

# XHBN.HW-D-0238 - 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

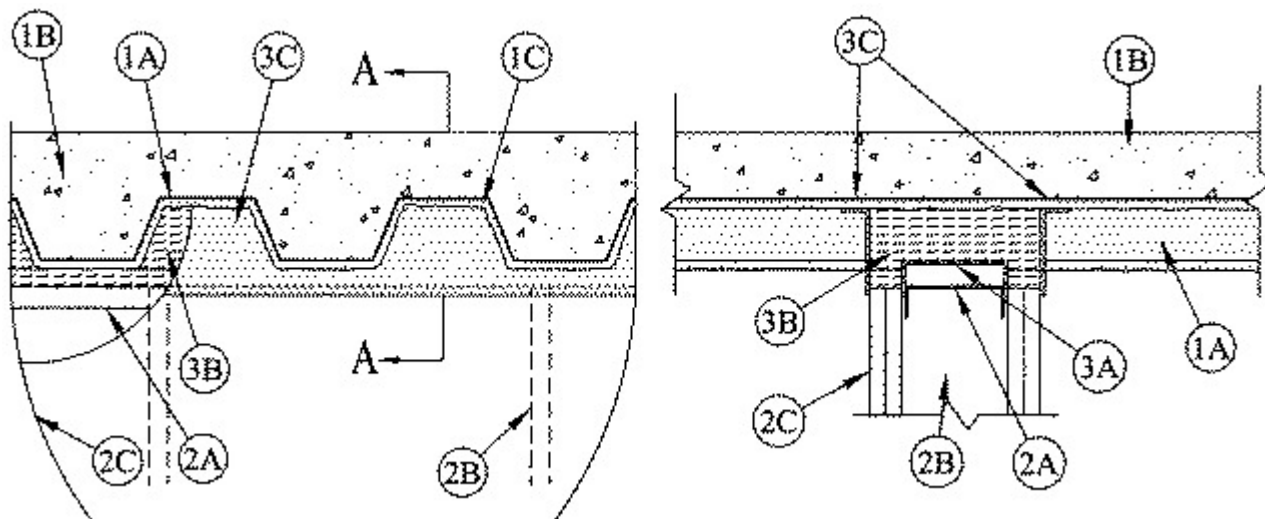
### System No. HW-D-0238

June 24, 2011

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

### Nominal Joint Width — 1 In.

### 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 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. 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.

C. **Spray-Applied Fire Resistive Material\*** — Prior to the installation of the Forming Material and Fill, Void or Cavity Materials (Items 3A and 3B), all surfaces of the steel floor units to be sprayed with the thickness of material specified in the individual D700 Series Design.

**GCP APPLIED TECHNOLOGIES INC** — Type MK-6/HY, MK-6/HY ES, MK-6S, and RG.

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 P700 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 details:

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

B. **Roof Insulation** — As specified in the individual P700 Series Design.

C. **Spray — Applied Fire Resistive Materials\*** — Prior to the installation of the Forming Material and Fill, Void or Cavity Material (Items 3B and 3C, respectively), the steel roof deck shall be sprayed with the thickness of material specified in the individual P700 Series Design.

**GCP APPLIED TECHNOLOGIES INC** — Type MK-6/HY, MK-6/HY ES, MK-6S, and RG.

**The hourly fire rating of the floor or roof assembly shall be equal or greater than the hourly fire rating of the wall assembly.**

2. **Wall Assembly** — The 1, 2 or 3 hr fire-rated gypsum board/steel 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 3 in. flanges. Ceiling runner installed within the U-shaped deflection channel (Item 3A) with a 3/4 to 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 prior to the application of the sprayed-applied fire resistive material and secured with steel fasteners or by welds spaced max 24 in. OC.

A1. **Light Gauge Framing\* - Slotted Ceiling Runner** — When the thickness of sprayed-applied fire resistive material does not exceed 1 in. slotted ceiling runner maybe 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 prior to the application of spray-applied fire resistive material and secured with steel fasteners spaced max 24 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

B. **Studs** — Steel studs to be min 3-5/8 in. wide. Studs cut 1/2 to 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 installed to a min total thickness of 5/8 in., 1-1/4 in. and 1-1/2 in. on each side of wall I for 1, 2 and 3 hr fire rated wall assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 1 in. gap shall be maintained between the top of the gypsum board and the bottom of spray-applied fire resistive material. The top row of screws shall be installed into the studs 5 to 5-1/2 in. below the lower surface of the protected 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 spray-applied fire resistive material and top of wall (at time of installation of joint system) is 1 in. The joint system is designed to accommodate a max 25 percent compression or extension from it's installed width.** The joint system shall consist of a deflection channel, a forming material and a fill material as follows:

A. **Deflection Channel (Optional)** — Nom 3 in. deep by min 25 gauge galv steel U-shaped channel sized to accommodate ceiling runner (Item 2A). Deflection channel installed perpendicular to direction of the fluted steel floor units (Item 1A) or roof deck prior to the application of the sprayed-applied fire resistive material and secured 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 3/4 to 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. or 6-5/8 in. thickness of 4 pcf mineral wool batt insulation for 1, 2 or 3 hr fire rated wall 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 protected steel floor units or roof deck between the top of the wall and the bottom of the sprayed-applied fire resistive material. Additional 5/8 in., 1-1/4 in. or 1-1/2 in. wide sections of mineral wool batt insulation for 1, 2 or 3 hr fire rated wall assemblies, respectively, are compressed 50 percent in thickness and installed cut edge first to fill the gap between the top of the gypsum board and bottom of the protected steel floor units or roof deck. The forming material shall be installed flush with each surface 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	
	Wool	Type of Mineral Wool
1, 2 & 3	Fibrex Insulation Inc	FBX Safing Insulation
1, 2 & 3	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 in., 6 in. or 6-5/8 in. depth of spray-applied fire resistive material for 1, 2 or 3 hr fire rated wall assemblies, respectively, installed into the flutes of the protected steel floor or roof deck between the top of the wall and the bottom of the protected steel floor units or roof deck. Material shall be excluded from the nominal 1 in. wide joint immediately above the top of the gypsum board. 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** — Type MK-6/HY, MK-6/HYES, RG, MK-6S, Z-106/G, Z106, Z106/HY and Z146.

**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 or roof deck, 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** — For assemblies incorporating mineral wool insulation within the flutes, min 1/8 in. wet thickness of fill material spray or brush applied on each side of the wall in the flutes of the protected steel floor units or roof decks and between the top of the wall and the bottom of the protected steel floor units or roof deck. Sealant shall overlap a min 1/2 in. onto wall and protected steel floor units or roof deck on both sides of wall. For assemblies incorporating spray-applied fire resistive materials within the flutes, min 1/8 in. wet thickness of fill material spray or brush to cover the mineral wool insulation within the joint between the top of the wall and the bottom of the protected steel floor units or roof decks. Sealant shall overlap a min 1/2 in. onto wall and a min 1/2 in. above the joint onto the spray-applied fire resistive material within the flutes 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.**

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