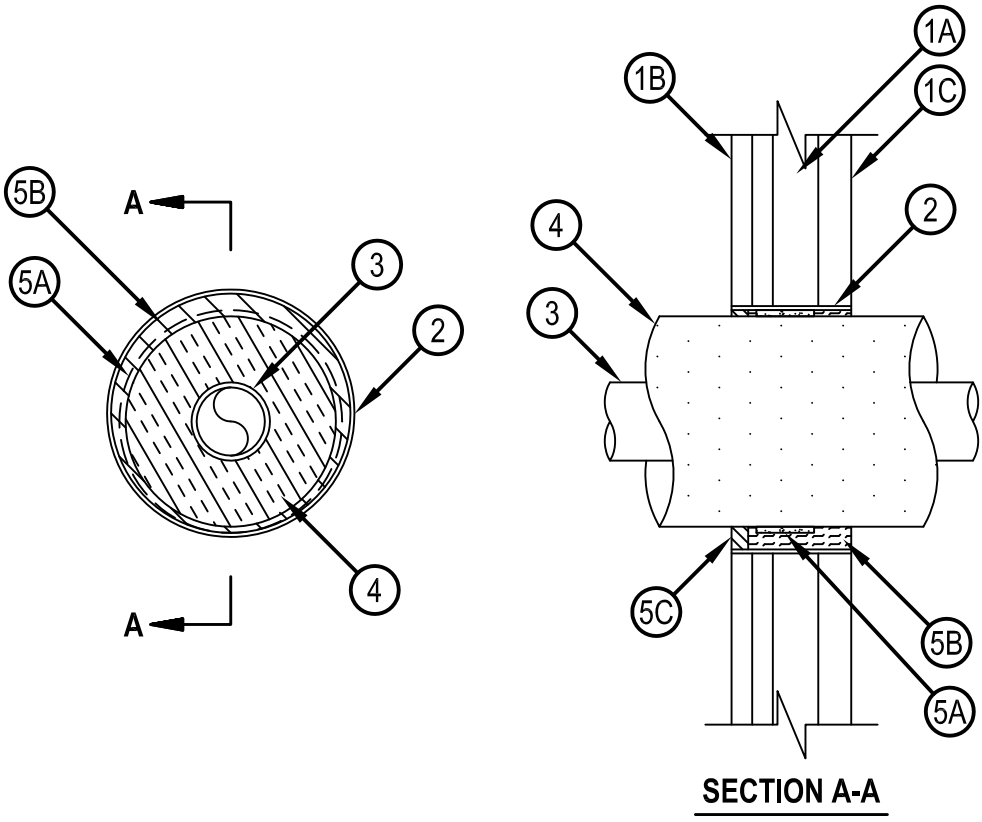
System No. W-L-5244

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

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



SECTION A-A

1. Wall Assembly — The 2 hr fire rated 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 include the following construction features:
   A. Steel Studs — C - H or C - T shaped studs, 2-1/2 in. (64 mm) wide by 1- 1/2 in. (38 mm) deep, spaced 24 in. (610 mm) OC.
   B. Gypsum Board* — 1 in. (25 mm) thick gypsum board liner panels, supplied in nom 24 in. (610 mm) widths and installed vertically as specified in the individual U400 or V400 Series Wall and Partition Design. Max diam of opening is 7-1/2 in. (191 mm).
   C. Gypsum Board* — Two layers of min 1/2 in. (13 mm) thick gypsum board as specified in the individual U400 or V400 Series Wall and Partition Design. Max diam of opening is 7 - 1/2 in. (191 mm).

1A. Wall Assembly — As an alternate to the above wall assembly, the 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 steel channel studs. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC.
   B. Gypsum Board* — Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Max diam of opening is 7-1/2 in. (191 mm).

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2. Steel Sleeve — Cylindrical sleeve fabricated from nom 0.019 in. (0.49 mm) thick (or lighter) galv sheet steel and having a min 1 in. (25 mm) lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall such that, when installed, the ends of the sleeve will be flush with each wall surface. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the opening and releasing the coil to let it uncoil against the circular cutouts in the gypsum board layers.
3. Through Penetrants — One metallic pipe or tube installed within the firestop system. Pipe or tube to be rigidly supported on both sides of wall assembly. The following types of metallic pipes or tubes may be used:
   A. Steel Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. Iron Pipe — Nom 2 in. (51 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Tubing — Nom 2 in. (51 mm) diam (or smaller) Type L (or heavier) copper tubing.
   D. Copper Pipe — Nom 2 in. (51 mm) diam (or smaller) Regular (or heavier) copper pipe.
4. Pipe Covering — Max 2 in. (51 mm) thick hollow cylindrical heavy density 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 product. Annular space between the pipe covering and sleeve shall be min 3/16 in. (5 mm) to max 13/16 in. (21 mm). 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 value of 25 or less and a Smoke Developed value of 50 or less may be used.
   The T, FT and FTH Rating of the firestop system is dependent upon the thickness of the pipe covering. If the nom thickness of the pipe covering is 2 in. (51 mm), the T, FT and FTH Ratings are 3/4 hr. If the nominal thickness of the pipe covering is less than 2 in. (51 mm), the T, FT and FTH Ratings are 0 hr.
5. Firestop System — The firestop system shall consist of the following:
   A. Fill, Void or Cavity Materials* - Wrap Strip — Nom 3/16 in. (5 mm) thick intumescent material supplied in 1- 3/4 in. (45 mm) wide strips. One layer of wrap strip tightly wrapped around pipe covering and held in position using tape. Wrap strip to be recessed approx 3/4 in. (19 mm) from finished surface of wall (Item 1C) such that the leading edge of wrap strip is flush with inner surface of gypsum board liner panel (Item 1B). In alternate wall assembly, the wrap strip is to be recessed approx 3/4 in. from either surface of wall assembly.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 648E Wrap Strip
   B. Packing Material — Min 3-1/4 in. (83 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from finished surface of wall to accommodate the required thickness of fill material. In alternate wall assembly, packing material to be flush with the side of the wall opposite of the side from which the wrap strip is recessed. Packing material to be recessed from the other side of the wall to accommodate the required thickness of fill material.
   C. Fill, Void or Cavity Materials* - Sealant — Min 1/2 in. (13 mm) thickness of caulk applied within annulus, flush with finished surface of wall assembly. In alternate wall assembly, min 1/2 in. (13 mm) sealant applied within annulus flush with the surface from which the packing material has been recessed
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

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