UL Product iQ™

XHBN.HW-D-0228 - Joint Systems

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

XHBN - Joint Systems

See General Information for Joint Systems

System No. HW-D-0228

June 24, 2011

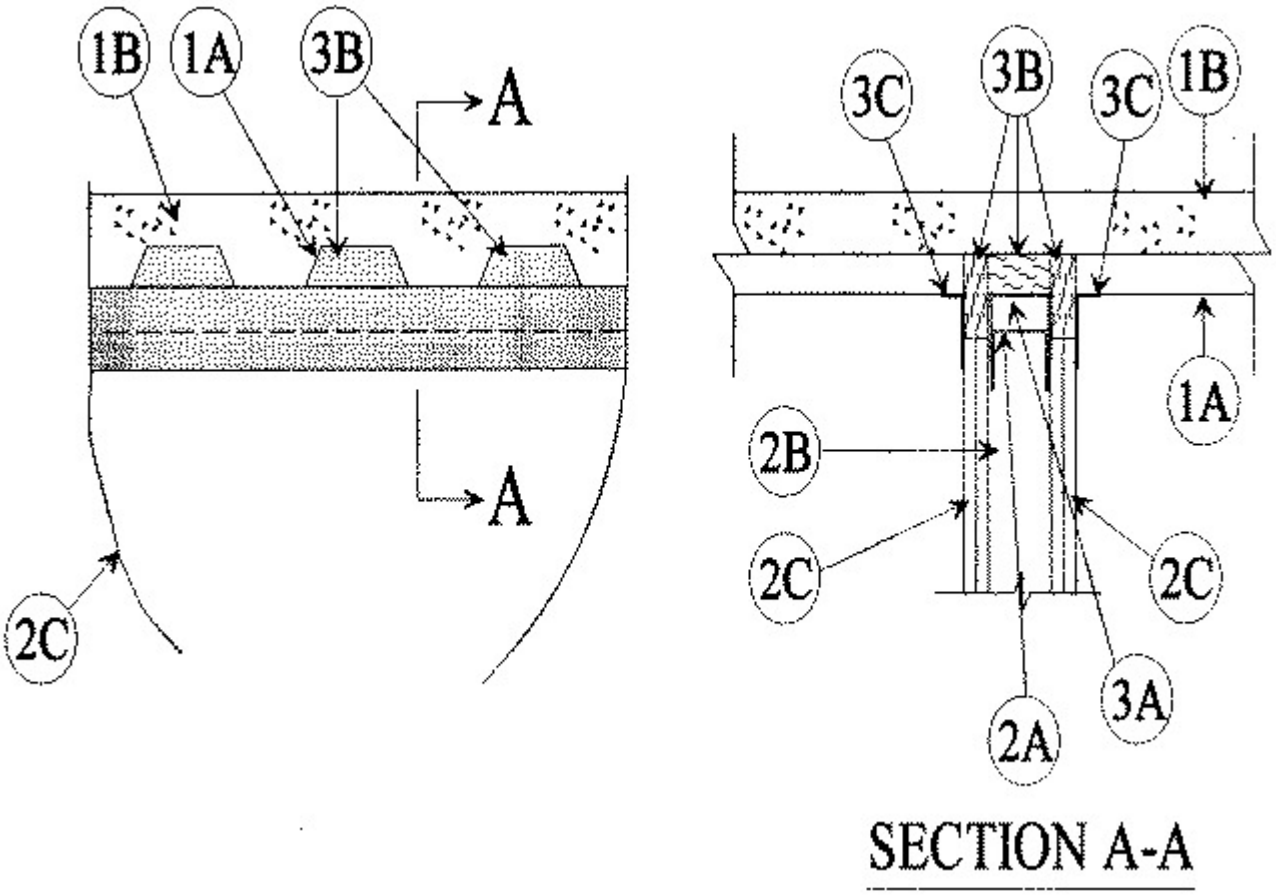
Assembly Ratings — 1, 2, 3 and 4 Hr (See Item 2)

L Rating at Ambient — Less than 1 CFM/Lin Ft

L Rating at 400°F — Less than 1 CFM/Lin Ft

Nominal Joint Width — 1-1/2 and 2 In. (See Item 3)

Class II Movement Capabilities — 25% 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 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. deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.

1A. **Roof Assembly — (Not Shown) —** As an alternate to the floor assembly, a fire-rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the roof deck.

2. **Wall Assembly — The max separation between bottom of floor and top of wall (at time of installation of joint system) is dependent upon the hourly rating of the wall as shown in Item 3.** The 1, 2, 3 or 4 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 min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with 3 in. flanges. When U shaped deflection channel is used, ceiling runner is installed within the U-shaped deflection channel (Item 3B) with 1 in. gap maintained between the top of ceiling runner and top of deflection channel. When deflection channel is not used, ceiling runner installed perpendicular to direction of the fluted steel floor units (Item 1A) or roof deck and secured to valleys of steel floor units (Item 1A) with steel fasteners or weld spaced a max 12 in. OC.

A1. **Light Gauge Framing* — Slotted Ceiling Runner —** When the nom joint width is less than or equal to 1-3/4 in., slotted ceiling runner may be used 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 installed

perpendicular to direction of fluted steel floor units or roof deck and secured to valleys with steel fasteners spaced max 12 in. OC. When slotted ceiling runner is used, deflection channel (Item 3a) shall not be used.
CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

A2. **Light Gauge Framing* - Clipped Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, 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 3 in. Clipped ceiling runner installed perpendicular to direction of fluted steel floor units and secured to valleys with steel fasteners spaced max 12 in. OC. When clipped ceiling runner is used, deflection channel (Item 3A) shall not be used.
TOTAL STEEL SOLUTIONS L L C — Snap Trak

B. **Studs —** Steel studs to be min 3-5/8 in. wide. Studs cut 3/4 in. less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting 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. long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. OC.

C. **Gypsum Board* —** Gypsum Board sheets installed to a min total of 5/8 in., 1-1/4 in., 1-1/2 in. or 2 in. thickness on each side of wall for 1, 2, 3 and 4 hr fire rated wall assemblies, respectively. Wall to be constructed as specified in the individual U400 Series Design in the UL Fire Resistance Directory, except that a max 1-1/2 and 2 in. gap shall be maintained between the top of the gypsum board and the bottom surface of the steel floor units or roof deck as specified in Item 3. The top row of screws shall be installed into the studs 4-3/4 in. below the valleys of the steel floor units or roof deck.
The hourly fire rating of the joint system is equal to the hourly rating of the wall.

3. **Joint System — Max separation between bottom of floor and top of wall (at time of installation of joint system) is dependent upon the hourly rating of the wall. Max separation between bottom of floor and top of wall (at time of installation of joint system) is 1-1/2 in. for 1 hr fire rated assemblies and 2 in. for 1, 2, 3 and 4 hr fire rated assemblies, respectively. The joint system is designed to accommodate a max 25 percent compression or extension from it's installed width.** The joint system consists of a deflection channel, and forming and fill materials as follows:

A. **Deflection Channel —** (Optional) A nom 3-3/4 in. wide by min 3 in. deep min 25 gauge steel U-shaped channel. Deflection channel installed perpendicular to direction of the fluted steel floor units (Item 1A) or roof deck and secured to the valleys with steel fasteners or by welds spaced max 12 in. OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1 in. gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.

B. **Forming Material* —** Min 4-7/8 in., 6 in., 6-5/8 in. or 7-5/8 in. depth of 4 pcf mineral wool batt insulation for 1, 2, 3 and 4 hr fire rated assemblies, respectively, cut to the shape of the fluted deck, approx 25 percent larger than the area of the flutes and compressed into the flutes of the steel floor units or roof deck between the top of the deflection channel and the steel deck. For 2 hr fire rated assemblies, additional 1-1/4 in. wide sections of mineral wool batt insulation are compressed 50 percent in thickness and installed cut edge first to fill the gap between the top of the wall and bottom of the steel floor units or roof deck. For 1 hr fire rated assemblies additional 5/8 in. wide sections of mineral wool batt insulation are compressed 50 percent in thickness and installed cut edge first to fill the max 1-1/2 in. gap between the top of the wall and bottom of the steel floor units or roof deck. The forming material shall be installed flush with both surfaces of the wall.
The type and manufacturer of forming material used within the joint system is dependent upon the hourly rating of the wall assembly as shown in the table below:

Rating of Wall, hr	Manufacturer of Mineral Wool	Type of Mineral Wool

1, 2 & 3	Fibrex Insulation Inc	FBX Safing Insulation
1, 2, 3 & 4	Roxul Inc	SAFE Mineral Wool
1 & 2	Rock Wool Manufacturing	Delta Safing Insulation

ROCK WOOL MANUFACTURING CO — Delta Safing Insulation

ROCKWOOL MALAYSIA SDN BHD — SAFE Mineral Wool

ROCKWOOL — SAFE Mineral Wool

B1. **Spray-Applied Fire Resistive Material* (Not Shown) —** As an alternate to the forming material (Item 3A) within the flutes, min 4-7/8, 6 in., 6-5/8 in. or 7-5/8 in. depth of spray-applied fire resistive material installed into the flutes of the steel floor or roof deck between the top of the wall and the bottom of the steel floor units or roof deck for 1, 2, 3, and 4 hr fire rated assemblies. Material shall be excluded from the max 1-1/2 and 2 in. wide joint immediately above the top of the gypsum board for 1 and 2 hr fire rated assemblies, respectively . The spray-applied fire resistive material is mixed with water in accordance with the mixing instructions on the bag and is sprayed and/or trowelled to fill the flute above the wall. The min average density of the spray applied fire resistive material shall be 15 pcf with a min individual density of 14 pcf. See Design Information of Volume 1 of the Fire Resistance Directory for method of density determination.
GCP APPLIED TECHNOLOGIES INC — Types MK-6/HY, MK-6/HY ES, MK-6s, RG, Z-106, Z-106/HY and Z-146

B2. **Forming Material* - Plugs —** (Not Shown) As an alternate to the forming material and spray-applied fire resistive material (Items 3B and 3B1), mineral wool plugs preformed to the shape of the fluted floor units, may be used within the flutes. Plugs shall be friction fit to completely fill the flutes above the ceiling channel. The plugs shall project beyond each side of the ceiling runner, flush with wall surfaces. Additional forming material, described in Item 3B, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and bottom of steel floor units or roof deck. **Plugs to be used in max 2 hr fire rated wall assemblies.**
ROCK WOOL MANUFACTURING CO — Deck Plugs

C. **Fill, Void or Cavity Material* — Sealant —** Min 1/8 in. wet thickness of fill material spray or brush applied on each side of the wall in the flutes of the steel floor units or roof deck and between the top of the wall and the bottom of the steel floor units or roof deck, and overlap a min 1/2 in. onto gypsum board and steel deck on both sides of wall.
EGS NELSON FIRESTOP — FSC3 Coating

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2011-06-24