

## XHBN.HW-D-0105 - 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

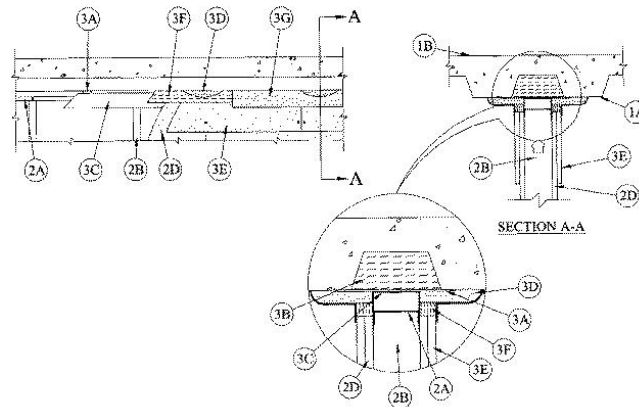
## System No. HW-D-0105

October 21, 2015

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

## Nominal Joint Width — 2 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 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. deep galv steel fluted floor units.
- B. **Concrete** — Max 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.
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). Ceiling runner to be provided with 1 in. flanges. Ceiling runner installed within the U-shaped deflection channel (Item 3C) with a 1-1/2 in. gap maintained between the top of ceiling runner and top of deflection channel.
- A1. **Light Gauge Framing\*** — Slotted Ceiling Runner - (For use in systems where the nominal joint width does not exceed 1-1/2 in.) 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 parallel to flutes of steel floor units (Item 1A) such that all or part of the runner is positioned beneath the void of the steel floor units. Runner secured to each strap (Item 3A) with two fasteners. Fasteners beneath the valley of steel floor units shall be min 1-1/4 in. concrete anchors. Fasteners used beneath the voids of steel floor units shall be 1/2 in. long Type S-12 steel screws. 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\* - 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). Slotted ceiling runner installed parallel to flutes of steel floor units (Item 1A) such that all or part of the runner is positioned beneath the void of the steel floor units. Runner secured to each strap (Item 3A) with two fasteners. Fasteners beneath the valley of steel floor units shall be min 1-1/4 in. concrete anchors. Fasteners used beneath the voids of steel floor units shall be 1/2 in. long Type S-12 steel screws. 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. wide. Studs cut to length equal to assembly height 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. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 x 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. **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 5/8 in. or 3/4 in. on each side of wall for 1 or 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. 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. 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 gypsum board at time of installation of joint system is 2 in. The joint system is designed to accommodate a max 25 percent compression or extension from its installed width. When the wall is parallel to and directly centered beneath a valley of the steel deck, the joint system consists of a deflection channel, gypsum board strips, a forming material and a fill material. When the wall is parallel to but not directly centered beneath a valley of the steel deck, the joint system consists of steel straps, a forming material, a deflection channel, a spray-applied fire resistive material, gypsum board strips, a second forming material and a fill material, as follows:
- A. **Steel Straps** — Nom 2 in. wide min No. 20 gauge steel straps, spaced max 24 in. OC. Steel straps cut to overlap onto two adjacent valleys of floor assembly a min of 1-1/2 in. and secured using one min 1-1/4 in. long steel fastener at each end.
- B. **Forming Material** — Min 4 pcf density mineral wool batt insulation installed to entirely fill the flute of the steel floor units above the steel straps. Mineral wool cut into strips having an approximate width equal to that of the flute, stacked as needed and then compressed 50 percent in thickness into the flute.  
INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing
- JOHNS MANVILLE — 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.  
ROCK WOOL MANUFACTURING CO — Delta Deck Plugs

C. **Deflection Channel** — Nom 3-11/16 in. wide by 3 in. deep min No. 22 gauge steel U-shaped channel. Deflection channel installed parallel to flutes of steel floor units (Item 1A) such that all or part of the channel is positioned beneath the void of the steel floor units. Channel secured to each strap (Item 3A) with two fasteners. Fasteners used beneath the valley of the steel floor units shall be min 1-1/4 in. concrete anchors. Fasteners used beneath the voids of the steel floor units shall be 1/2 in. long Type S-12 steel screws. The ceiling runner (Item 2A) shall be installed within the deflection channel to maintain a 1-1/2 in. gap between the top of the ceiling runner and the top of the deflecting channel. The ceiling runner is not fastened to the deflection channel.

D. **Spray-Applied Fire Resistive Materials\*** — Applied by mixing with water and spraying in one or more coats to the surface of steel straps which are clean and free of dirt, loose scale and oil. The spray-applied fire resistive material shall be applied to the steel straps a min thickness of 1 in. and shall overlap onto the forming material (Item 3B) and steel floor units (Item 1A) a min of 2 in. The min average and min individual densities shall be 15 pcf and 14 pcf, respectively. For method of density determination, see Design Information Section in Volume 1 of the Fire Resistance Directory.

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

E. **Gypsum Board\*** — For all 2 hr applications, and for 1 hr applications where the steel straps (Item 3A), forming material (Item 3B), and spray-applied fire resistive material (Item 3D) are used, a min 12 in. wide strip of min 1/2 in. thick gypsum board shall be installed over the full sheets of gypsum board on each side of wall when the thickness of gypsum board installed on each side of wall is less than 1-1/4 in. The top edge of the strip shall be flush with the top edge of the full sheets and shall be secured to steel studs with 1-5/8 in. long T type S steel screw spaced max 6 in. OC. Strip also secured to full sheets midway between studs with 1-5/8 in. long Type G steel laminating screws spaced max 6 in. OC vertically. Uppermost screw securing the strip shall be located 4 to 4-1/2 in. below the lower surface of the floor. Joints of strip to be offset from joints of full sheets. Joints covered with paper tape and joint compound.

See **Gypsum Board** (CKNX) category for names of manufacturers

F. **Forming Material\*** — Min 4 pcf mineral wool batt insulation having a thickness equal to the total thickness of the gypsum board cut into strips to fill the gap between the top of the gypsum board and bottom of the protected steel floor units. The strips of mineral wool are compressed 33 percent in width and firmly packed into the gap between the top of the gypsum board and bottom of the steel floor units or protected steel straps on both sides of wall.

**ROCK WOOL MANUFACTURING CO** — Delta Board

G. **Fill, Void or Cavity Material\*** — Min 1/8 in. wet thickness of fill material on each side of the wall to completely cover mineral wool forming material and protected steel strap and to overlap a min of 1/2 in. onto gypsum board and steel deck on both sides of 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.**

[Last Updated](#) on 2015-10-21

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from UL" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "© 2022 UL LLC"