

XHBN.HW-D-0420 - 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.

Joint Systems

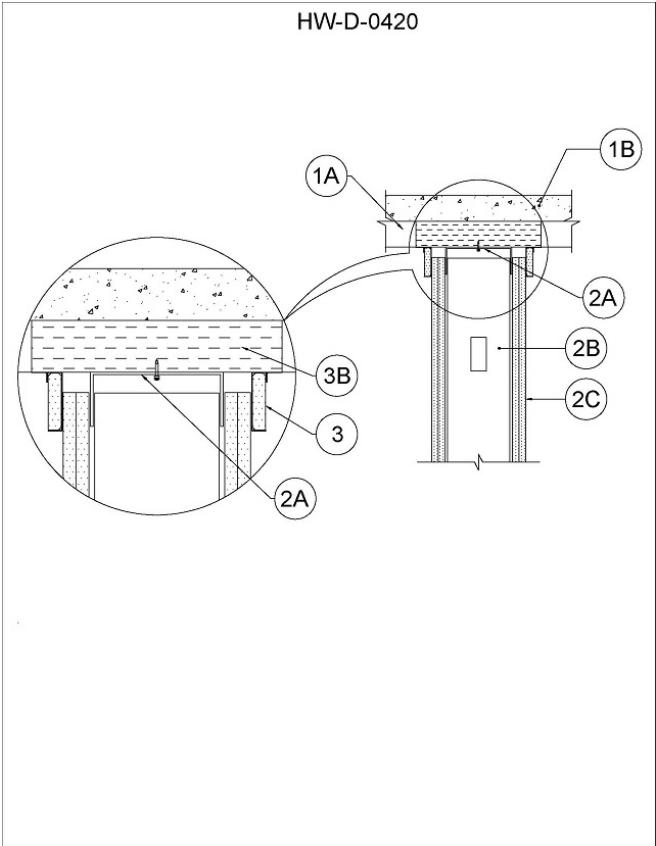
XHBN - Joint Systems

See General Information for Joint Systems

System No. HW-D-0420

November 16, 2021

- Assembly Rating — 1 and 2 Hr (See Item 2)
- Nominal Joint Width — 1 in., 1-1/2 in. and 2 in. (See Item 3)
- L Rating at Ambient - Less Than 1 CFM/Lin ft.
- L Rating at 400° F - Less Than 1 CFM/Lin ft.
- Class II and III Movement Capabilities – See Table 1



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 Floor Units\*** — Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete** — Min 2-1/2 in. (64 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Material\*** — (Optional, Not Shown) - After the installation of ceiling runners or deflection channels (Items 2A-2A4), all surfaces of the steel floor units to be sprayed with the thickness of material specified in the individual D700 Series Design. When spray-applied material is used, the fill material (Item 3A) shall be installed over the spray-applied material and attached to the steel deck without compressing the spray-applied material below the min thickness of the material described in the individual D700 series design.

ISOLATEK INTERNATIONAL — Type 300

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 P700 or P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. 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 roof deck.

C. **Spray-Applied Fire Resistive Material\*** — (Optional, Not Shown) - After the installation of ceiling runners or deflection channel (Item 2A-2A4), all surfaces of the steel floor units to be sprayed with the thickness of material specified in the individual P700 Series Design. When spray-applied material is used, the fill material (Item 3A) shall be installed over the spray-applied material and attached to the steel deck without compressing the spray-applied material below the min thickness of the material described in the individual P700 series design.

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2. **Wall Assembly** — The 1 or 2 hr fire rated gypsum board/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 min No. 20 gauge galv steel channels sized to accommodate steel studs (Item 2B). . Ceiling runner to be provided with flanges that are min 1 in. (25 mm) longer than max extended joint width. When U-shaped deflection channel is used, ceiling runner is installed within the U-shaped deflection channel (Item 2A1) with 2 in. (51 mm) 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 deck and secured to steel deck valleys with steel fasteners spaced a max 24 in. (610 mm) OC.

A1. **Deflection Channel** — (Optional) - U-shaped channel formed from min 20 gauge galv steel sized to accommodate ceiling runner and provided with flanges that are min 1 in. (25 mm) longer than max extended joint width. Deflection channel installed perpendicular to direction of the fluted steel deck and secured to the steel deck valleys with steel fasteners spaced max 24 in. (610 mm) OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 2 in. (51 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.

A2. **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 steel deck valleys with steel fasteners spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel shall not be used.

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

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

METAL-LITE INC — The System

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO — Slotted Track

TELLING INDUSTRIES L L C — True-Action Deflection Track

A3. **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 1 in. (25 mm) longer than max extended joint width. Clipped ceiling runner installed perpendicular to direction of fluted steel deck and secured to steel deck valleys with steel fasteners spaced max 24 in. (610 mm) OC. When clipped ceiling runner is used, deflection channel shall not be used.

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

A4. **Light Gauge Framing\* — Vertical Deflection Ceiling Runner** — As an alternate to the ceiling runner in Items 2A, 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. Track sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel floor or roof deck and secured to valleys with steel fasteners spaced max 24 in. OC. When slotted ceiling runner is used, deflection channel shall not be used.

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

B. **Studs** — Steel studs to be min 3-5/8 in. (92 mm) wide. Studs cut 1/2 in. to 2 in. (13 to 51 mm) less in length than assembly height with bottom nesting in and secured to floor runner. When slotted ceiling runner (Item 2A2) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 (13 mm) long wafer head steel screws at mid-height of slot on each side of wall. When deflection channel is not used, studs to nest in ceiling runner without attachment.

C. **Gypsum Board\*** — Gypsum board sheets installed to a min total 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness on each side of wall for 1 and 2 hr fire rated assemblies, respectively. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory except that a max 2 in. (51 mm) gap shall be maintained between the top of the gypsum board and the bottom of the floor or roof assembly or the bottom of the spray-applied material (if used). The screws attaching the gypsum board to the studs along the top of the wall shall be located 1 to 3-1/2 in. (25 to 89 mm) below the bottom of the ceiling runner. No gypsum board attachment screws shall be driven into the ceiling runner.

**The hourly fire 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 1 in. (25 mm), 1-1/2 in. (38 mm) or 2 in. (51 mm). The joint system is designed to accommodate compression and/or extension from its installed width as noted in Table 1 below.**

A. **Fill, Void or Cavity Material\*** — For nom 1 in. (25 mm) or 2 in. (51 mm) joints, a nom 20 gauge steel angle encased on 3 sides over a nom 2-3/4 in. (70 mm) wide layer of 5/8 in. (16 mm) type X gypsum board. Angle to be secured to steel deck with steel masonry anchors spaced a max 24 in. (610 mm). Face of steel angle to be in contact with gypsum board on both sides of wall. Butt joints in FireRip to be offset min 12 in. (305 mm) on opposite sides of wall.

**CALIFORNIA EXPANDED METAL PRODUCTS CO** — FireRip-2

A1. **Fill, Void or Cavity Material\*** - For nom 1-1/2 in. (38 mm) joints, a nom 20 gauge steel angle encased on 3 sides over a 3-3/4 in. (95 mm) wide layer of 5/8 in. (16 mm) Type X gypsum board. Angle to be secured to steel deck with steel masonry anchors spaced a max 24 in. ( 610 mm). Face of steel angle to be in contact with gypsum board on both sides of wall. Butt joints in FireRip to be offset min 12 in. (305 mm) on opposite sides of wall.

**CALIFORNIA EXPANDED METAL PRODUCTS CO** – FireRip-3

A2. **Fill, Void or Cavity Material\*** - For nom 2 in. (51 mm) joints, a nom 20 gauge steel angle encased on 3 sides over a 4-3/4 in. (121 mm) wide layer of 5/8 in. (16mm) Type X gypsum board. Angle to be secured to steel deck with steel masonry anchors spaced a max 24 in. (610 mm). Face of steel angle to be in contact with gypsum board on both sides of wall. Butt joints in FireRip to be offset min 12 in. (305 mm) on opposite sides of wall.

**CALIFORNIA EXPANDED METAL PRODUCTS CO** – FireRip -4

Model	Nominal Joint Size, in (mm)	Cycling Movement, %	
FireRip-2	1 (25)	Compression	100
		Extension	100
	2 (51)	Compression	100
		Extension	0
FireRip-3	1-1/2 (38)	Compression	100
		Extension	100
FireRip-4	2 (51)	Compression	100
		Extension	50

B. **Packing Material** —Min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation cut to the shape of the fluted deck, approx 33 percent larger than the area of the flutes and compressed into the fluted area of the steel floor or roof deck above the ceiling channel. The forming material shall be installed to extend approx 1-1/2 in. (38 mm) beyond both surfaces of the wall, flush with the outer edge of the FireRip.

B1. **Forming Material\*** — (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 channel. The plugs shall project beyond each side of the ceiling runner and shall extend to the outer edge of the FireRip.

**THERMAFIBER INC** — TopStop mineral wool deck plugs Type SAF batts

C. **Fill, Void or Cavity Material\*** - Butt Joints in the FireRip to be be sealed with a min 1/4 in. (6 mm) bead of sealant. In addition, sealant shall be used to seal any voids and dimples within the fluted deck at the interface with FireRip on both sides of wall to maintain L ratings.

**UNITED STATES GYPSUM CO** – Type AS

\* 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 2021-11-16

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