

## XHBN.HW-D-0545 - 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

### XHBN7 - Joint Systems Certified for Canada

[See General Information for Joint Systems](#)

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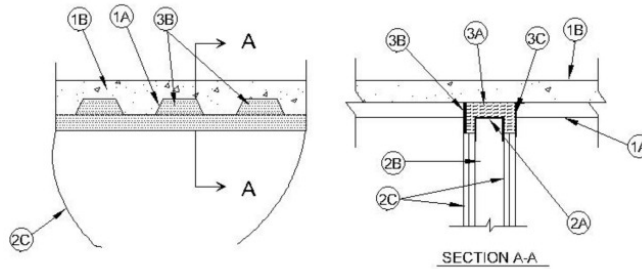
#### System No. HW-D-0545

December 21, 2011

ANSI/UL2079

CAN/ULC S115

Assembly Ratings — 1 and 2 Hr (See Item 2)	F Ratings — 1 and 2 Hr (See Item 2)
Nominal Joint Width - 3/4 In.	FT Ratings — 1 and 2 Hr (See Item 2)
Class II Movement Capabilities — 17% Compression and Extension	FH Ratings — 1 and 2 Hr (See Item 2)
	FTH Ratings — 1 and 2 Hr (See Item 2)
	Nominal Joint Width - 3/4 In.
	Class II Movement Capabilities — 17% Compression and Extension



1. **Floor Assembly** — The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form 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. **Spray-Applied Fire Resistive Materials\*** — (Optional, Not Shown)—Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material, the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 1-3/4 in. (45 mm) thickness of fire resistive material.

**GCP APPLIED TECHNOLOGIES INC** — Type MK-6-HY

- 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. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation** — Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

- 1B. **Roof Assembly** — As an alternate to Items 1 and 1A, a fire rated protected 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 features:

A. **Steel Roof Deck** — Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray—Applied Fire Resistive Materials\*** — (Not Shown)—Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material, the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

2. **Wall Assembly** — The 1 or 2 h fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400, V400 or W400 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 min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with 1-1/4 in. (32 mm) flanges. Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors or by welds spaced 12 in. (305 mm) OC. When optional spray-applied fire resistive material is used on steel deck, ceiling runner secured through spray-applied material to each valleys of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

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 installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When optional spray-applied fire resistive material is used on steel deck, slotted ceiling runner secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**CALIFORNIA EXPANDED METAL PRODUCTS CO** — CST

**SCAFCO STEEL STUD MANUFACTURING CO**

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

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

A2. **Light Gauge Framing\* — Vertical Deflection Ceiling Runner** — As an alternate to the ceiling runner in (Items 2A and 2A1), vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When optional spray-applied fire resistive material is used on steel deck, vertical deflection ceiling runner secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**THE STEEL NETWORK INC** — VertiTrack VTD250, VTD362, VTD400, VTD600 and VTD800

A3. **Light Gauge Framing\* — Clipped Ceiling Runner** — As an alternate to the ceiling runner in Items 2A, 2A1 and 2A2, 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 perpendicular to direction of fluted steel floor units and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When optional spray-applied fire resistive material is used on steel deck, clipped ceiling runner secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**TOTAL STEEL SOLUTIONS L L C** — Snap Trak

A4. **Light Gauge Framing\* - Notched Ceiling Runner** — As an alternate to the ceiling runners in Items 2A through 2A3, 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 perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When optional spray-applied fire resistive material is used on the steel deck, notched ceiling runner secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**OLMAR SUPPLY INC** — Type SCR

8. **Studs** — Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on the 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. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection runner (Item 2A2) is used, steel studs secured to vertical clip with No. 12 steel screws through steel bushings, at midheight of slots provided in clip. Stud spacing not to exceed 24 in. (610 mm) OC.

C. **Gypsum Board\*** — For 1 hr assembly, one layer of 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. For 2 hr assembly, two layers of 5/8 in. (16 mm) thick gypsum board is specified in the individual Wall and Partition Design. For both hourly ratings, a nominal 3/4 in. (19 mm) gap shall be maintained between the top of the gypsum board and the bottom surface of the steel deck and the top row of screws shall be installed into the studs 3 in. (76 mm) below the valleys of the steel deck.

**The hourly ratings of the joint system are dependent on the hourly rating of the wall.**

3. **Joint System — Max separation between bottom of floor or roof and top of wall is 3/4 in. (19 mm). The joint system is designed to accommodate a max 17 percent compression or extension from its installed width.** The joint system consists of a forming material and a fill material between the top of the wall and the bottom of the floor or roof, as follows:

A. **Forming Material\*** — Nom 4 pcf (64 kg/m<sup>3</sup>) density mineral wool batt insulation cut approx 20 percent wider than the flutes, with a length approx equal to the overall thickness of the wall. Pieces stacked as needed and then compressed 20 percent in thickness and inserted into the flutes of the steel deck above the top of the deflection channel. The mineral wool batt insulation is to project beyond each side of the ceiling runner, recessed 1/4 in. (6 mm) from one side of wall (CP 606 sealant Item 3B) and installed flush with other side of wall (CP 672 sealant Item 3C). Additional nom 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation shall be cut into strips to fill the gap between the top of the gypsum board and bottom of the steel deck. The width of the strips shall be equal to the total thickness of the gypsum board less 1/4 in. (6 mm). The strips of mineral wool are compressed 50 percent in thickness and firmly packed into the gap between the top of the gypsum board and bottom of the steel deck, recessed 1/4 in. (6 mm) from one side of wall and installed flush with other side of wall.

A1. **Forming Material\*—Plugs** — (Optional-Not Shown) Preformed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall project beyond each side of the ceiling runner, recessed 1/4 in. (6 mm) from wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and bottom of steel floor units.

**HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC** — CP777 Speed Plugs

B. **Fill, Void or Cavity Material\*—Sealant** — Min 1/4 in. (6 mm) thickness of fill material installed on one side of the wall in the flutes of the steel deck between the top of the gypsum board and the bottom of the steel deck, flush with surface of wallboard.

**HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC** — CP606 Flexible Firestop Sealant

C. **Fill, Void or Cavity Material\* - Sealant** — Min 1/8 in. (3.2 mm) wet thickness (min 1/16 in. or 1.6 mm dry thickness) of fill material sprayed or troweled to completely cover the mineral wool forming material or plugs (Items 3A 3A1) on one side of the wall. Fill material to overlap a min of 1/2 in. (13 mm) onto the gypsum board and steel floor units. When spray-applied fire resistive materials are used, the CP 672 firestop spray shall overlap the wall a min 1/2 in. (13 mm) and overlap the spray-applied fire resistive material a min of 2 in. (51 mm).

**HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC** — CP672 Firestop Spray or CFS-SP WB Firestop Joint Spray

**\* 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 2011-12-21

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