

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.

XHBO – Continuity Head-of-wall Joint Systems

[See General Information for Continuity Head-of-wall Joint Systems](#)

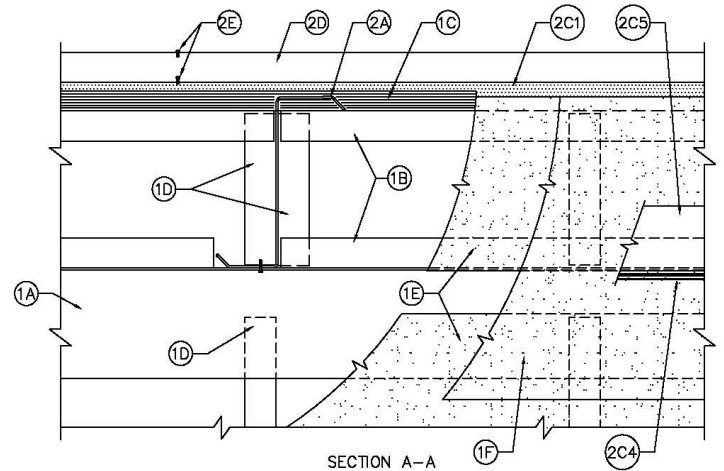
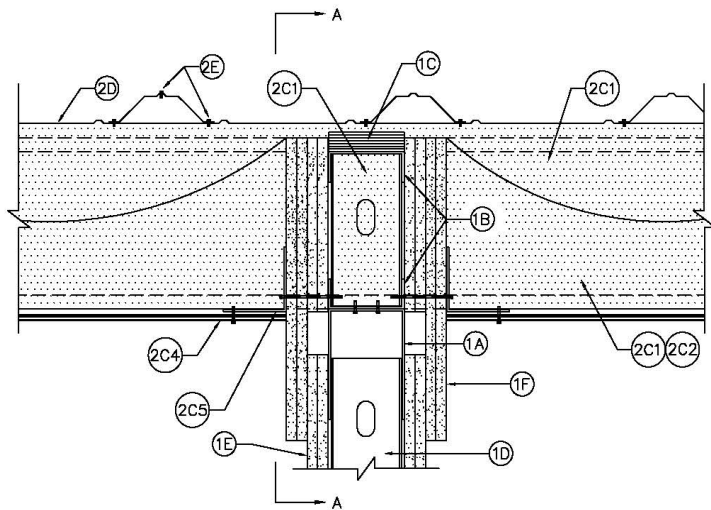
System No. CJ-D-0032

January 03, 2025

Joint Rating – 2 Hr

Nominal Joint Width – 2 in.

Class II or III Movement Capabilities – 100% Compression and Extension



1. Wall Assembly — The minimum 2 hr fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400, V400 or W400 Series **Wall and Partition Design** in the UL Fire Resistance Directory and shall include the following construction features:

A. Ceiling Deflection Channel — U-shaped channel formed from min 16 ga steel sized to accommodate steel studs (Item 1D) and provided with nom 5 in. (127 mm) flanges. Deflection channel installed perpendicular to purlins (Item 2A) and secured to bottom flange of purlins (Item 2A) with min No. 14 self-tapping, hex-head, plated steel or stainless steel screws.

B. Steel Floor and Ceiling Runners — Floor runner of the wall assembly and the floor and ceiling runners of the cripple wall above the wall assembly shall consist of min 1-1/4 in. (32 mm) deep min 25 ga galv steel channels sized to accommodate steel studs (Item 1D). Floor runner of cripple wall aligned with and screw-attached to top of ceiling deflection channel (Item 1A). Ceiling runner of cripple wall installed to compress unfaced batts and blankets (Item 2C1) to nom thickness of 3/8 in. (10 mm) by wedging lengths of stud (Item 1D) between the runners. Steel studs (Item 1D) of cripple wall attached to each side of purlin (Item 2A) web and to floor and ceiling runners with steel screws.

C. **Batts and Blankets* - Packing Material** — Unfaced compressible mineral wool batt insulation having a nom 2 in. (51 mm) thickness before compression and a nom density of 4 pcf (64 kg/m³). Strips of nom 2 in. (51 mm) thick batt cut to width of cripple wall ceiling runner (Item 1B) and compressed min 50 percent in thickness between cripple wall ceiling runner (Item 1B) and unfaced batts and blankets (Item 2C1). Compression of mineral wool batt packing material to result in compression of unfaced batts and blankets (Item 2C1) to nom 3/8 in. (10 mm) thickness.

See **Batts and Blankets** (BZJZ) category in the UL Fire Resistance Directory or **Batts and Blankets** (BKNV) category in the UL Building Materials Directory for names of manufacturers.

D. **Studs** — Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut max 2 in. (51 mm) less in length than the wall assembly height beneath purlins (Item 2A) with bottom nesting in and resting on the floor runner (Item 1B) and with top nesting in ceiling deflection channel (Item 1A) without attachment. Stud spacing not to exceed 24 in. (610 mm) O.C. Studs of cripple wall cut to length as required to compress packing material (Item 1C) and unfaced batts and blankets (Item 2C1) to nom thicknesses of 1 in. (25 mm) and 3/8 in. (10 mm), respectively. Studs spaced max 24 in. (610 mm) OC.

E. **Gypsum Board*** — Min two layers of 5/8 in. (16 mm) thick gypsum board sheets installed on each side of wall. Wall to be constructed as specified in the individual U400, V400 or W400 Series Design in the UL Fire Resistance Directory except that a max 2 in. (51 mm) wide gap shall be maintained between the gypsum board of the wall assembly below the purlin (Item 2A) and the gypsum board of the cripple wall. Top edge of gypsum board of wall assembly to be max 2 in. (51 mm) below top of ceiling deflection channel (Item 1A). Bottom edge of gypsum board of cripple wall to be flush with top of ceiling deflection channel (Item 1A). Screws securing gypsum board to steel studs (Item 1D) of wall assembly to be located 2-1/4 in. to 2-1/2 in. (57 to 64 mm) below flange of ceiling deflection channel (Item 1A). Screws securing gypsum board of cripple wall to be driven into studs (Item 1D) and runners (Item 1B) of cripple wall. No screws are to be driven into flanges of ceiling deflection channel (Item 1A).

F. **Gypsum Board*** — Min two layers of 5/8 in. (16 mm) thick "rip strip" of gypsum board installed to cover both layers of gypsum board on cripple wall and to lap min 4 in. (102 mm) onto gypsum board of wall assembly on each side of wall. The "rip strip" of gypsum board is to be the same material used for the wall assembly (Item 1E) and is to be secured to the studs (Item 1D) and runners (Item 1B) of the cripple wall. No screws are to be driven into flanges of ceiling deflection channel (Item 1A). Joints of "rip strip" to be offset from joints of gypsum board on wall assembly (Item 1E).

See Gypsum Board (CKNX) category in the Fire Resistance Directory for names of manufacturers.

Max separation between top of wall assembly gypsum board and bottom of cripple wall gypsum board (at time of installation of joint system) is 2 in. (51 mm). The joint system is designed to accommodate a max 100 percent compression or extension from its installed width.

2. **Nonrated Horizontal Assembly** — The nonrated horizontal assembly shall be constructed of the materials and in the manner described in the individual **Roof Deck Constructions** (TGKX) in the UL Roofing Materials and Systems Directory and shall include the following construction features:

A. **Purlin** — Min 16 ga coated steel. Max spacing as specified in the individual **Roof Deck Constructions** (TGKX).

B. **Lateral Bracing** — (Not Shown) - As required.

C1. **Unfaced Batts and Blankets*** — Used in two layers or one layer in combination with faced batts and blankets (Item 2C2). Any unfaced glass fiber batt material or mineral wool insulation bearing the UL Classification marking having a min 6 in. (152 mm) thickness before compression and a min density of 0.6 pcf (9.6 kg/m³). Insulation draped over purlins prior to installation of panel clips (Item 2F) and/or metal roof deck panels (Item 2D). Side edges of the batts shall be butted or overlapped a max of 3 in. (76 mm).

See **Batts and Blankets** (BZJZ) Category in UL Fire Resistance Directory or **Batts and Blankets** (BKNV) in the UL Building Materials Directory for list of Classified Companies.

C2. **Faced Batts and Blankets*** — Used in combination with unfaced batts and blankets (Item 2C1). Any faced glass fiber batt material or mineral wool insulation bearing the UL Classification marking.

See **Batts and Blankets** (BZJZ) Category in UL Fire Resistance Directory or **Batts and Blankets** (BKNV) in the UL Building Materials Directory for list of Classified Companies.

C3. **Vapor Retarder Fabric*** — (Not Shown) - Used only with two layers of unfaced batts and blankets (Item 2C1), as specified in the respective insulation system, and continuously sealed to wall angle (Item 2C5).

C4. **Steel Banding** — Fastened to wall angle (Item 2C5). As specified in the respective insulation system.

C5. **Wall Angle** — Galv steel angle with 2 in. legs, No. 20 MSG (0.0329 in., min bare metal thickness), attached to wall with fasteners at every stud (Item 1D) to support vapor retarder fabric (Item 2C3) and steel banding (Item 2C4).

D. **Metal Roof Deck Panels*** — Min 26 ga coated steel. Panels continuous over two or more spans. Roof panel end laps, if required, centered over purlins (Item 2A) with min 3 in. (76 mm) panel overlap as specified in the individual **Roof Deck Constructions** (TGKX). A line of tube sealant or tape sealant may be used at panel end and side laps.

See **Metal Roof Deck Panels** (TJPV) category in the UL Roofing Materials and Systems Directory for names of manufacturers.

E. **Fasteners** — Fasteners used for panel-to-purlin and panel-to-panel connections to be self-tapping, hex-head, plated steel or stainless steel screws with either an integral or a separate steel washer fitted with a compressible sealing washer. Fastener type, length, pilot hole diam and spacing to be as specified in the individual **Roof Deck Constructions** (TGKX).

F. **Roof Deck Fasteners* – Panel Clips** — (Not Shown) – Panel clips used for panel-to-purlin connections to be secured to purlin (Item 2A) through insulation as specified in the individual **Roof Deck Constructions** (TGKX).

See **Roof Deck Fasteners** (TLSX) category in the UL Roofing Materials and Systems Directory for names of manufacturers.

G. **Thermal Spacer Blocks** — (Not Shown) – Expanded polystyrene strips cut to fit between panel clips (Item 2F) as specified in the individual **Roof Deck Constructions** (TGKX). Thermal spacer blocks, when used, are to be installed between unfaced batts and blankets (Item 2C1) and metal roof deck panels (Item 2D) over purlins (Item 2A).

3. **Fill, Void or Cavity Material* (XHHW) — Caulk** — (Not Shown) – Min 5/8 in. (16 mm) thickness of fill material installed to fill any gap between top of cripple wall gypsum board (Item 1E) and unfaced batts and blankets (Item 2C1) on each side of the wall. Additional sealant installed to fill annular space between purlin (Item 2A) and gypsum board "rip strip" (Item 1F) on both sides of wall. Additional nom 1/2 in. (13 mm) diam bead of sealant to be applied around perimeter of purlin at its interface with the "rip strip" (Item 1F) on each side of the wall.

3M COMPANY 3M FIRE PROTECTION PRODUCTS — CP 25WB+ Caulk

*** 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 2025-01-03

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