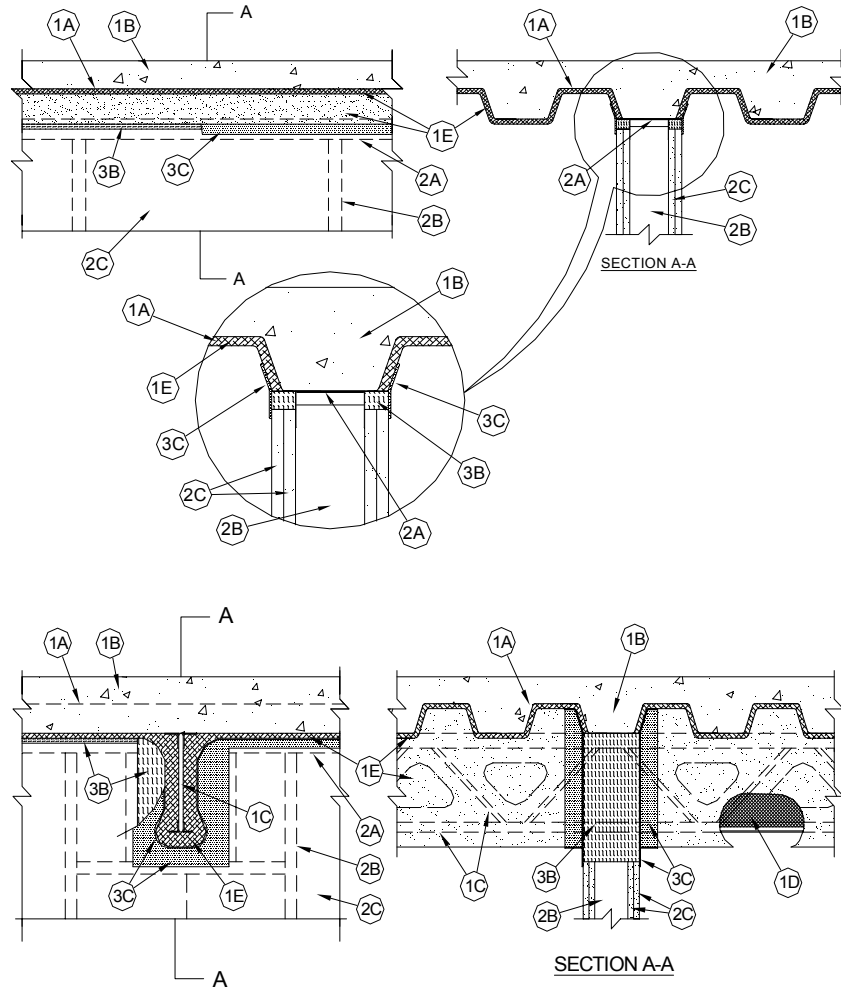


**Joint Systems**  
**UL System No. HW-D-0471**  
**Assembly Rating - 2 Hr**  
**Nominal Joint Width - 1 In. (25 mm)**  
**Class II Movement Capabilities - 18.75% Compression or Extension**



1. **Floor Assembly** - The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
  - A. **Steel Floor and Floor Units\*** - Max. 3 in. (76 mm) deep galv steel fluted floor units.
  - B. **Concrete** - Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
  - C. **Structural Steel Support** - (Optional) - Steel beam or open-web steel joist, as specified in the individual D700 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support oriented perpendicular to wall assembly.
  - D. **Steel Lath** - Where open-web steel joists pass through the fire rated wall, 3/8 in. (10 mm) diamond mesh expanded steel lath having a nom. weight of 1.7 to 3.4 lb per sq yd shall be secured to one side of each joist with steel tie wire and the lath shall be fully covered with spray applied fire resistive material with no min. thickness requirement.

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- E. **Spray-Applied Fire Resistive Material\*** - After installation of the ceiling runner (Item 2A) or deflection track (Item 3A, if used), steel floor units and structural steel supports to be sprayed with the thickness of material specified in the individual D700 Series Design. The spray applied fire resistive material is mixed with water in accordance with the mixing instructions on the bag and is sprayed onto steel deck and structural steel support. Material is to be excluded from the flanges of the ceiling runner or deflection track.

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2. **Wall Assembly** - The 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Steel Floor and Ceiling Runners** - Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with 2 in. (51 mm) flanges. When deflection channel (Item 3A) is used, flange height of ceiling runner is to be equal to or greater than flange height of deflection channel and the ceiling runner is to nest within the deflection channel with a 1/2 in. to 3/4 in. (13 to 19 mm) gap maintained between the top of the ceiling runner and the top of the deflection channel. When deflection channel is not used, ceiling runner is secured to steel floor units (Item 1A) with steel fasteners or welds spaced max. 24 in. (610 mm) OC. Ceiling runner or deflection channel to be centered beneath and parallel with valley of steel floor unit. A clearance of 1 in. shall be maintained between the end of the ceiling runner or deflection channel and the spray applied fire resistive material on the structural steel support members.

- A1. **Light Gauge Framing\* - Slotted Ceiling Runner** - As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner to be centered beneath and parallel to fluted steel floor units and secured to valleys with steel fasteners spaced max. 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used.

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- B. **Studs** - Steel studs to be min 3-5/8 in. (92 mm) wide. Studs cut 1/2 in. to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and secured to floor runner. When deflection channel (Item 3A) is used, steel studs attached to ceiling runner (Item 2A) with sheet metal screws located 1/2 in. (13 mm) below the bottom of the deflection channel. When deflection channel is not used, studs to nest in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. A framed opening shall be constructed around each structural steel support member. A min. clearance of 1 in. to a maximum clearance of 3-1/8 in. (79 mm) shall be maintained between the framing and the spray applied fire resistive material on the two sides of the structural support member. The clearance between the framing and the spray applied fire resistive material on the bottom of the structural steel support member shall be max. 1-1/2 in. (38 mm).

- C. **Gypsum Board\*** - Gypsum board sheets installed to a min. total 1-1/4 in. (32 mm) thickness on each side of wall for 2 hr fire rated assemblies. Wall to be constructed in the individual U400 Series Design in the UL Fire Resistance Directory, except that a max. 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the bottom plane of the steel floor units with an equivalent or greater gap between the top edge of the gypsum board and the spray applied fire resistive material on the structural steel support member. The screws attaching the gypsum board to the studs along the top of the wall shall be located 1 in. (25 mm) below the bottom of the ceiling runner. No gypsum board attachment screws shall be driven into the ceiling runner or into the optional deflection channel.

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**3. Joint System - Max. separation between bottom plane of steel floor unit and top of gypsum board (at time of installation of joint system) is 1 in. Max separation between spray applied fire resistive material on bottom of structural support member and framed opening in top of wall is 1-1/2 in. (38 mm). The joint system is designed to accommodate a max 18.75 percent compression or extension from it's installed width as measured between bottom plane of steel floor unit and top of gypsum board. The joint system shall consist of forming and fill materials, with or without a deflection channel (Item 3A), as follows:**

- A. **Deflection Channel** - (Optional, Not Shown) - Max. 2 in. (51 mm) deep min 24 gauge galv steel channel sized to accommodate ceiling runner (Item 2A). Deflection channel installed parallel with and centered beneath valley of steel floor unit (Item 1A) and secured to steel floor unit with steel fasteners or welds spaced max 24 in. (610 mm) OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1/2 in. to 3/4 in. (13 to 19 mm) gap between the top of the ceiling runner and the top of the deflection channel. A clearance of 1 in. (25 mm) shall be maintained between the end of the deflection channel and the spray applied fire resistive material on the structural steel support members. The ceiling runner nests inside the deflection channel without attachment.
- B. **Forming Material\*** - Nom. 4 in. (102 mm) thick, 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation cut to a U-shape with the overall height and width equal to the notched opening in the wall. Width of legs of the U-shaped piece shall be sufficient to attain a min. compression of 50 percent between the sides of the protected structural member and the framed notch. Additional U-shaped piece of nom 2 in. (51 mm) thick forming material similarly cut and tightly packed around the protected structural member so that the forming material is flush with both surfaces of the wall. The thickness of bottom of U-shaped forming material shall be sufficient to attain a min compression of 50 percent between the bottom of the framed notch and the bottom of the protected structural steel member. Additional rectangular shaped sections of mineral wool batt insulation having a thickness equal to thickness of gypsum board layers are compressed 50 percent in width and installed to completely fill the gap between the top of the gypsum board and the bottom of the protected floor deck. The forming material shall be installed flush with both surfaces of wall.

**FIBREX INSULATIONS INC** - FBX Safing Insulation

**ROCK WOOL MANUFACTURING CO** Delta Board

- C. **Fill, Void or Cavity Material\* - Sealant** - Min. 1/8 in. (3 mm) wet thickness of fill material spray applied over the forming material on each side of the wall. Fill material to overlap a min. of 1 in. (25 mm) onto the gypsum board and a min. 2 in. (51 mm) onto the spray applied material (Item 1C) on the steel floor unit and on the structural steel support member on both sides of wall.

**A/D FIRE PROTECTION SYSTEMS INC** - A/D FIREBARRIER Spray Acrylic

\*Bearing the UL Classification Mark