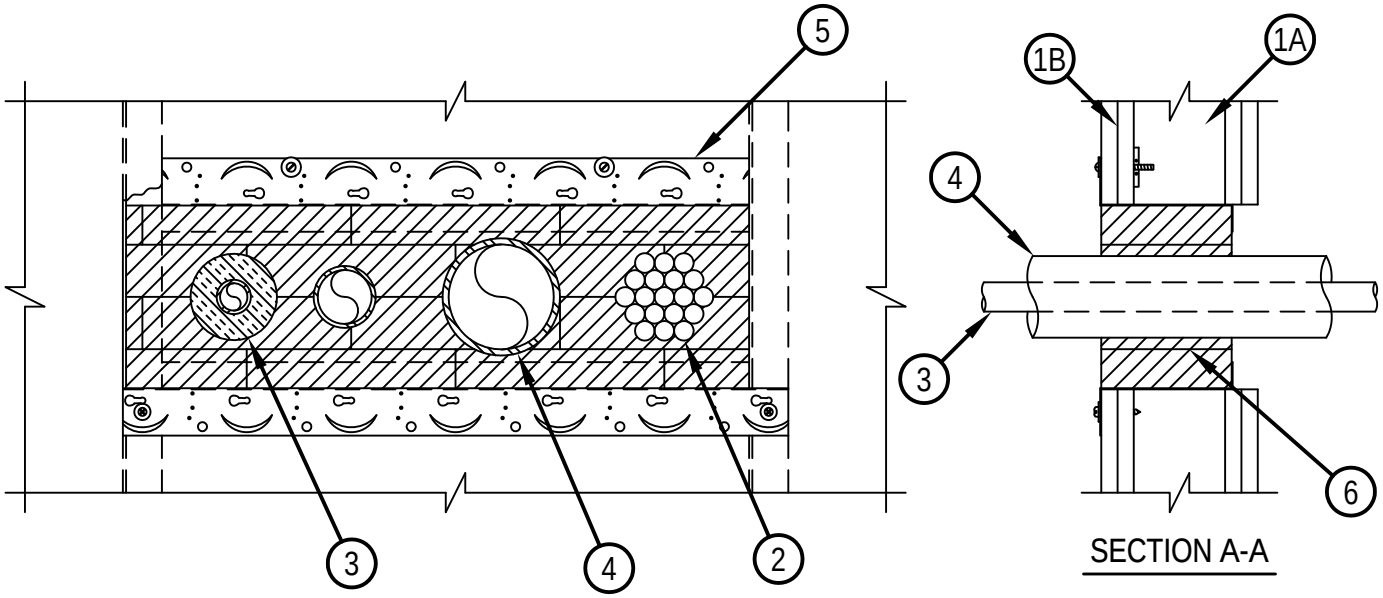
System No. W-L-8058

Classified by Underwriters Laboratories, Inc. to UL 2079 and CAN/ULC-S115

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



1. Wall Assembly — The 1 and 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or channel shaped steel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be nom 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. Vertical framing members required at both sides of opening.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (1.22 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. For wood stud walls, max area of opening is 103.25 sq in. (666 cm2) with max dimension of 14.75 in. (375 mm) wide. For steel stud walls, max area of opening is 159.25 sq in. (1027 cm2) with max dimension of 22.75 in. (578 mm) wide.
   The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Cables — One or more max 4 in. (102 mm) diam cable bundles installed within the opening. Cables are tightly bundled and rigidly supported on both surfaces of wall. See Item 3 for annular space. Any combination of the following types and sizes of cables may be used:
   A. 7/C No. 12 AWG with polyvinyl chloride (PVC) jacket.
   B. Max 25 pair No. 24 AWG telephone cable with PVC jacket.
   C. Type R GU/59 coaxial cable with PVC jacket.
   D. Max 3/C No. 8 AWG (or smaller) metal-clad cable.
   E. Max 3/C (+ ground) No. 8 AWG (or smaller) copper conductor cable (romex).
   F. Max 5/8 in. (16 mm) diam fiber-optic cable.

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3. Through-Penetrants — 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 spacing between the pipes are maintained. The annular space between cable bundles, pipes, tubing and insulated penetrants shall be a min of 1/2 in. (13 mm). The annular space between cable bundles, pipes, tubing and insulated penetrants and 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, conduits or tubing may be used:
   A. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.
   B. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or rigid steel conduit.
   C. Copper Pipe — Nom 2 in. (51 mm) diam (or smaller) Regular (or heavier) copper pipe.
   D. Copper Tubing — Nom 2 in. (51 mm) diam (or smaller) Type L (or heavier) copper tubing.

   The T, FT and FTH Ratings are 1/2 hr except that when metallic penetrants are used without pipe covering (Item 4), the T, FT and FTH Ratings are 0 hr.
4. Pipe Covering* — Optional - May be installed on metallic through penetrants A, C and D (Item 3). Nom 1 in. thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m3) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.

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.

5. Firestop Device* — Z Frame — Min. 5 in. (127 mm) deep. Z-frame cut to length for the top and bottom of the opening. Each Z-frame fastened to the wall with two toggle bolts spaced max 12 in. (305 mm) on center or with two 3/16 in. (5 mm) diam by 2-5/8 in. (67 mm) long Type S self-drilling steel screws, one at each end of frame.

   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP675T-Z Firestop Frame
6. Fill, Void or Cavity Material* — Fire Block — Min 5 in. (127 mm) depth to fill area between cables, pipes, tubing, conduits, wall framing and Z-frame. Blocks firmly packed and installed with 5 in. (127 mm) dimension projecting through openings flush with back lip of Z-Frame (Item 5). Either one or a combination of the block types specified below can be used.

   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS657 Fire Blocks or CFS-BL Firestop Block

*Bearing the UL Classification Mark