestop Putty Stick

+++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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