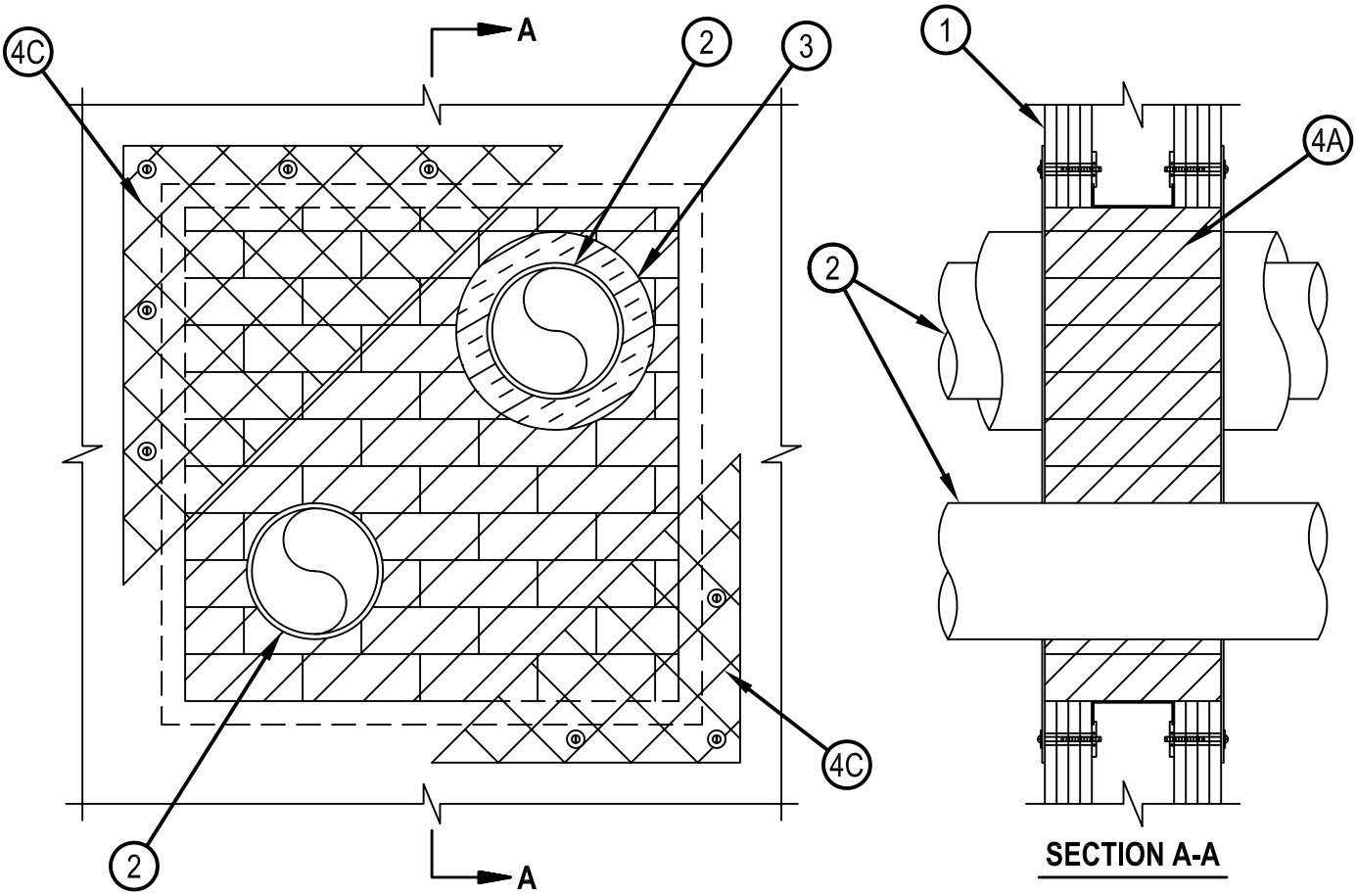
System No. W-L-8015

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

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



1. Wall Assembly — The fire-rated gypsum wallboard/stud assembly shall be constructed of the materials and in the manner specified in the individual U400, V400 or W400 Series Wall and Partition Design in the Fire Resistance Directory and shall include the following construction features:

   A. Studs — Wall framing shall consist of channel shaped steel studs, min 3-5/8 in. (92 mm) wide, fabricated from min 25 MSG galv steel, spaced max 24 in. (610 mm) OC.

   B. Gypsum Board* — Min 1/2 in. (13 mm) thick with square or tapered edges. The gypsum board type, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Design Number. Max area of opening is 480 sq. in. (3097 sq cm) with max dimension of 24 in. (610 mm).

   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.

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2. Through Penetrants — A max of two pipes, conduit or tubing to be installed within the opening. The space between pipes, conduits or tubing shall be 4 in. (102 mm) min to 6-3/4 in. (171 mm) max and between the periphery of the opening and the pipes or conduits shall be min 1-1/2 in. (38 mm) to max 4 in. (102 mm). Pipe, conduit or tubing to be rigidly supported on both sides of the wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electric metallic tubing or 6 in. diam steel conduit.
   C. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   D. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
3. Pipe Covering* — (Optional) — Nom 1-1/2 in. (38 mm) thick hollow cylindrical heavy density (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. A nom annular space of 1-1/2 in. (38 mm) is required between the periphery of the opening and the penetrant.
   See Pipe 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.
3A. Metal Jacket — (Not Shown) — Required when pipe covering (Item 3) is used. Min 6 in. (152 mm) long jacket formed of min 0.010 in. (0.25 mm) thick steel sheet cut to wrap tightly around the pipe insulation with a min 2 in. (51 mm) lap. Jacket secured with min 1/2 in. (13 mm) wide stainless steel hose clamp located at the center of the jacket. Jacket to be installed on both surfaces of wall and recessed into the opening 1 in. (25 mm).
   See Pipe 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.
4. Firestop System — The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material* — For 3 and 4 hr F rating, fire blocks installed with long dimension passed through the opening from surface to surface. For 1 and 2 hr F rating, fire blocks installed with 5 in. (127 mm) dimension passed through the opening from surface to surface. Blocks to be firmly packed to completely fill entire opening. Either one or a combination of the block types specified below may be used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS 657 Fire Block or CFS-BL Firestop Block
   B. Fill, Void or Cavity Material* — Fill material to be forced into between the penetrants and the Fire Blocks and in obvious openings between blocks and between blocks and the periphery of the opening to the max extent possible on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant or CP 618 Putty Stick
   C. Wire Mesh — When the annular space exceeds 4 in. (102 mm) to the periphery, a nom 2 sq. in. (12.9 cm2) wire fencing shall be used to keep the blocks in place. The wire fencing is fabricated from min No. 16 SWG (0.060 in. or 1.5 mm) galv steel wire. The wire is cut to fit the contour of the penetrating item with a min 3 in. (76 mm) lap beyond the periphery of the opening. Wire fencing secured to both surfaces of the wall assembly by means of 1/4 in. (6 mm) diam by 4-3/16 in. (106 mm) long hollow wall anchors and 1/4 in. (6 mm) by 1-1/2 in. (38 mm) diam fender washers spaced max 8 in. (203 mm) OC.

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