

XHBN.HW-D-0645 - 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 XHBN7 - Joint Systems Certified for Canada

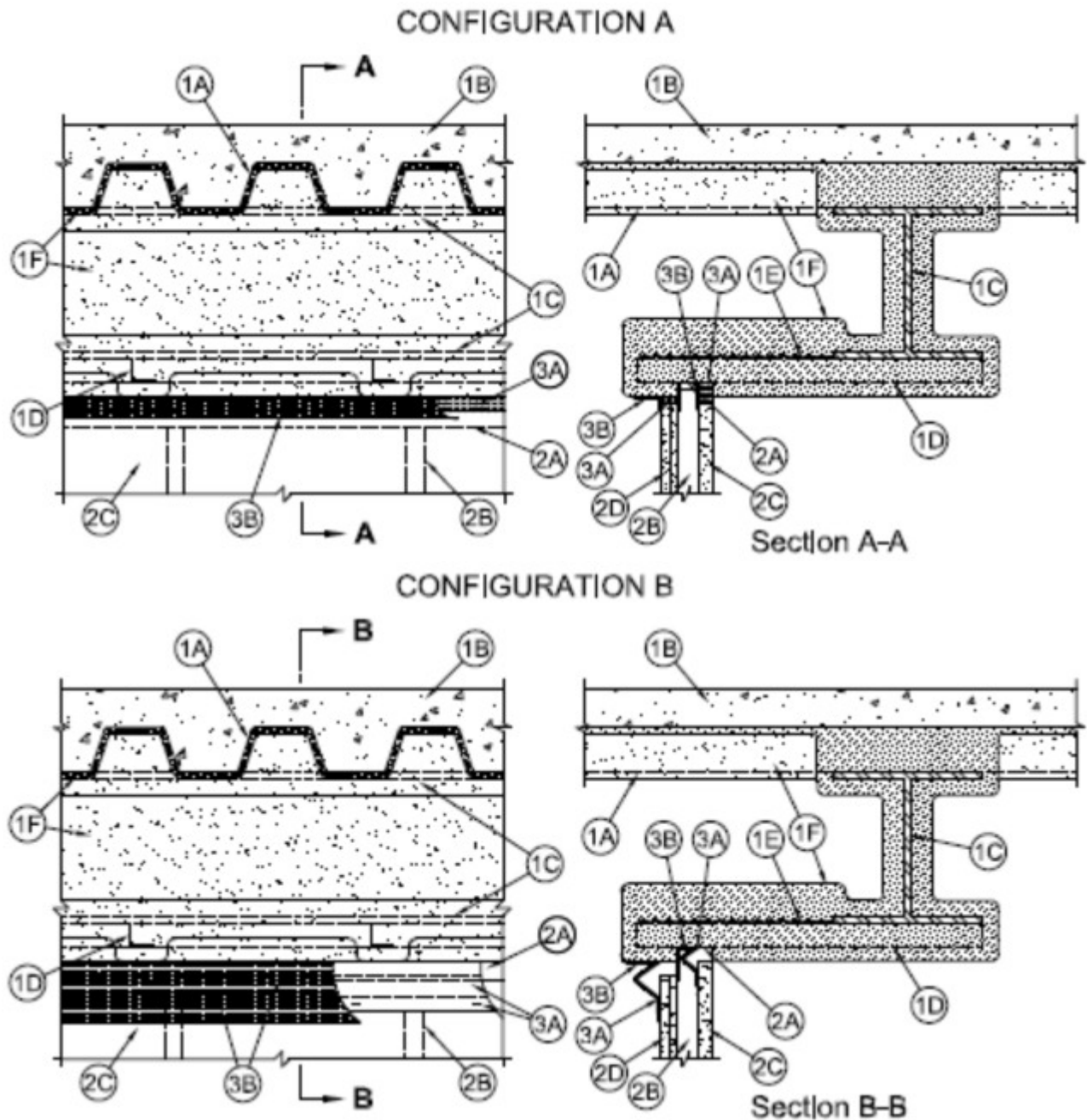
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0645

March 16, 2020

ANSI/UL2079	CAN/ULC S115
Assembly Ratings — 1 and 2 Hr (See Items 1 and 2)	F Ratings — 1 and 2 Hr (See Items 1 and 2)
Maximum Joint Width — 3/4, 1 or 1-1/2 In. (See Item 3)	FT Ratings — 1 and 2 Hr (See Items 1 and 2)
Class II or III Movement Capabilities — 50% or 100% Compression or Extension (See Item 3)	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	Maximum Joint Width — 3/4, 1 or 1-1/2 In. (See Item 3)
	Class II or III Movement Capabilities — 50% or 100% Compression or Extension (See Item 3)
	L Rating At Ambient — Less Than 1.55 L/s/m
	L Rating At 400 F — 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 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 reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete, as measured from the top plane of the floor units.

C. **Structural Steel Support** — Steel beam, as specified in the individual D700 or D900 Series Floor-Ceiling Design, used to support steel floor units. Steel beam parallel with wall assembly and 8 in. (203 mm) max from wall assembly.

D. **Steel Attachment Clips** — Z-shaped bars or channels, located to span from steel beam to min 1 in. (25 mm) beyond face of wall and spaced max 24 in. (610 mm) on center. Z-shaped bars are nom 1-1/2 to 2 in. (38 to 51 mm) deep and formed from min 16 gauge painted or galvanized steel. Channels are nom 1-1/2 in. (38 mm) or 2 in. (51 mm) deep and formed from min 16 gauge painted or galvanized steel. Each bar or channel welded or attached with steel fasteners to steel beam and welded, bolted or screwed to ceiling runner of wall. Each bar or channel shall be fully covered with spray applied fire resistive material (Item 1F) to the minimum thickness of material required on the flanges of the steel beam.

E. **Steel Lath** — Nom 3/8 in. (10 mm) diamond mesh expanded steel rib lath having a nom weight of 3.4 lb/yd² (1.8 kg/m²) shall be installed over and attached to the steel attachment clip bars or channels (Item 1D) to completely cover the exposed area from the flange tip of the steel beam to the end of the bar/channel framing extending beyond the wall surface. The lath shall be secured with steel fasteners or tie wire and shall be fully covered with spray applied fire resistive material (Item 1F).

F. **Spray-Applied Fire Resistive Material*** — After installation of steel attachment clip and steel lath (Items 1D and 1E), steel floor units and structural steel support to be sprayed with the min thickness of material specified in the individual D700 or D900 Series Design. The flutes of the steel floor units are to be filled with material across the entire top flange of the steel beam. Each bar or channel attachment clip member (Item 1D) shall be fully covered with spray applied fire resistive material to the minimum thickness of material required on the flanges of the steel beam. The thickness of material applied to the expanded steel lath shall be sufficient to completely fill the spaces between the bar/channel attachment clip above the wall. Additional material shall be applied to the web of the steel beam on each side of the wall. The min total thickness of material applied to each side of the steel beam web shall be 13/16 in. (21 mm) for 1 hr fire rated assemblies and 1 3/8 in. (35 mm) for 2 hr fire rated assemblies. For D700 Series Designs, all surfaces of the steel floor units to be sprayed with the thickness of material specified in the individual D700 Series Design. For D900 Series Designs structural steel supports, steel attachment clip and steel lath only to be sprayed in accordance with the specifications in the individual D900 Series Design.

ISOLATEK INTERNATIONAL — Type 300 or Type II

SOUTHWEST FIREPROOFING PRODUCTS CO — Type 5, Type 5GP

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY, MK-6/HYES, MK-65 and RG

The hourly fire rating of the floor assembly shall be equal to or greater than the hourly fire rating of the wall assembly.

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 P900 or 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** — For P900 Series Designs, min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top roof deck. For P700 Series Designs, roof insulation shall be as specified in the individual design.

C. **Structural Steel Support** — Steel beam, as specified in the individual P700 or P900 Series Floor-Ceiling Design, used to support steel floor units. Steel beam parallel with wall assembly and 8 in. (203 mm) max from wall assembly.

D. **Steel Attachment Clips** — Z-shaped bars or channels, located to span from steel beam to min 1 in. (25 mm) beyond face of wall and spaced max 24 in. (610 mm) on center. Z-shaped bars are nom 1-1/2 to 2 in. (38 to 51 mm) deep and formed from min 16 gauge painted or galvanized steel. Channels are nom 1-1/2 in. (38 mm) or 2 in. (51 mm) deep and formed from min 16 gauge painted or galvanized steel. Each bar or channel welded to steel beam and welded, bolted or screwed to ceiling runner of wall. Each bar or channel shall be fully covered with spray applied fire resistive material to the minimum thickness of material required on the flanges of the steel beam.

E. **Steel Lath** — Nom 3/8 in. (10 mm) diamond mesh expanded steel rib lath having a nom weight of 3.4 lb/yd² (1.8 kg/m²) shall be installed over and attached to the steel attachment clip bars or channels (Item 1AD) to completely cover the exposed area from the flange tip of the steel beam to the end of the bar/channel framing extending beyond the wall surface. The lath shall be secured with steel fasteners or tie wire and shall be fully covered with spray applied fire resistive material (Item 1AF).

F. **Spray-Applied Fire Resistive Material*** — After installation of steel attachment clip and steel lath (Items 1AD and 1AE) surfaces of the roof deck to be sprayed with the thickness of material specified in the individual P700 Series Design. For P900 Series Designs structural steel supports, steel attachment clip and steel lath only to be sprayed in accordance with the specifications in the individual P900 Series Design. The flutes of the steel roof deck are to be filled

with material across the entire top flange of the steel beam. Each bar or channel attachment clips (Item 1AD) shall be fully covered with spray applied fire resistive material to the minimum thickness of material required on the flanges of the steel beam. The thickness of material applied to the expanded steel lath shall be sufficient to completely fill the spaces between the bar/channel attachment clip above the wall. Additional material shall be applied to the web of the steel beam on each side of the wall. The min total thickness of material applied to each side of the steel beam web shall be 13/16 in. (21 mm) for 1 hr fire rated assemblies and 1-3/8 in. (35 mm) for 2 hr fire rated assemblies.

ISOLATEK INTERNATIONAL — Type 300 or Type II

SOUTHWEST FIREPROOFING PRODUCTS CO — Type 5, Type 5GP

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY, MK-6/HYES, MK-65 and RG

The hourly fire rating of the roof assembly shall be equal or greater than the hourly fire rating of the wall assembly.

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, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory. The wall shall include the following construction features:

A. Floor, Wall and Ceiling Runners — "J"-shaped runner, min 2-1/2 in. (64 mm) wide with unequal legs of 1 in. (25 mm) and 2 in. (51 mm), fabricated from min 24 MSG galv steel. Runners positioned with short leg toward finished side of wall. Runners attached to walls and floor with steel fasteners spaced max 24 in. (610 mm) OC. Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width. Ceiling runner is secured to steel attachment clip (Item 1D or 1AD) with steel fasteners or welds spaced max 24 in. (610 mm) OC. Ceiling runner to be installed parallel with structural steel support and located such that a max clearance of 8 in. (203 mm) is present between the finished wall and the flange of the steel beam (Item 1C). As an alternate to the "J"-shaped floor runner, a min 2-1/2 in. (64 mm) wide by 1 or 1-1/4 in. (25 or 32 mm) deep channel formed from min 24 MSG galv steel may be used.

A1. Light Gauge Framing* - Slotted Ceiling Track — (Not Shown) - As an alternate to ceiling runner in Item 2A, slotted ceiling track shall consist of galv steel channels with slotted flanges. Slotted ceiling track sized to accommodate steel "C-H" studs (Items 2B). Slotted ceiling track is secured to steel attachment clip (Item 1D or 1AD) with steel fasteners or welds spaced max 24 in. (610 mm) OC. Ceiling runner to be installed parallel with structural steel support and located such that a max clearance of 8 in. (203 mm) is present between the finished wall and the flange of the steel beam (Item 1C).

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK, SLPTRK325

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST, CST325

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO

STEELER INC — Steeler Slotted Ceiling Runner

TELLING INDUSTRIES L L C — True-Action Deflection Track

THE STEEL NETWORK INC — VertiTrack VT, series,250VT, 362VT, 400VT, 600VT and 800VT

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT slotted track

B. **Steel Studs** — "C-H"-shaped steel studs to be min 2-1/2 in. (64 mm) wide and formed of min 24 MSG galv steel. Studs cut 1/2 to 1-1/4 in. (13 to 32 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in slotted ceiling track. Studs spaced 24 in. (610 mm) OC. After installation of gypsum board liner panels (Item 2AD), 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. 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 midheight.

C. **Gypsum Board*** — 1 in. (25 mm) thick by 24 in. (610 mm) wide gypsum board liner panels as specified in the individual U400 or V400-Series Wall and Partition Design. Panels cut 1 in. (25 mm) less in length than floor to ceiling height. Vertical edges inserted in "H"-shaped section of "C-H" studs. Free edge of end panels attached to long leg of "J" runner (Item 2AA) with 1-5/8 in. (41 mm) long Type S steel screws spaced max 12 in. (305 mm) OC.

D. **Gypsum Board*** — Gypsum board sheets, 1/2 or 5/8 in. (13 or 16 mm) thick, applied vertically or horizontally in one or two layers on finished side of wall as specified in the individual U400 or V400-Series Wall and Partition Design. A max 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the bottom surface of the concrete floor. The screws attaching the gypsum board layers to the C-H studs shall be located 1-1/2 in. (38 mm) below the bottom of the slotted ceiling track (Item 2AC). No gypsum board attachment screws are to penetrate the slotted ceiling track.

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

Configuration A

3. **Joint System** — Max separation between bottom plane of spray-applied fire resistive material on the steel attachment clip (Item 1D) and the top of the gypsum board is 1-1/2 in. (38 mm). The movement capability of the joint system is 50 percent compression or extension. The joint system shall consist of forming and fill materials, as follows:

A. **Forming Material*** — Nom 4 pcf (64 kg/m³) density mineral wool batt insulation. Sections of mineral wool batt cut to a 1 in. (25 mm) width thickness, compressed a min of 50 percent in thickness and inserted cut-edge first into the gap above the gypsum liner panel (Item 2C). Strips of mineral wool batt insulation cut to width of gypsum board layers (Item 2D), compressed 50 percent in thickness and installed cut-edge first into gap between the top of the gypsum board and the bottom plane of the spray applied fire resistive material (Item 1F or 1AF) on finished side of wall assembly.

INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing

JOHNS MANVILLE — Safing

ROCK WOOL MANUFACTURING CO — Delta Safing Insulation

ROCKWOOL MALAYSIA SDN BHD — SAF Mineral Wool

ROCKWOOL — SAF Mineral Wool

THERMAFIBER INC — Type SAF

B. **Fill, Void or Cavity Material* — Sealant** — A min 1/8 in. (3 mm) wet thickness (min 1/16 in. or 1.6 mm dry thickness) of fill material applied to completely cover forming material and to overlap min 1/2 in. (13 mm) onto wall and min 2 in. (51 mm) onto spray-applied fire resistive material. For shaft walls (Item 2A, Not Shown), spray applied to cover mineral wool batt insulation on finished side of wall.

SPECIFIED TECHNOLOGIES INC — SpecSeal AS200 Elastomeric Spray

Configuration B

3. Joint System — Max separation between bottom plane of spray-applied fire resistive material on the steel attachment clip (Item 1D) and the top of the gypsum board is 3/4 in. (19 mm) or 1 in. (25 mm). The joint system is designed to accommodate a max 100 percent compression or extension from its installed width as measured between bottom plane of the protective material on the steel beam and the top of the gypsum board or max 100 percent compression (only) from its installed width when the joint width is greater than 3/4 in. The joint system consists of the following:

A. Forming Material* — Nom 3/16 in. (4.8 mm) thick by 4 in. (102 mm) high joint forming material profile installed within and on the finished side of the wall assembly. Profile installed on the shaft side of the wall by first marking a line across the top of the wall 3 in. (76 mm) below the web of the "J" runner or ceiling runner channel on the interior surface of the gypsum liner. Joint profile material on shaft side positioned with its top edge against the web of the ceiling runner with its bottom edge on the line scribed on the shaft liner. Profile installed on the finished side of the wall by first marking a line across the top of the wall 3 in. (76 mm) below the bottom plane of the spray-applied fire resistive material. Joint profile material on finished side positioned with its top edge against the underside of the spray-applied fire resistive material with its bottom edge on the line scribed on the finished side of the wall assembly. Bottom of the joint profile attached to gypsum liner panel and gypsum board with nom 1/2 in. (13 mm) long steel staples spaced not greater than 8 in. (203 mm) OC. Adjoining lengths of profile to overlap approx 3/4 in. (19 mm) at shiplapped ends.

SPECIFIED TECHNOLOGIES INC — SpecSeal Speed Flex Joint Profile

B. Fill, Void or Cavity Material*- Sealant — Min 1/8 in. (3.2 mm) wet thickness (min 1/16 in. or 1.5 mm dry thickness) of elastomeric spray applied to cover forming material (Item 3A) within wall cavity and on finished side of wall. Maintain min 1/2 in. (13 mm) overlap onto surrounding substrates with min 2 in. (51 mm) overlap onto spray applied fire resistive material on finished side of wall.

SPECIFIED TECHNOLOGIES INC — SpecSeal AS200 Elastomeric Spray

*** 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 2020-03-16

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