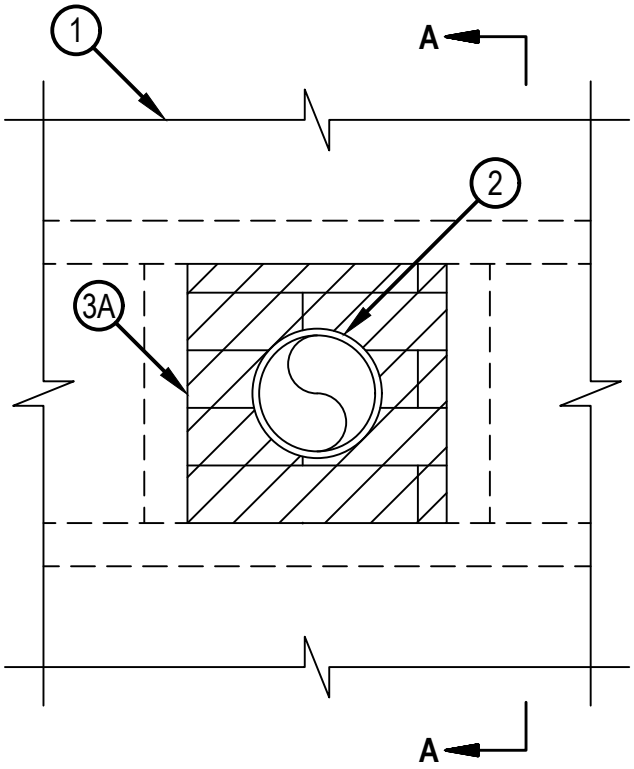
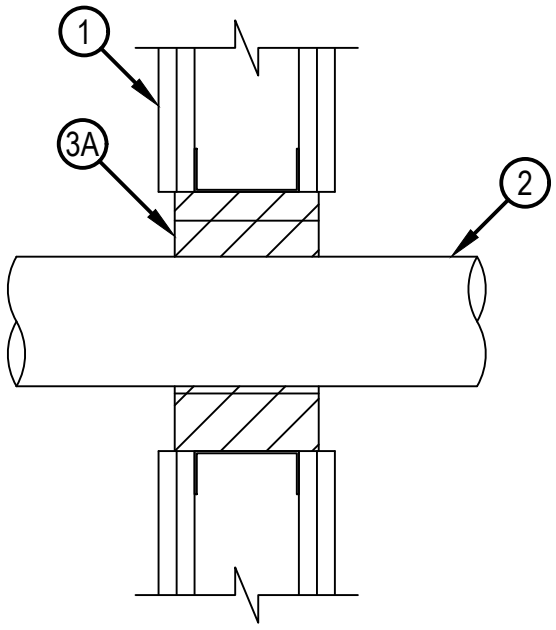
Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. W-L-1597

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 Rating —0 Hr	FT Rating —0 Hr
L Rating (Without Movement) at Ambient — 5 CFM/sq ft	FH Ratings —1 and 2 Hr (See Item 1)
L Rating (Without Movement) at 400°F — 2 CFM/sq ft	FTH Rating —0 Hr
M Rating (Movement) — See Item 3B - Table 1	L Rating at Ambient (Without Movement) — Less Than 26.1 L/s/m² (See Item 3B
	L Rating at 204°C (Without Movement) — Less Than 10.4 L/s/m² (See Item 3B)
L Rating (With Movement) at Ambient — 5.2 CFM/sq ft	L Rating (With Movement) at Ambient — 26.5 L/s/m²
L Rating (With Movement) at 400°F — 1.03 CFM/sq ft	L Rating (With Movement) at 204°C — 5.3 L/s/m²



SECTION A-A



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1. Wall Assembly — The 1 or 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 Fire Resistance Directory and shall include the following construction features.
   A. Studs — Wall framing shall consist of either wood studs or channel shaped steel studs. Wood studs to consist of min 2 in. (51 mm) by 4 in. (102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-5/8 in. (92 mm) wide, spaced max 24 in. (610 mm) OC. Additional studs shall be used to completely frame the opening.
   B. Gypsum Board* — Nom 5/8 in. (16 mm) thick, 4 ft. (1219 cm) 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 or partition design in the UL Fire Resistance Directory. Max area of opening is 81 in2 (522.6 cm2) with max dimension of 9 in. (228.6 mm).
2. Through Penetrants — One metallic pipe or conduit installed concentrically within the firestop system. Annular space between penetrant and periphery of opening to be min 0 in. (point contact) to max 2.5 in. (63.5 mm). Penetrant to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic penetrants 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) rigid steel conduit or steel electrical tubing.
   C. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing
   D. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) regular (or heavier) copper pipe.
   E. Aluminum Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 10 (or heavier) aluminum pipe for use in closed (process or supply) systems or vented (drain, waste or vent) systems.
   F. Aluminum Conduit — Nom 2 in. (51 mm) diam (or smaller) or rigid aluminum conduit.
3. Firestop System — The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material* — Fire block installed with 5 in. (127 mm) dimension projecting through and centered in opening. For walls constructed of larger steel studs, fire block installed with long dimension passing through and centered in opening. Blocks to be firmly packed and completely fill the entire opening around the penetrant.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-BL Firestop Block
   B. Fill, Void or Cavity Material* — (Not Shown) Fill material to be forced into any voids/openings between blocks, around penetrants, and between blocks and periphery of opening to the max extent possible on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant

The M Rating for the firestop system is dependent on the variables as noted in the Table 1 below.

Movement Direction	Penetrant Item	Nominal Penetrant Diam,	Annular Space	Movement
Y	All	4 in. (102 mm)	Max 2.5 in. (64 mm)	50%
Z	All	4 in, (102 mm)	2.5 in.(64 mm)	2.23 in(56.6 mm)

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