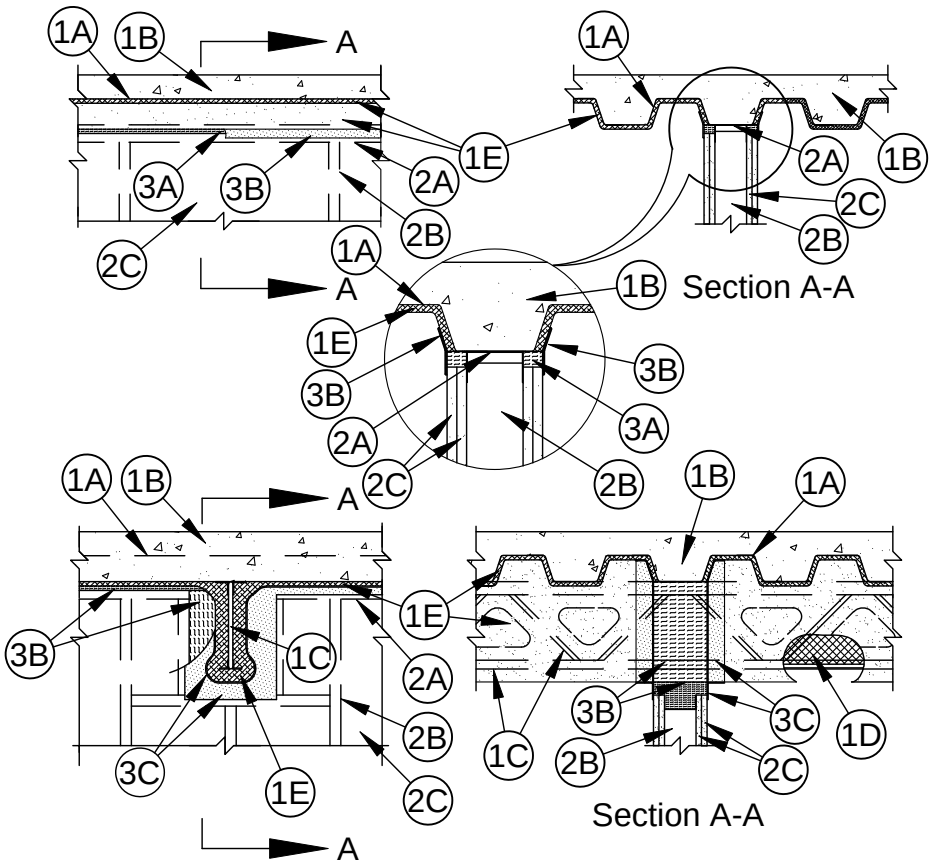
System No. HW-D-0099

Assembly Ratings - 1 and 2 Hr (See Item 1)
Nominal Joint Width - 3/4 and 1 In. (See Item 3)
L Rating At Ambient - Less Than 1 CFM/Lin Ft
L Rating At 400°F - Less Than 1 CFM/Lin Ft
Class II Movement Capabilities - 19% and 100% Compression or Extension (See Item 3)



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 or D800, or D900 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 or D800 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 (0.9 to 1.8 kg/m2) 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.

   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, D800, or D900 Series Design. Material is to be excluded from the flanges of the ceiling runner or deflection track. For D900 Series Designs structural steel supports, steel furring and steel lath only to be sprayed in accordance with the specifications in the individual D900 Series Design.

   ISOLATEK INTERNATIONAL - Type 300 or Type II

   SOUTHWEST FIREPROOFING PRODUCTS CO - Type 5, Type 5GP

   W R GRACE & CO - CONN - Type MK-6/HY, MK-6/HYES, MK-65 and RG.

2. **Wall Assembly -** The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and 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 min 1-1/4 in. (32 mm) to max 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. (13 mm) to 3/4 in. (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 prior to the application of the sprayed-applied fire resistive material with steel masonry anchors 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. (25 mm) 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, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, prior to the application of the sprayed-applied fire resistive material and secured with steel masonry anchors spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used.

   BRADY CONSTRUCTION INNOVATIONS INC,

   DBA SLIPTRACK SYSTEMS - SLP-TRK

   CALIFORNIA EXPANDED METAL PRODUCTS CO - CST

   CLARKWESTERN BUILDING SYSTEMS INC - Type SLT, SLT-H

   METAL-LITE INC - The System

   SCAFCO STEEL STUD MANUFACTURING CO

   STEELER INC - Steeler Slotted Ceiling Runner

   A2. **Light Gauge Framing* - Clipped Ceiling Runner -** As an alternate to the ceiling runner in Items 2A and 2A1, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Track flanges to be min 2-1/2 in. (64 mm). Clipped ceiling runner installed parallel to direction of fluted steel deck, centered on valley, prior to the application of the sprayed-applied fire resistive material and secured with steel masonry anchors spaced max 24 in. (610 mm) OC. When clipped ceiling runner is used, deflection channel (Item 3A) shall not be used.

   TOTAL STEEL SOLUTIONS L L C - Snap Trak

   A3. **Light Gauge Framing* - Notched Ceiling Runner -** As an alternate to the ceiling runners in Items 2A through 2A2, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, prior to the application of the sprayed-applied fire resistive material and secured with steel masonry anchors spaced max 24 in. OC. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used.

   OLMAR SUPPLY INC - Type SCR

   B. **Studs -** Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1/2 in. to 3/4 in. (19 to 25 mm) less in length than assembly height with bottom nesting in and secured to floor runner. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 (13 mm) long wafer head steel screws at midheight of slot on each side of wall. 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. A framed opening shall be constructed around each structural steel support member. A min clearance of 1 in. (25 mm) to a maximum clearance of 3 in. (76 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 in. (25 mm).

B1. **Light Gauge Framing* -Slotted Studs -** Slotted steel stud to be used in conjunction with **Light Gauge Framing* -Floor and Ceiling Runners** (Item 2A1). Slotted steel studs to be min 3-1/2 in. (89 mm) wide. Slotted steel 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 both ceiling and floor runners. Ceiling runner secured to preformed slot within steel stud by means of No. 10 by 3/4 in. (19 mm) long low profile head steel screw. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Slotted steel stud spacing not to exceed 24 in. (610 mm) OC.

STEELER INC - Steeler Slotted Stud

C. **Gypsum Board* -** Gypsum board sheets installed to a min total 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness on each side of wall for 1 and 2 hr fire rated assemblies, respectively. Wall to be constructed in the individual U400 or V400 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 and 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.

The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

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 3/4 or 1 in. (19 or 25 mm). Max separation between spray applied fire resistive material on bottom of structural support member and framed opening in top of wall is 3/4 or 1 in. (17 or 25 mm). The joint system is designed to accommodate a max 18.75 or 100 percent compression or extension from its installed width as measured between bottom plane of steel floor unit and top of gypsum board. When Item 3B1 is used in lieu of the strips of mineral wool described in Item 3B and Items 1C, 1D, and 1E are omitted , the maximum joint width is 3/4 in. (19 mm) and the movement capabilities are 100% compression or extension.** 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 to direction of fluted steel deck, centered beneath valley, prior to the application of the sprayed-applied fire resistive material and secured with steel masonry anchors 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 pcf (64 kg/m3) mineral wool batt insulation cut to a length approx 1 in. (25 mm) longer than overall thickness of wall and inserted edge-first into the spaces between the spray applied fire resistive material on the structural steel member and the framed notch at the top of the wall. The thickness of forming material shall be sufficient to attain a min compression of 20 percent between the sides of the framed notch and the protected structural steel member and a min compression of 33 percent between the bottom of the framed notch and the bottom of the protected structural steel member. The mineral wool batt insulation is to be additionally compressed in the length direction such that it is flush with the gypsum board surface on both sides of the wall. Additional sections of mineral wool batt insulation are compressed 50 percent in thickness and are installed cut edge first to completely fill the gap above the top of the gypsum board. The forming material shall be installed flush with both surfaces of wall.

FIBREX INSULATIONS INC - FBX Safing Insulation

IIG MINWOOL L L C - MinWool-1200 Safing

ROCK WOOL MANUFACTURING CO - Delta Board

ROXUL ASIA SDN BHD - SAFE

ROXUL INC - SAFE

THERMAFIBER INC - Type SAF

B1. **Forming Material* -** (Not Shown) - As an option to the strips of mineral wool specified under Item 3B, nom 3/16 in. (4.8 mm) thick by 4 in. (102 mm) high joint forming material profile installed on both sides of the wall assembly. Profile installed by first marking a line across the top of the wall 3 in. (76 mm) below the bottom plane of the steel floor or roof deck valleys. Joint profile material positioned with its top edge against both the underside of the spray-applied fire-resistive material with its bottom edge on the line scribed on the wall assembly. Bottom of the joint profile attached to gypsum board with nom 1/2 in. (13 mm) long steel staples spaced not greater than 8 in. (203 mm) OC. Adjoining lengths of profile to overlap approx 3/4 in. (19 mm) at shiplapped ends.

SPECIFIED TECHNOLOGIES INC - SpecSeal Speed Flex Joint Profile

C. **Fill, Void or Cavity Material* - Sealant -** Min 1/8 in. (3.2 mm) wet thickness or 1/16 in. (1.6 mm) dry thickness of fill material spray applied over the forming material on each side of the wall. Fill material to overlap a min of 1/2 in. (13 mm) onto the gypsum board and a min 2 in. (51 mm) onto the spray applied material on the steel floor unit and on the structural steel support member on both sides of wall. Overlap onto the steel floor units may be decreased to 1/2 in. (13 mm) when spray applied material is omitted.

SPECIFIED TECHNOLOGIES INC - SpecSeal AS200 Elastomeric Spray

*Bearing the UL Classification Mark