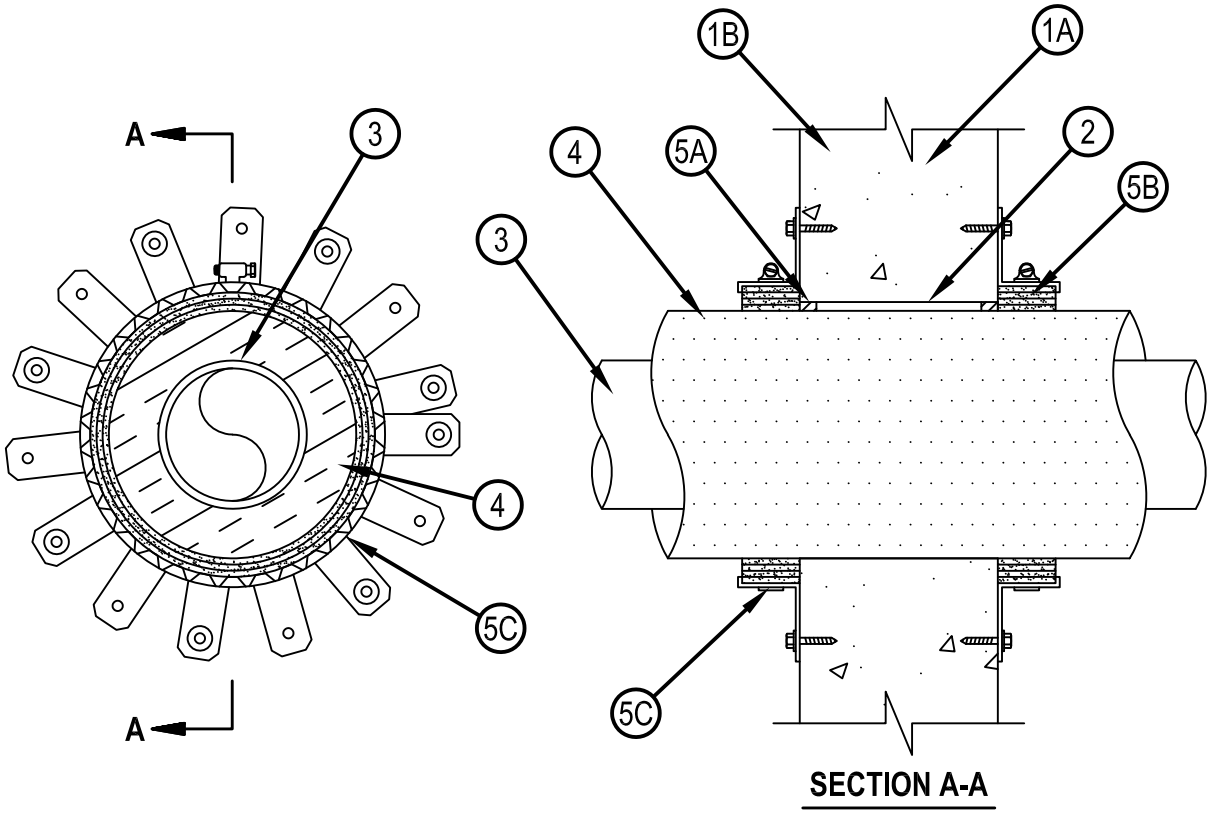
Classified by
Underwriters Laboratories, Inc.
to UL 1479

System No. W-J-5192

F Rating - 2 Hr
T Rating - 2 Hr



SECTION A-A

1. Wall Assembly — Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 7-5/8 in. (194 mm).
   See Concrete Blocks (CAZT) in the Fire Resistance Directory for names of manufacturers.
2. Steel Sleeve — (Optional) - Min 28 gauge galv steel sleeve with 1 in. (25 mm) overlap along longitudinal seam and installed flush with both surfaces of wall.
3. Through Penetrants — One nom 4 in. (102 mm) diam (or smaller) SDR 9 PEX tubing designated Uponor AquaPEX or hePEX for use in closed (process or supply) piping systems.
4. Pipe Covering* — Nom 1-1/2 in. (38 mm) 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. A nom annular space of min 0 in. (point contact) to max 1/8 in. (3.2 mm) is required within the firestop system.
   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.

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5. Firestop System — The firestop system shall consist of the following:

A. Fill, Void or Cavity Material* - Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant

B. Fill, Void or Cavity Material* — Wrap Strip — Nom 3/16 in. (5 mm) thick by 1-3/4 in. (44 mm) wide intumescent wrap strip. Layers individually wrapped around the through-penetrant with the ends butted and held in place with tape. Butted ends in successive layers shall be offset. Each wrap strip layer is to be installed flush with both surfaces of wall.

Product Designation	Max Pipe Size, in. (mm)	Number of Layers
CP648-E W25/1-3/4"	3 (76)	3
CP648-E W25/1-3/4"	4 (102)	4

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP-648E Wrap Strip

C. Steel Collar — Steel collar fabricated from coils of precut min 0.016 in. (0.4 mm) thick (No. 28 gauge) galv steel available from fill material manufacturer. Collar shall be nom 1-3/4 in. (44 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs on 1-3/4 in. (44 mm) centers for securement to both surfaces of wall. In addition, collars contain retainer tabs 1/2 in. (13 mm) wide by 3/16 in. (5 mm) long, located opposite the anchor tabs. Collar shall be tightly wrapped over the wrap strip, overlapping min 1 in. (25 mm) at seam and compressed with a min 0.028 in. (0.7 mm) thick stainless steel band at collar mid-height or secured at overlap with two No. 8 sheet metal screws. Collar shall be tightly wrapped over the wrap strip, overlapping min. 1 in. (25 mm) at seam. A nom 1/2 in. (13 mm) wide stainless steel hose clamp shall be secured to the collar at its mid-height or secured at overlap with two No. 8 sheet metal screws. Every other anchor tab of collar secured to concrete with 1/4 in. (6 mm) diam by 1-1/4 in. (32 mm) long steel expansion type masonry fasteners, 1-1/4 in. (32 mm) long concrete screw anchors or 0.145 in. (3.5 mm) diam by 1-1/4 in. (32 mm) long powder actuated fasteners utilizing a nom 9/16 in. (15 mm) diam steel washer. As alternates to the anchors specified above, Hilti 1/4 in. (6 mm) diam by 1-1/4 in. (32 mm) long KWIK-CON II+ concrete screw anchor or Hilti 1/4 in. (6 mm) diam by 1-3/4 in. (44 mm) long KWIK-BOLT 3 steel expansion anchor, or Hilti X-DNI 27 P8S15 powder actuated floor pin with integral nom 9/16 in. (15 mm) diam steel washer may be used.

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