

XHBN.HW-D-0461 - 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

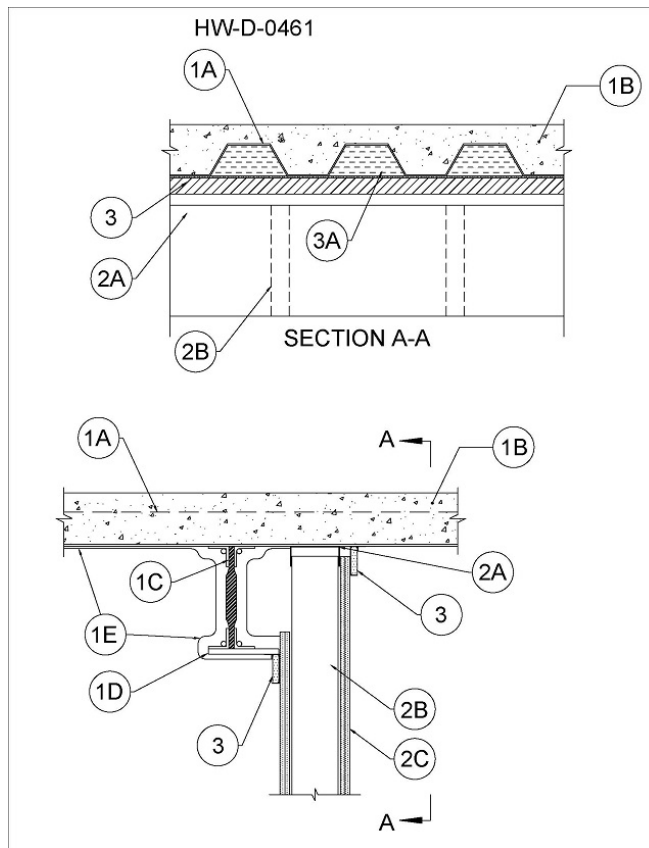
XHBN - Joint Systems

[See General Information for Joint Systems](#)

System No. HW-D-0461

November 16, 2021

ANSI/UL2079	CAN/ULC 5115
Assembly Ratings — 1 and 2 Hr (See Items 1 and 2)	F Ratings — 1 and 2 Hr (See Items 1 and 2)
Nominal Joint Width — 1, 1-1/2 and 2 In.	FT Ratings — 1 and 2 Hr (See Items 1 and 2)
Class II or III Movement Capabilities — See Table 1	FH Ratings — 1 and 2 Hr (See Items 1 and 2)
L Rating at Ambient — Less than 1 CFM/Lin Ft	FTH Ratings — 1 and 2 Hr (See Items 1 and 2)
L Rating at 400°F — Less than 1 CFM/Lin Ft	Nominal Joint Width - 25, 38 and 51 mm
	Class II or III Movement Capabilities — See Table 1
	L Rating at Ambient — Less than 1.55 L/s/m
	L Rating at 204°C — Less than 1.55 L/s/m



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. (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. Structural Steel Support — Steel beam, as specified in the individual D700 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support oriented parallel to and 1 to 7 in. (25 to 178 mm) from wall assembly.

D. Steel Attachment Clips — Z-shaped clips formed from 1 in. (25 mm) wide strips of min 20 ga galv steel. Clips to be sized to extend through the thickness of the spray-applied fire-resistive material on the bottom flange of the steel beam with 1-1/2 in. (38 mm) long upper and lower legs. Legs of clips fastened to bottom of beam (prior to application of spray-applied fire-resistive materials) with steel fasteners or welds. Clips spaced max 16 in. (406 mm) OC and extend to within 1/4 in. (6 mm) from the surface of the wall.

E. Spray-Applied Fire Resistive Material* — After installation of the steel attachment clips, steel floor units and structural steel support to be sprayed with the min thickness of material specified in the individual D700 Series Design. The flutes of the steel floor units are to be filled with material across the entire top flange of the steel beam.
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 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.
ISOLATEK INTERNATIONAL — Type 300

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. Where the top of the wall assembly is inaccessible above the lowest elevation of the structural steel support, the gypsum board attachment screws may be omitted.

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 specified in Table 1 below.

A. Packing Material — Min 4 pcf (64 kg/m³) 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.

B. 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. At beam side of wall, the FireRip is to rest against the gypsum board on wall and be secured to steel attachment clips through the Item 3C gypsum board, with steel fasteners spaced 16 in. (406 mm) on center and of sufficient length to penetrate min 1/2 in. (13 mm) into the steel attachment clips.

CALIFORNIA EXPANDED METAL PRODUCTS CO — FireRip-2

B1. 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. At beam side of wall, the FireRip is to rest against the gypsum board on wall and be secured to steel attachment clips through the Item 3C gypsum board, with steel fasteners spaced 16 in. (406 mm) on center and of sufficient length to penetrate min 1/2 in. (13 mm) into the steel attachment clips.

CALIFORNIA EXPANDED METAL PRODUCTS CO — FireRip-3

B2. 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. At beam side of wall, the FireRip is to rest against the gypsum board on wall and be secured to steel attachment clips through the Item 3C gypsum board, with steel fasteners spaced 16 in. (406 mm) on center and of sufficient length to penetrate min 1/2 in. (13 mm) into the steel attachment clips.

CALIFORNIA EXPANDED METAL PRODUCTS CO - FireRip-4

Table 1

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

C. Gypsum Board* —Gypsum board sheets installed on underside of steel attachment clips (Item 1E) to a min total 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness for 1 and 2 hr fire rated assemblies, respectively. Gypsum boards installed to completely cover the gap between steel beam and to within 1/4 in. (6 mm) of wall and secured to each steel attachment clips (Item 1E) with a minimum of two steel drywall screws approximately 1 to 2 in. (25 to 51 mm) from each end of the clip.

D. Fill, Void or Cavity Material* (Not Shown) - Butt joints in the FireRip to 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 steel deck at interface with FireRip and at beam side of wall at interface with FireRip 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.

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