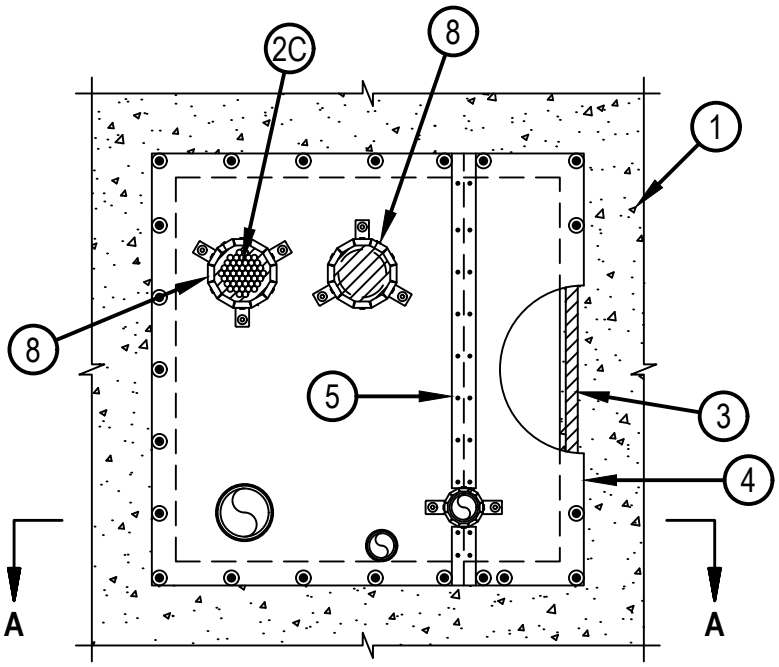
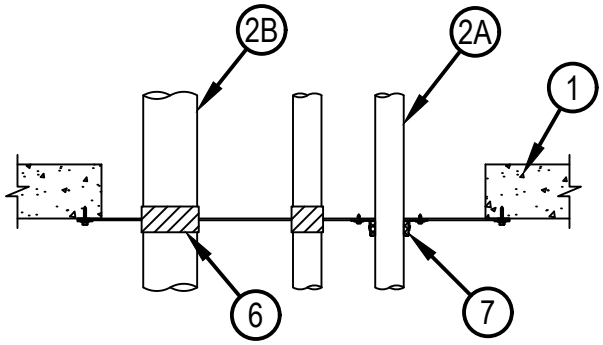
Classified by
Underwriters Laboratories, Inc.
to UL 1479

System No. C-AJ-8318

F Rating - 2 Hr
T Rating - 0 Hr





SECTION A-A

System No. C-AJ-8318

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick 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 area of opening 1024 in.2 (6606 cm2) with max dimension 32 in. (813 mm).
   See Concrete Blocks (CAZT) in the Fire Resistance Directory for names of manufacturers.
2. Through Penetrants — One or more penetrants may be installed within the opening. Only one seam shall exist in the composite sheet to accommodate penetrating items. The space between penetrants shall be minimum 4 in. (102 mm) except that nonmetallic penetrants shall be spaced min 6 in. (152 mm) from all other penetrants. The space between metallic penetrants of nom 2 in. diam (51 mm) or smaller and the periphery of the opening may be min 0 in. (point contact) or greater. The space between all other penetrants and the periphery of the opening shall be min 2 in. (51 mm). Penetrants to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used:
   A. Nonmetallic Penetrants — The following types and sizes of nonmetallic pipes or conduits may be used:
      1. Polyvinyl Chloride (PVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems, or solid core PVC pipe for use in closed (process or supply) piping systems.
      2. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) SDR13.5 solid core CPVC pipe for use in closed (process or supply) piping systems.
      3. Rigid Nonmetallic Conduit (RNC)+ — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).
   B. Metallic Penetrants — The following types and sizes of metallic pipes or conduits may be used:
      1. Nom 2 in. (51 mm) diam (or smaller) copper pipe or tubing (type L or regular).
      2. Nom 4 in. (102 mm) diam (or smaller) Sch 10 (or heavier) steel pipe.
      3. Nom 4 in. (102 mm) diam (or smaller) cast iron pipe.
      4. Nom 4 in. (102 mm) diam (or smaller) steel conduit or EMT.
   C. Cables — One or more max 4 in. (102 mm) diam cable bundles may be installed in the opening, for a 0 to 100 percent visual fill of the firestop device (Item 8). The cables shall be tightly bundled within the firestop device. Any combination of the following types of cables may be used:
      1. Max 100 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
      2. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
      3. Max 4/0 AWG Type RHH ground cable.
      4. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
      5. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
      6. 24 fiberoptic cable with polyvinyl chloride (PVC) or polyethylene (PE) jacket and insulation having a max diam of 1/2 in. (13 mm).
      7. Max 3/C No 12 AWG MC Cable.
3. Fill, Void or Cavity Materials* — One layer of 1 by 1/8 in. (25 by 3 mm) thick putty strips or min 1/2 in. (13 mm) diameter bead of sealant positioned under composite sheet as a gasket around entire perimeter of through opening.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 619T Firestop Putty Roll, CP 617 Firestop Putty Stick or FS-ONE MAX Intumescent Firestop Sealant
4. Fill, Void or Cavity Materials* — Composite Sheet — Rigid aluminum foil-faced intumescent sheet with steel backer. Only one seam shall exist in the composite sheet to accommodate penetrating items. Sheets cut to tightly follow the contour of the through-penetrants with an annular space equal to or less than 1/8 in. (3 mm). Sheets cut to lap a min of 2 in. (51 mm) onto floor or wall surfaces. Sheet installed on bottom surface of floor or both surfaces of wall. Sheet to be installed with the steel backer exposed (aluminum foil facing against floor or wall surface) and secured to floor or wall surface with min 1/4 in. (6 mm) diam by 1-7/8 in. (48 mm) long steel anchor screws, in conjunction with min 1-1/4 in. (32 mm) diam steel fender washers. Fasteners to be installed at each corner. Max spacing of fasteners not to exceed 6 in. (152 mm) and max 2 in. (51 mm) from ends with additional fasteners located on each side of butted seams.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — Hilti CFS-COS Firestop Composite Sheet

5. Cover Strip — Min 2 in. (51 mm) wide strip of min 24 ga stainless steel centered over entire length of the butted seam made in the composite sheet (Item 5). Steel cover strip secured to steel backer of composite sheet with min #8 steel sheet metal screws in conjunction with min 3/4 in. (19 mm) steel washers spaced max 6 in. (192 mm) OC on each side of seam. One layer of CP619T Putty Strip (Item 6) applied under the cover strip over the seam.
6. Fill, Void or Cavity Materials* — For each metallic through-penetrant, install two stacks of one layer of 1 by 1/8 in. (25 by 3 mm) thick putty strips, for a total height of 2 in. (51 mm), around the entire perimeter of metallic penetrating items. The 2 in. (51 mm) high layers of putty shall be centered in the composite sheet on bottom side of the floor or both sides of wall assembly.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 619T Firestop Putty Roll
7. Firestop Device* — Firestop Collar — For each nonmetallic penetrant (Item 2A), firestop collar shall be installed in accordance with the accompanying installation instructions. Collar sized for penetrant diam to be installed and latched around the pipe and secured to CFS-COS Firestop Composite Sheet at the underside of floor or both sides of wall using the anchor hooks provided with the collar. Collar may also be attached into concrete floor at those locations where the hook overlaps onto the floor a min of 1 in. (25 mm). Min two anchor hooks for nom 1-1/2 and 2 in. (38 and 51 mm) diam pipes. Min three anchor hooks required for nom 3 and 4 in. (76 and 102 mm) diam pipes. When attaching to Composite Sheet, the anchor hooks are to be secured with No. 10 (or heavier) self-drilling screws with 3/4 in (19 mm) washers. When attaching to concrete, the anchor hooks are to be secured with min 1/4 in. (6 mm) diam by min 1-1/4 in. (32 mm) long steel expansion bolts. 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, Hilti 1/4 in. (6 mm) diam by 1-3/4 in. (45 mm) long KWIK-BOLT 3 steel expansion anchors may be used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 643N 50/1.5", CP 643N 63/2", CP 643N 90/3", CP 643N 110/4", CP 643N 160/6"
8. Firestop Device* — Firestop device consisting of a steel collar with plug to be centered over max 4 in. (102 mm) diam opening and mounted to bottom surface of composite sheet on bottom of floor. For walls, one device is required on each side of wall, centered over opening, and mounted to outer faces of composite sheet on both sides. For openings with cables, plug within collar cut to fit tightly around the cable bundle. Collar secured to composite sheet on bottom side of floor, or on both sides of wall using the anchor hooks provided with the collar. The anchor hooks are to be secured with No. 10 by 3/4 in. (19 mm) long steel sheet metal screws with min 3/4 in. (19 mm) diam steel washers.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-CC 4" Firestop Cable Collar

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