

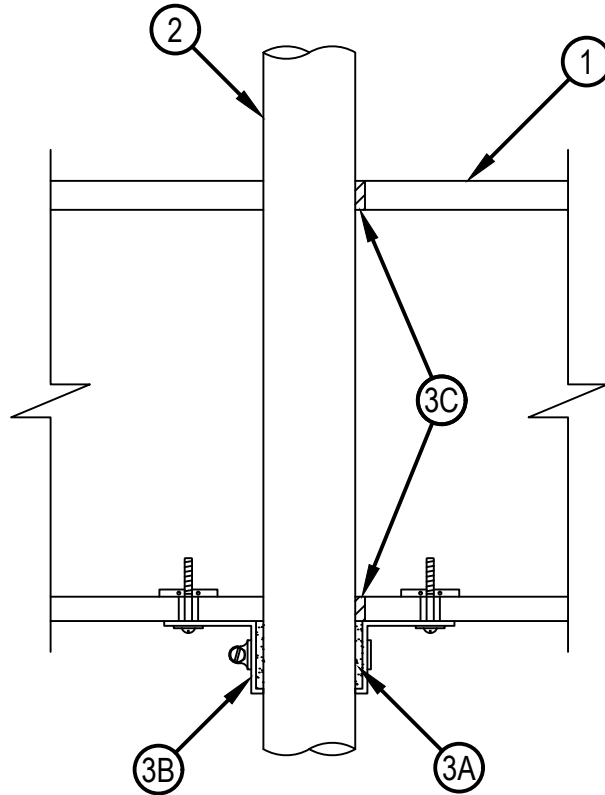
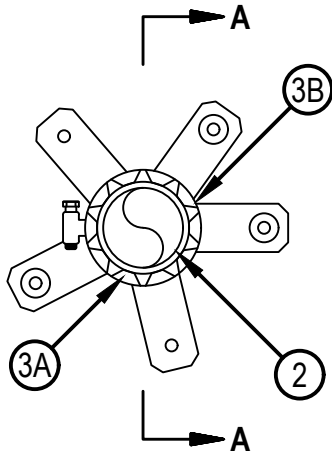


Classified by
Underwriters Laboratories, Inc.
to UL 1479

System No. F-C-2231

F Rating - 1 Hr
T Rating - 1 Hr

FC 2231



SECTION A-A

1. Floor-Ceiling Assembly — The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:
 - A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 2-5/8 in. (67 mm).
 - B. Wood Joists* — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.
 - C. Gypsum Board* — Nom 5/8 in. (16 mm) thick, 4 ft (122 cm) wide as specified in the individual Floor-Ceiling Design.
2. Through Penetrants — One nonmetallic pipe to be installed concentrically or eccentrically within the firestop system. Annular space between pipe and edge of opening to be min 0 in. (point contact) and max 1/4 in. (6 mm). Pipe to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
 - A. Polyvinyl Chloride (PVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe or Schedule 80 solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - B. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - C. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) SDR13.5 or Schedule 80 solid core CPVC pipe for use in closed (process or supply) piping systems.
3. Firestop System — The firestop system shall consist of the following:
 - A. 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. One layer of wrap strip tightly wrapped around the pipe and held in place with tape. Wrap strip butted tightly against surface of ceiling.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP648-E-W45/1-3/4" Firestop Wrap Strip
 - B. Steel Collar — Collar fabricated from coils of precut min 0.017 in. thick (No. 28 MSG) galv steel available from the sealant manufacturer. Collar shall be nom 1-3/4 in. (44 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchors tabs on 2 in. (51 mm) centers for securement to floor/ceiling assembly. The opposite side incorporates retainer tabs, 1/2 in. (13 mm) wide by 3/16 in. (4.8 mm) long, prebent toward the pipe surface. 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. Every other anchor tab of collar secured to gypsum ceiling with 1/4 in. (6 mm) diam by 1-1/2 in. (38 mm) long steel toggle bolts in conjunction with 1/4 in. by 3/4 in. (6 mm by 19 mm) diameter steel washers.
 - C. Fill, Void or Cavity Materials*-Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with the bottom surface of the gypsum board. Min 3/4 in. (19 mm) thickness of fill material applied within the annulus, flush with the top surface of the floor.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — 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.