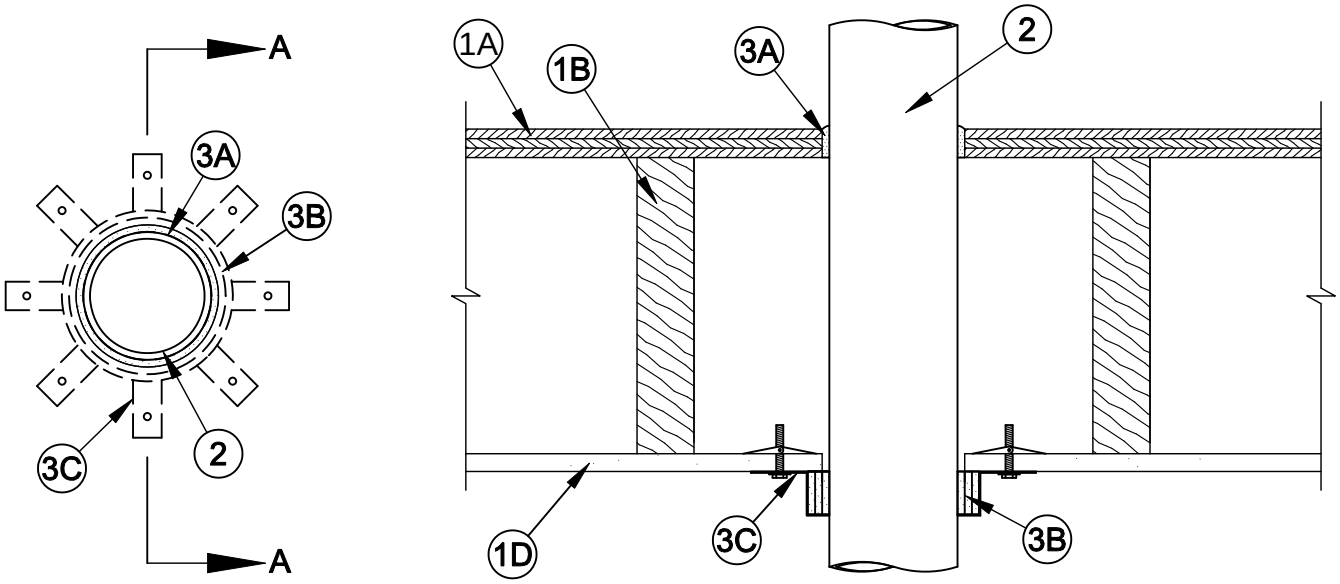
System No. F-C-2033

F Rating - 1 Hr
T Rating - 1 Hr



Section A-A

1. **Floor-Ceiling Assembly -** The fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction details 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 floor opening is 5 in.
   B. **Wood Joists -** Nom 2 by 10 in. lumber joists spaced 16 in. OC with nom 1 by 3 in. lumber bridging and with ends firestopped. As an alternate to lumber joists, nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or **Structural Wood Members*** with bridging as required with ends firestopped.
   C. **Furring Channels - (Not Shown) -** Resilient galv steel furring installed perpendicular to wood joists (Item 1B) between wallboard (Item 1D) and wood joists as required in the individual Floor-Ceiling Design.
   D. **Gypsum Board* -** Nom 4 ft wide by 5/8 in. thick as specified in the individual Floor-Ceiling Design. Max diam of ceiling opening is 5 in.
2. **Through Penetrants -** One nonmetallic pipe or conduit to be installed approximately midway between wood joists and installed either eccentrically or concentrically within the firestop system. Diam of openings hole-sawed through flooring system and through gypsum wallboard ceiling to be nom 1/2 in. larger than the outside diam of through-penetrant. The annular space between the through penetrant and the periphery of the opening shall be a min 0 in. (point contact) to a max of 1/4 in. Pipe or conduit to be rigidly supported on both sides of the floor-ceiling assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
   A. **Polyvinyl Chloride (PVC) Pipe -** Nom 4 in. diam (or smaller) Schedule 40 cellular or 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 4 in. diam (or smaller) Schedule 40 cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   C. **Rigid Nonmetallic Conduit+ -** Nom 4 in. diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70).
   D. **Chlorinated Polyvinyl Chloride (CPVC) Pipe -** Nom 4 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

3. **Firestop System -** The firestop system shall consist of the following:

   A. **Fill, Void or Cavity Material* - Sealant -** Fill material forced into annulus to max extent possible on top surface of floor. Additional fill material to be installed such that a min 1/8 in. crown is formed around the penetrating item.

      SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant

   B. **Fill, Void or Cavity Material* - Wrap Strip -** Nom 1/4 in. thick intumescent material faced on both sides with a plastic film, supplied in 1-1/2 in. wide strips. The layers of wrap strips are individually wrapped around the through-penetrant with the ends butted and held in place with masking tape. Butted ends in successive layers may be aligned or offset. The wrap strips are wrapped around through-penetrant on underside of gypsum wallboard ceiling. The number of wrap strips required is dependent upon the diameter of the through-penetrant as tabulated below:

Diam of Thought-Penetrant, In.	No. of Wrap Strip
2	1
3	2
4	3

      SPECIFIED TECHNOLOGIES INC - SpecSeal RED Strip

   C. **Steel Collar -** Collar fabricated from coils of precut 0.016 in. thick (30 MSG) galv sheet steel available form wrap strip manufacturer. Collar shall be nom 1-1/2 in. deep with 1 in. wide by 2 in. long anchor tabs for securement ot underside of ceiling. Retainer tabs, 3/4 in. wide tapering down to 1/4 in. wide and located opposite the anchor tabs, are folded 90 degree toward through-penetrant surface to maintain the annular space around the through-penetrant and to retain the wrap strips. Steel collar wrapped around wrap strips and through-penetrant with a 1 in. wide overlap along its perimeter joint and secured together by means of a min 1/2 in. wide by 0.028 in. thick stainless steel hose clamp at mid-depth of the steel collar. As an alternate to the steel hose clamp, the steel collar may be secured together by means of three No. 8 steel sheet metal screws. The length of the steel screws is dependent upon the number of layers of wrap strip used within the steel collar. For steel collars incorporating a single layer of wrap strip, the length of the steel screws shall be 1/4 in. long. For steel collars incorporating two or more layers of wrap strip, the length of the steel screws shall be 3/8 in. long. Collar secured to ceiling with 3/16 in. diam by min 2 in. long toggle bolts in conjunction with min 1/4 in. by 1 in. diam steel fender washers. The number of toggle bolts used is dependent upon the nom diam of the through penetrant. Two toggle bolts, symmetrically located, are required for nom 1-1/2 through 2 in. diam through penetrants. Three toggle bolts, symmetrically located, are required for nom 2-1/2 through 3 in. diam through penetrants. Four toggle bolts, symmetrically located, are required for nom 3-1/2 through 4 in. diam through penetrants.

      +Bearing the UL Listing Mark

      *Bearing the UL Classification Marking