

## XHBN.HW-D-0059 - 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

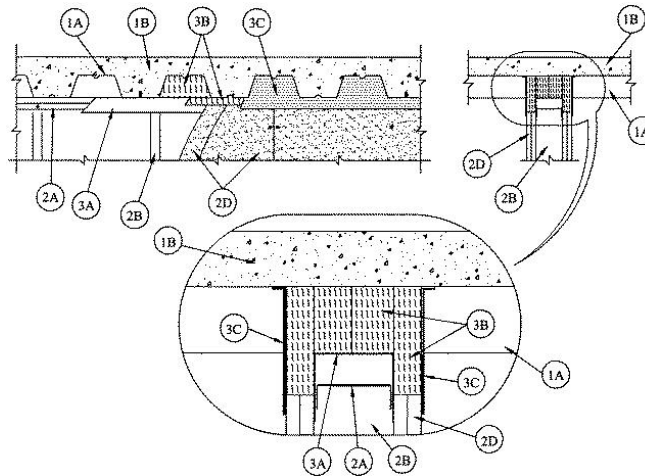
## System No. HW-D-0059

September 08, 2015

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

## Nominal Joint Width — 2 in.

## Class II and III Movement Capabilities — 20% 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 or D900 Series Floor-Ceiling Design in the UL 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 deflection channel, Forming Material and Fill, Void or Cavity Material (Items 3A, 3B, 3C) 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

**2. Wall Assembly** — The 1 or 2 hr fire rated gypsum board/steel 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). When U-shaped deflection channel (Item 3A) is used, ceiling runner to be provided with 1 in. (25 mm) flanges and installed within the U-shaped deflection channel (Item 3A) with a 1-1/2 in. (38 mm) gap maintained between the top of ceiling runner and top of deflection plate. When deflection channel is not used, the ceiling runner shall have min 2-3/4 in. (70 mm) flanges. Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors spaced a max 12 in. (305 mm) OC. When optional spray-applied fire resistive material is used on the steel deck and when deflection channel is not used, ceiling runner secured through spray-applied material to each valley of the steel deck with min 3/16 in. (5 mm) diam steel masonry anchors spaced max 12 in. (305 mm) OC.

**A1. Light Gauge Framing\*** — (For use in systems where the nominal joint width does not exceed 1-1/2 in. or 38 mm) As an alternative 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 slotted ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on the 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

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

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

**A2. 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 perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used. 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

**B. Studs** — Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1-1/2 in. (38 mm) less in length than assembly height. When deflection channel is used, studs shall be installed with bottom nesting in and resting on floor runner and with top nesting in ceiling runner. Studs secured to floor and ceiling runners with sheet metal screw. As an alternate to securing the studs to the ceiling runner, the ceiling runner may be notched with the Snip N' Slide™ tool used to provide positive securement of the studs within the ceiling runner without the screws. When deflection channel is not used, studs shall not be secured to ceiling runner, however, the ceiling runner may be notched with the Snip N' Slide™ tool. 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 mid height of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC.

**C. Batts and Blankets\*** — (Not Shown) - Mineral wool or fiberglass insulation batts, friction-fitted between studs and ceiling and floor runners, as required in the individual Wall and Partition Design.

**D. Gypsum Board\*** — Gypsum board sheets installed to a min total thickness of 1/2 in. (13 mm) and 3/4 in. (19 mm) on each side of wall for 1 and 2 hr rated 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 2 in. (51 mm) gap shall be maintained between the top of the gypsum board and the bottom of the steel floor units and the top row of screws shall be installed into the studs 4 to 4-1/2 in. (102 to 114 mm) below the lower surface of the floor.

**The hourly assembly rating of the joint system is equal to the hourly fire 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 2 in. (51 mm). The joint system is designed to accommodate a max 20 percent compression or extension from its installed width. The joint system consists of an optional deflection channel, gypsum board strips, a forming material and a fill material, as follows:

**A. Deflection Channel** — (Optional) - A nom 3-11/16 in. (94 mm) wide by 3 in. (76 mm) deep min No. 22 gauge steel U-shaped channel. Deflection channel installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors or by welds spaced max 12 in. (305 mm) OC. When optional spray-applied fire resistive material is used on the steel deck, deflection channel secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel masonry anchors. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1-1/2 in. (38 mm) 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 3-1/2 in. (89 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) density mineral wool batt insulation cut to the shape of the fluted steel floor units, approx 33 percent larger than the area of the flutes. Pieces compressed and inserted vertically into the flutes above the top of the deflection channel or ceiling runner. The mineral wool is to be flush with each side of the deflection channel or ceiling runner. Additional min 1/2 in. (13 mm) and 3/4 in. (19 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool insulation for 1 and 2 hr rated assemblies respectively, cut larger than the contour of the flutes and the max 2 in. (51 mm) gap above the top of the gypsum board, compressed 33 percent, and firmly packed into the flutes and the gap between the top of the gypsum board and the bottom of the steel floor units, flush with both surfaces of the wall.

**INDUSTRIAL INSULATION GROUP L L C** — MinWool-1200 Safing

**ROCK WOOL MANUFACTURING CO** — Delta Board

ROCKWOOL MALAYSIA SDN BHD — SAFE

ROCKWOOL — SAFE

THERMAFIBER INC — SAF

B1. **Forming Material\* — Plugs** — (Not Shown) — As an alternate to the forming material (Item 3B), 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.

**ROCK WOOL MANUFACTURING CO** — Delta Deck Plugs

C. **Fill, Void or Cavity Material\*** — Min 1/8 in. (3.2 mm) wet thickness of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. (13 mm) onto gypsum board and steel deck on both sides of wall. When spray-applied fire resistive materials are used, the fill material shall overlap the wall a min 1/2 in. (13 mm) and the spray-applied fire resistive material a min of 2 in. (51 mm) on both sides of the wall.

**RECTORSEAL** — Biostop 750 Spray, Biostop 750 Caulk Grade

**\* 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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