

XHBN.HW-D-0602 - 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

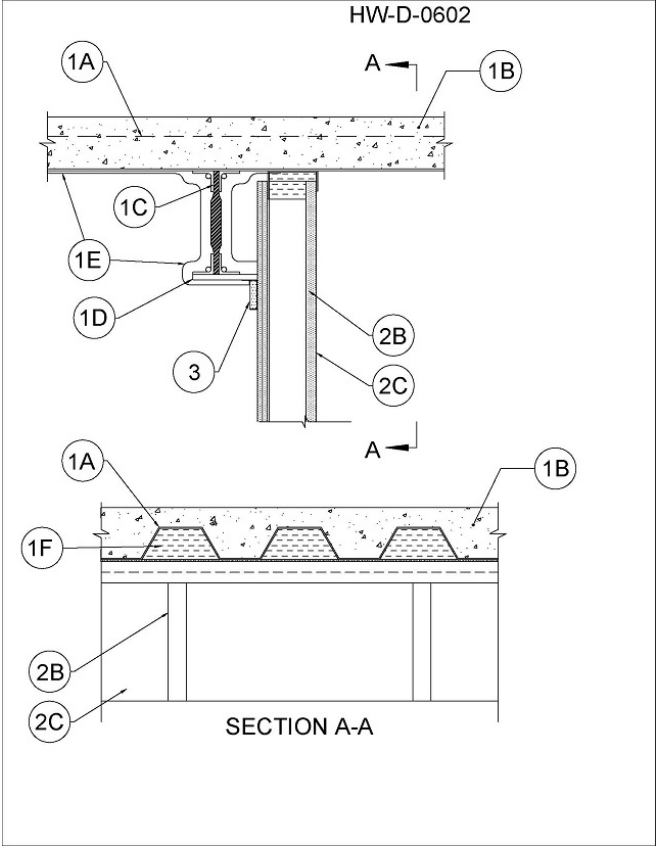
XHBN - Joint Systems

See General Information for Joint Systems

System No. HW-D-0602

November 17, 2021

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 -1, 1-1/2 or 2 In.	FT Ratings — 1 and 2 Hr (See Item 2)
Class II or III Movement Capabilities — 33% Compression or 66% Extension, See Table 1	FH Ratings — 1 and 2 Hr (See Item 2)
L Rating at Ambient — Less than 1 CFM/Lin Ft	FTH Ratings — 1 and 2 Hr (See Item 2)
L Rating at 400°F — Less than 1 CFM/Lin Ft	Class II or III Movement Capabilities — 33% Compression or 66% Extension, 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 1-1/2 in. (38 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 to 3/4 in. (6 to 19 mm) from the surface of the wall.
- E. **Steel Plate** — Min 22 ga. galv steel plate, sized to extend from beam to within 1/4 in. (6 mm) of wall surface. Plate is secured to bottom surface of each Z clip with min No. 8 steel sheet metal screws spaced a max 2 in. (51 mm) from edges of plate and a max 4 in. (102 mm) OC.
- F. **Spray-Applied Fire Resistive Material*** — After installation of the steel attachment clips, structural steel and ceiling runners, 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 ceiling runner. The area on top of steel plate and in between Z clips is to be filled to the height of the Z clips plus an additional min 1 in. (25 mm) thickness.
- ISOLATEK INTERNATIONAL** — Type 300

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY

2. **Shaft Wall Assembly** — The 1 or 2 hr fire rated shaft 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. The wall shall include the following construction features:
- A. **Floor and Ceiling Runners** — "J"-shaped runner, min 4 in. (102 mm) wide with unequal legs that are min 1 in. (25 mm) longer than the max extended joint width, fabricated from min 20 MSG galv steel. Attached to steel deck with steel fasteners or welds spaced max 24 in. (610 mm) OC.
- A1. **Light Gauge Framing* — Slotted Ceiling Track** — (Not Shown) - As an alternate to the "J"-shaped runner in Item 2A, a ceiling track consisting of galv steel channel with slotted flanges may be used. Slotted ceiling track sized to accommodate steel "C-T", "I" or "C-H" studs (Item 2C). Attached to steel deck with steel fasteners or welds spaced max 24 in. (610 mm) OC.
- BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS** — SLP-TRK
- CALIFORNIA EXPANDED METAL PRODUCTS CO** — CST
- CLARKDIETRICH BUILDING SYSTEMS** — Type SLT, SLT-H

B. Steel Studs — "C-T", "I" or "C-H"-shaped steel studs to be min 4 in. (102 mm) wide and formed of min 24 MSG galv steel. Studs cut 1/2 to 2 in. (13 to 51 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in "J"-shaped runner or slotted ceiling track. Studs spaced max 24 in. (610 mm) OC. After installation of gypsum board liner panels (Item 2D), studs secured to flange of floor runner on finished side of wall only with No. 6 by 1/2 in. (13 mm) long self-drilling, self-tapping steel screws. If slotted ceiling track (Item 2A1) is used, studs secured to flange of slotted ceiling track on finished side of wall only with No. 8 by 1/2 in. (13 mm) long self-drilling, self-tapping wafer head steel screws at slot mid-height.

C. Gypsum Board* — 1 in. (25 mm) thick by max 24 in. (610 mm) wide gypsum board liner panels. Panels cut max 1/2 in. (13 mm) less in length than floor to ceiling height. Vertical edges inserted into "T"-shaped section of "C-T" studs, into holding tabs of "I" studs or into "H"-shaped section of "C-H" studs.

D. Gypsum Board* — Gypsum board, 1/2 or 5/8 in. (13 or 16 mm) thick, applied on finished side of wall as specified in the individual Wall and Partition Design 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 layer(s) to the "C-T", "I" or "C-H" studs shall be located a max of 2 in. (51 mm) below the bottom of the Z clips.

The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

3. Joint System — Max separation between spray-applied material on bottom of floor and top of wall (at time of installation of joint system) is 1 in. (25 mm). The joint system is designed to accommodate a max 33 percent compression or max 66%extension from its installed width. When items 3A,3A1, or 3A2 are utilized joint widths of 1 in. (25 mm), 1-1/2 in. (38 mm), 2 in. (51 mm) are employed, see Table 1 for movement capabilities.

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. Face of steel angle to be in contact with gypsum board on finished side 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 3B 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

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.Face of steel angle to be in contact with gypsum board on finished side 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 3B 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

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. Face of steel angle to be in contact with gypsum board on finished side 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 3B 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 Rating, %	
FireRip-2	1 (25)	Compression	100
		Extension	100
	2 (51)	Compression	100
		Extension	0
FireRip-3	1-1/2 (38)	Compression	100
		Extension	42
FireRip-4	2 (51)	Compression	100
		Extension	6

B. Gypsum Board* —Gypsum board sheets installed on underside of steel attachment clips 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 wall, extending to within 1/4 in. (6 mm) of wall, and secured to each steel attachment clips with a minimum of two steel drywall screws approximately 1 to 2 in. (25 to 51 mm) from each end of the clip.

C. Forming Material* —Min 4 in. (102 mm) thick min 4 pcf (64 kg/m³) mineral wool batt insulation cut to friction fit with min 33 percent compression in width and installed into ceiling runner between leg of track and gypsum liner board.

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 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 2021-11-17

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