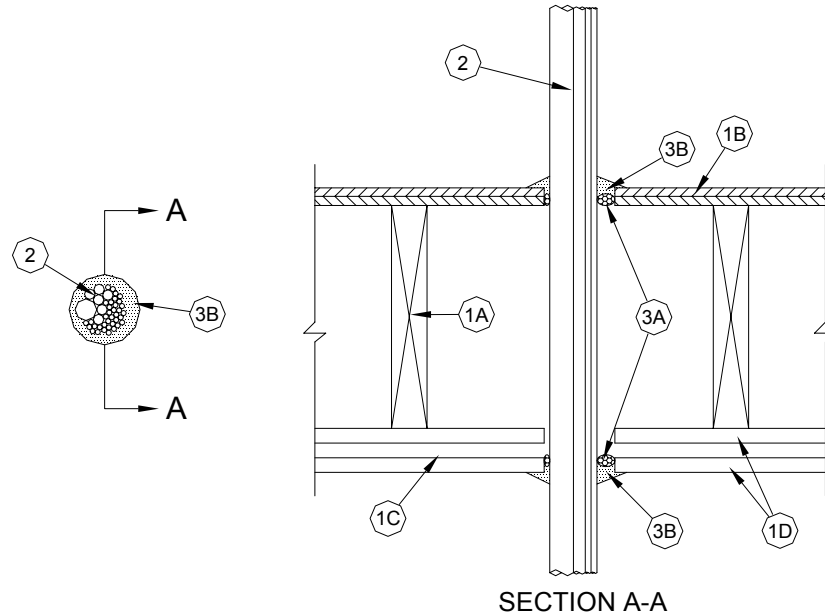


Through-penetration Firestop Systems
UL System No. F-C-3099
F Rating - 2 Hr
T Ratings - 0, 1-3/4 and 2 Hr (See Item 2)
L Rating at Ambient - 16 CFM/Sq Ft



1. **Floor-Ceiling Assembly** - The 2 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in Design Nos. L505, L511 or L536 in the UL Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:
 - A. **Wood Joists** - Nom. 2 by 10 in. (51 by 254 mm) lumber joists spaced 16 in. (406 mm) OC with nom 1 by 3 in. (25 by 76 mm) lumber bridging and with ends firestopped. B.
 - B. **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. dia. of floor opening is 3 in. (76 mm).
 - C. **Furring Channels** - Resilient galv steel furring channels installed perpendicular to wood joists between first and second layers of gypsum board (Item 1D). Furring channels spaced max 24 in. (610 mm) OC.
 - D. **Gypsum Board*** - Nom. 4 ft (122 cm) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design. First layer of gypsum board secured to wood joists as specified in the individual Floor-Ceiling Design. Second layer of gypsum board screw-attached to furring channels as specified in the individual Floor-Ceiling Design. Max. dia. of ceiling opening is 3 in. (76 mm).
- 1.1 **Chase Wall** - (Not Shown, optional) The through penetrant (Item 2) may be routed through a 2 hr fire-rated single, double or staggered wood stud/gypsum wallboard chase wall constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - A. **Studs** - Nom. 2 by 6 in. (51 by 152 mm) lumber studs.
 - B. **Sole Plate** - Nom. 2 by 6 in. (51 by 152 mm) lumber plates. Max. dia. of opening is 3 in. (76 mm).
 - C. **Top Plate** - The double top plate shall consist of two nom 2 by 6 in. (51 by 152 mm) lumber plates. Max. dia. of opening is 3 in. (76 mm).
 - D. **Gypsum Board*** - Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.

UL System F-C-3099 continued...

2. **Cables** - Aggregate cross-sectional area of cables in opening to be max. 44 percent of the aggregate cross-sectional area of the opening. The annular space between the cable bundle and the periphery of the opening shall be min. 1/4 in. (6 mm) to max. 1/2 in. (13 mm). Cables to be rigidly supported on both sides of floor assembly. Any combination of the following types and sizes of copper conductor cables may be used:

- A. Max. 200 pair No. 24 AWG (or smaller) copper conductor cable with polyvinyl chloride (PVC) insulation and jacket.
- B. RG59/U (or smaller) coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket.
- C. Max. 4 pair No. 24 AWG (or smaller) copper conductor data cable with Hylar jacket and insulation.
- D. Max. three conductor with ground No. 12 AWG (or smaller) nonmetallic sheathed (Romex) cables with PVC insulation and jacket materials
- E. **Through Penetrating Product*** - Two or more twisted copper conductors No. 10 AWG (or smaller) **Power Limited Fire Alarm Cable+** without a jacket under a metal armor.
AFC CABLE SYSTEMS INC
- F. **Through Penetrating Product*** - Two or more twisted copper conductors No. 12 AWG (or smaller) **Non Power Limited Fire Alarm Cable+** with or without a jacket under a metal armor.
AFC CABLE SYSTEMS INC
- G. **Through Penetrating Product*** - Max. two copper conductors with ground No. 12 AWG (or smaller) **Metal-Clad Cable+**.
AFC CABLE SYSTEMS INC
- H. **Through Penetrating Product*** - Nom. 3/4 in.(19 mm) dia. (or smaller) aluminum or steel **Flexible Metal Conduit+** with electrical conductors as permitted by the National Electrical Code (NFPA 70).
ALFLEX CORP
- I. Max. four aluminum conductor No. 2/0 AWG (or smaller) Type SER service entrance cable with cross-linked polyethylene insulation and PVC jacket.

The T Rating is 2 Hr except that the T Rating for Item A is 1-3/4 Hr and the T Rating for Items H and I is 0 Hr.

4. **Firestop System** - The firestop system consists of the following items:

- A. **Packing Material** - (Optional) Foam backer rod firmly packed into opening as a permanent form and recessed from top surface of floor or sole plate and bottom surface of ceiling or lower top plate of chase wall assembly to accommodate required thickness of fill material.
- B. **Fill, Void or Cavity Material* - Caulk** - Min. 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with top surface of the floor or sole plate and bottom surface of the ceiling or lower top plate of chase wall assembly. Additional fill material to be forced into interstices of cable group to max extent possible and fill material to be installed such that a min. 1/2 in. (13 mm) crown is formed around the cable group and lapping 1/2 in. (13 mm) beyond the periphery of the opening.

A/D FIRE PROTECTION SYSTEMS INC - A/D FIREBARRIER Intumescent Sealant

*Bearing the UL Classification Mark

+Bearing the UL Listing Mark