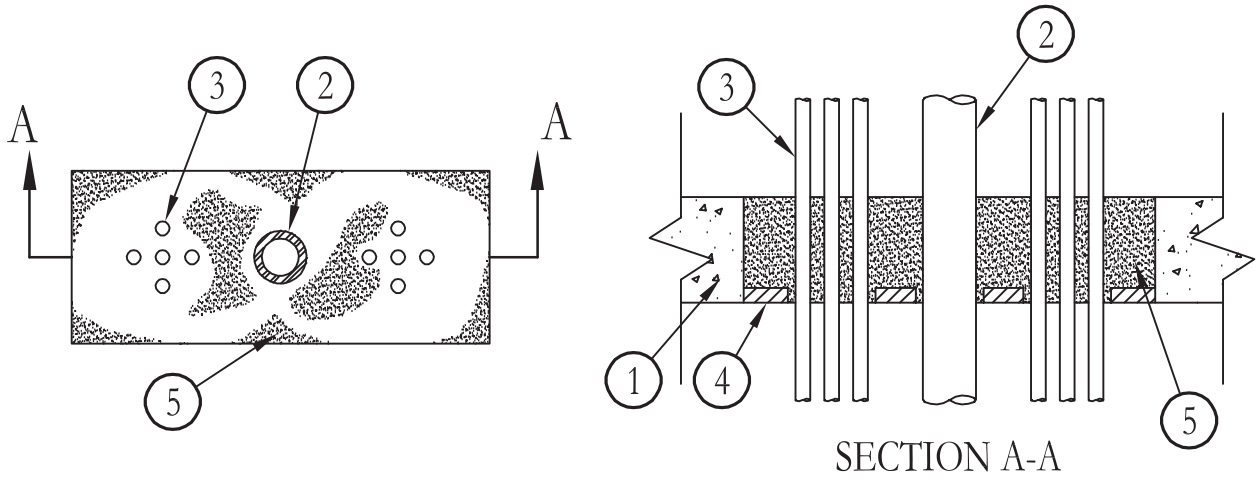
System No. C-BJ-8008

February 15, 2006
F Ratings – 2 and 3 Hr (See Items 1 and 5)
T Rating – 1-1/2



1. **Floor or Wall Assembly** – Reinforced normal weight (145-155 pcf) concrete. The F Ratings of the system are dependent on the thickness of the concrete. Min 8 in. thickness for 2 hr rating and min 13 in. thick for 3 hr rating. As an alternate for the 3 hr rating in floors only, the required 13 in. firestop depth may be accomplished by bolting a steel frame to the top surface of min 8 in. thick normal weight concrete floors. The steel frame shall consist of min 3/16 in. thick steel angles with the vertical legs of the angles parallel to and a min of 1/4 in. away from the perimeter of the through opening and with the horizontal leg of each angle bolted to the concrete with a min of two 3/8 in. diameter expansion bolts. Max area of opening is 192 sq in. with max dimension of 24 in.
2. **Conduit or Steel Pipe** – Nom 1-1/4 in. diam rigid galv steel conduit or nom 1-1/4 in. diam Schedule 10 (or heavier) steel pipe. Pipes or conduit to be rigidly supported on both sides of floor or wall assembly. When used in conjunction with cables (Item 3), a max of one conduit or pipe may be used in the through opening. When no cables are included in the through opening, more than one conduit or pipe may be installed in the through opening provided that conduits and/or pipes are centered in the opening and spaced a min of 4-1/2 in. OC.
3. **Cables** – Aggregate cross-sectional area of cables in opening to be max 2.7 percent of aggregate cross-sectional area of opening. Cables may be grouped together in two separate bundles or randomly scattered through the opening, at least 2 in. away from steel pipe or conduit. Cables to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of copper conductor cables may be used:
   A. 1/C 350 kcmil; uninsulated with polyvinyl chloride (PVC) jacket or cross-linked polyethylene insulation with PVC jacket (max 1 cable per bundle, max 2 cables per opening).
   B. 3/C No.2 AWG; PVC insulation and jacket (max 2 cables per bundle, max 4 cables per opening).
   C. 7/C No. 14 AWG; PVC insulation and jacket.
4. **Forming Materials** – Used as a form and sealant to prevent leakage of the fill materials when in a liquid state.
   A. **Forming Materials*** – Min 1 in. thick boards friction-fitted into annular space located at bottom surface of floor openings and at both surfaces of wall openings to prevent fill material leakage.

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   B. **Packing Material** – Loose alumina silica fiber or strips of alumina silica fiber blanket packed between cables to prevent leakage of liquid fill material and to separate adjoining cables permitting full penetration of the fill material.
5. **Fill, Void or Cavity Materials*** – Foamed silicone installed as described in the manufacturers application instructions to fill the remaining voids in the opening. Density 17 pcf min, 20 pcf max. Material type and min thickness for hourly ratings tabulated below:

Min Thk, In	F Rating, Hr
7	2
12	3

3M COMPANY – FB-2001

*Bearing the UL Classification Marking