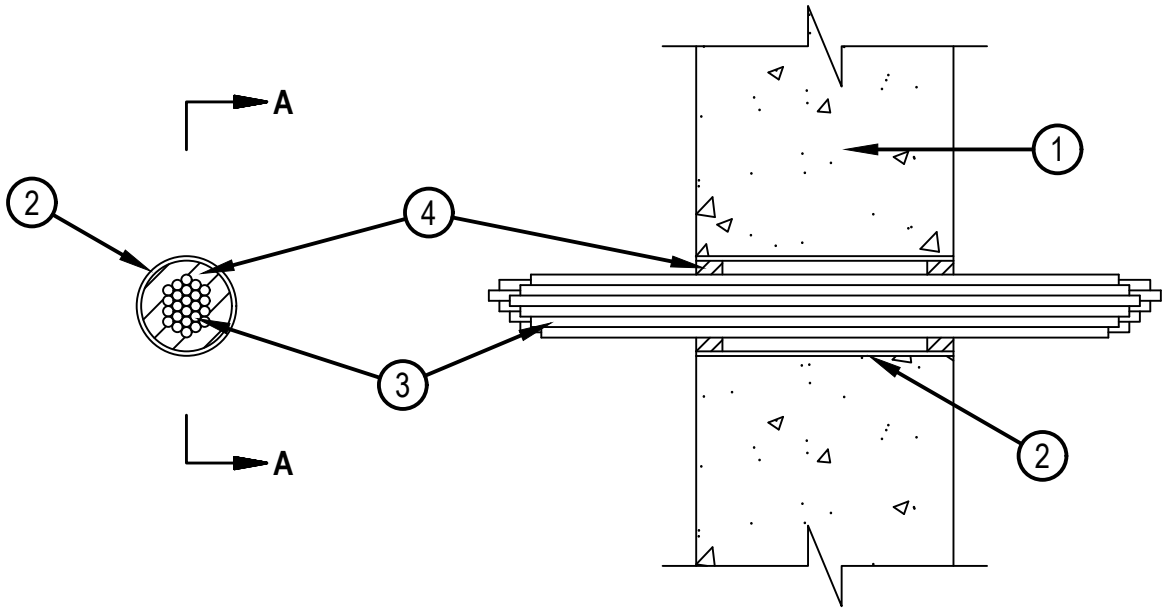
System No. W-J-3297

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 Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 2 Hr
	FTH Rating — 0 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 3-1/2 in. (89 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Aluminum Sleeve —- Nom 2 in. (51 mm) diam (or smaller) aluminum conduit, aluminum electrical metallic tubing (EMT) or Schedule 5 (or heavier) aluminum pipe, installed flush with wall surfaces. The annular space between aluminum sleeve and periphery of opening shall be min 0 in. (0 mm, point contact) to max 1-1/2 in. (38mm). The sleeve may extend up to 18 in. (457 mm) beyond the wall surface. As an option the sleeve may extend continuously beyond one wall surface. Sleeve to be rigidly supported on both sides of the wall assembly where extending beyond wall assembly.

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3. Cables — Aggregate cross-sectional area of cable in sleeve to be max 45 percent of the cross-sectional area of the sleeve. Cables to be rigidly supported on both sides of the wall assembly. Any combination of the following types and sizes of copper conductor cables may be used:
   A. Max 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
   B. Max 25 pair No. 24 AWG telephone cable with PVC insulation and jacket.
   B1. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
   C. Type RG/U coaxial cable with polyethylene (PE) insulation and PVC jacket having a max outside diameter of 1/2 in. (13 mm).
   C1. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
   D. Multiple fiber optical communication cable jacketed with PVC and having a max OD of 5/8 in. (16 mm).
   E. Through Penetrating Products*— Max three copper conductor No. 8 AWG .Metal-Clad Cable+.
      AFC CABLE SYSTEMS INC
   F. Max 3/C (with ground)(or smaller) No. 8 AWG copper conductor cable with PVC insulation and jacketing.
   G. Max 3/4 in. (19 mm) diam copper ground cable with or without a PVC jacket.
   H. Fire Resistive Cables* - Max 1-1/4 in. (32 mm) diam single conductor or multi conductor Type MI cable. A min 1/8 in. (3 mm) separation shall be maintained between MI cables and any other types of cable.
   I. Max 4/C with ground 300 kcmil (or smaller) aluminum SER cable with PVC insulation and jacket.
   J. Through Penetrating Product* - Any cables, Metal-Clad Cable+ or Armored Cable+ currently Classified under the Through Penetrating Products category.
   K. Maximum 3/C No. 8 AWG metal-clad cable.
   L. Maximum 5/8 diam fiber-optic cable with PVC jacket.

   See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.
4. Fill, Void or Cavity Material*— Sealant — Min 5/8 in. (16 mm) of fill material applied within the annulus around the sleeve, and flush with each end of the sleeve that is not continuous beyond wall surface. At the point contact location between sleeve and wall a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the sleeve to wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC —FS-ONE MAX Intumescent Sealant
5. Packing Material — (Optional, Not Shown) — Mineral wool forming material, polyurethane backer rod or polyethylene backer rod may be used as a backer for the fill material (Item 4). When used, it shall be firmly packed into annular space within the sleeve as a permanent form and recessed from end of sleeve to accommodate the required thickness of fill material.

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

+Bearing the UL Listing Mark