

BXUV.P526 -

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.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. P526

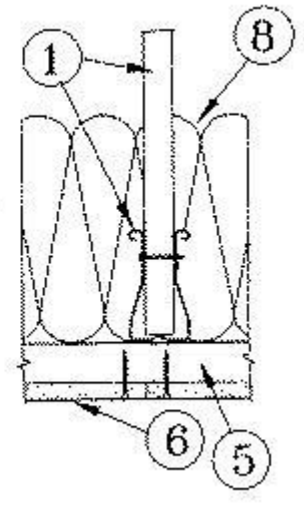
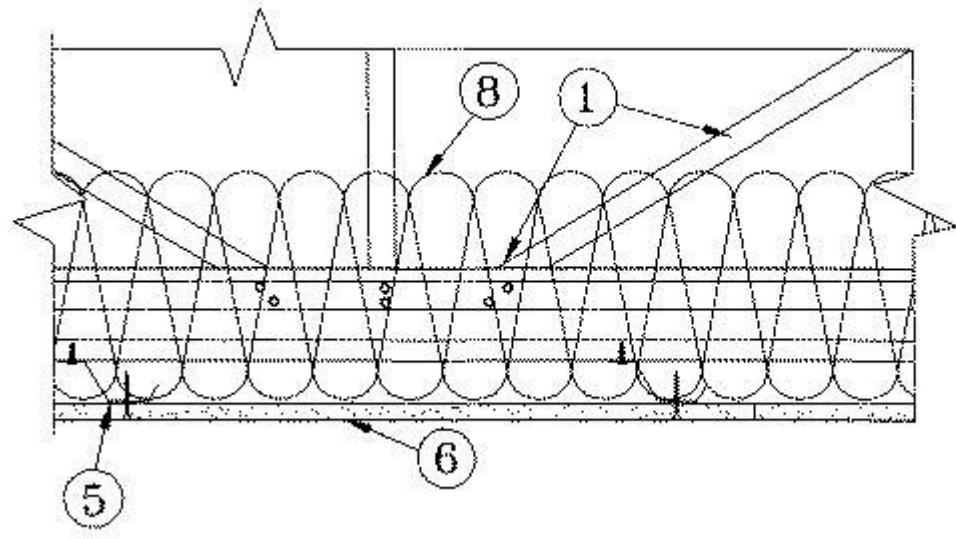
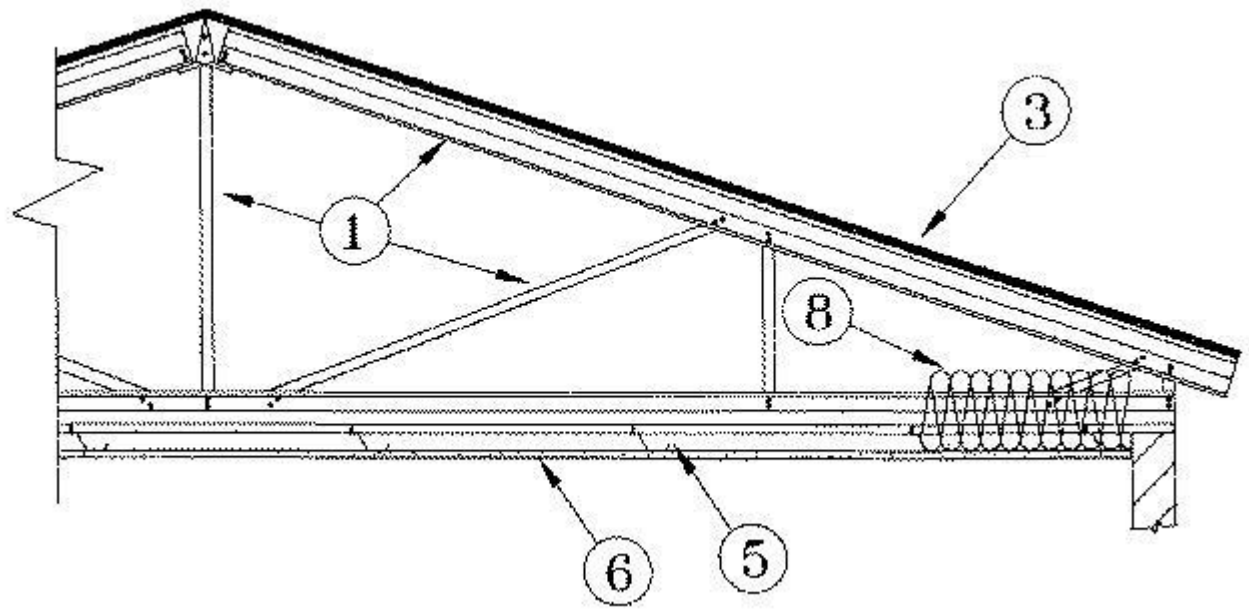
November 15, 2019

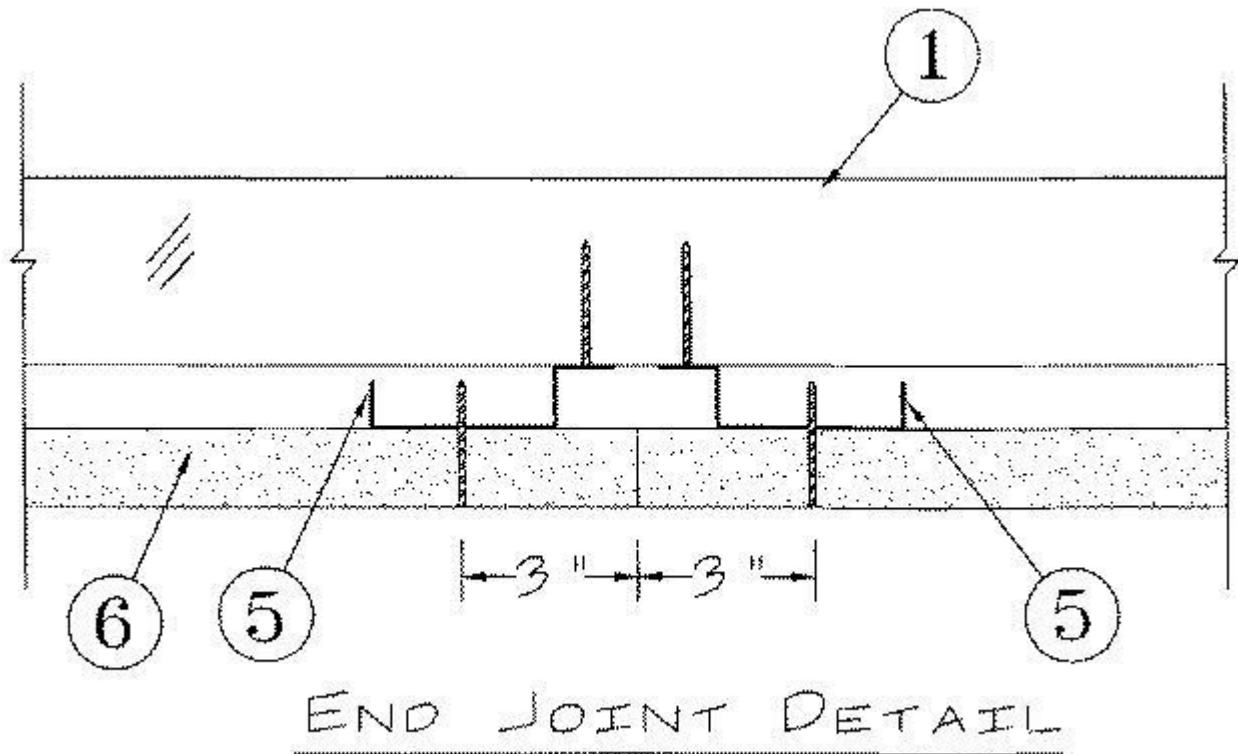
Restrained Assembly Rating - 1 and 1-1/2 Hr. (See Items 6, 6A, 8, 8A and 8B)

Unrestrained Assembly Rating - 1 and 1-1/2 Hr. (See Items 6, 6A, 8, 8A and 8B)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**





1. **Structural Steel Members*** — Pre-fabricated light gauge steel truss system consisting of cold-formed, galv steel chord and web sections. Trusses fabricated in various sizes, depths and from various steel thickness. Trusses spaced a max of 24 or 48 in. OC, See Item 3.

TRUSSTEEL, DIV OF ITW BUILDING COMPONENTS INC — TrusSteel

2. **Bridging** — (Not Shown) — Location of lateral bracing for truss chord and web sections to be specified on truss engineering.

3. **Roof System*** — Any UL Class A, B or C Roofing System (TGFU) or Prepared Roof Covering (TFWZ) acceptable for use over nom 23/32 in. thick plywood sheathing. Nom 23/32 in. thick plywood sheathing mechanically fastened to top chord of steel trusses with 1-1/4 in. long Type S or S-12 steel screws spaced a max of 12 in. OC As an option, the plywood decking may be installed to min 20 ga. steel purlins or steel hat channels Steel purlins or hat channels to be spaced a max 24 in. OC and welded, or mechanically fastened, transverse to steel roof trusses (Item 1). As an alternate, plywood sheathing thickness may be reduced to 15/32 in. when Item 1 is spaced 24 in. OC and min of 9-1/2 in. thickness of insulation (Item 8) is used. Plywood sheathing thickness may also be reduced to 15/32 in. when roof trusses (Item 1) are spaced a max of 48 in. OC, min 22 ga steel furring channels (Item 5C) spaced a max of 22 in. OC, and a min of 9-1/2 in. thick insulation (Item 8) is used.

3A. **Steel Roof Deck** — (Not Shown)—In lieu of, or in addition to the plywood sheathing described in Item 3, the steel roof deck may consist of corrugated or fluted steel form units, min 9/16 in. deep, 26 MSG painted or galv steel, welded or mechanically fastened at a max 12 in. OC to the top chord of the roof trusses (Item 1). When used in addition to the wood structural panels described in Item 3, Batts and Blankets (Item 8) is optional. When used lieu of the wood structural panels described in Item 3, Batts and Blankets (Item 8) must be used and the Class A, B or C Roofing System must include a min 3/4 in. thickness of roof insulation or 1/2 in. thickness of Classified or unclassified gypsum boards. If polystyrene roof insulation is used, it must be installed on top of a min 1/2 in. thickness of unclassified gypsum boards.

3B. **Structural Cement-Fiber Units*** — (Not Shown) — In lieu of the wood structural panels described in Item 3, steel roof deck and structural cement-fiber units may be installed. The steel roof deck is to consist of corrugated or fluted steel form units, minimum 9/16 in. deep, 22 MSG painted or galv steel, welded or mechanically fastened at a max. 12 in. OC to the top chord of the roof trusses (Item 1). Nominal 19 mm (3/4 in.) thick structural cement-fiber units installed over the steel roof deck and secured to trusses with fasteners spaced a max of 12 in. OC. Batts and Blankets (Item 8) must be used and the Class A, B or C Roofing System must include application over structural cement-fiber units.

3C. **Structural Cement-Fiber Units* OR Building Units*** — (Not Shown) — In lieu of the wood structural panels described in Item 3, steel roof deck and structural cement-fiber units or building units may be installed. The steel roof deck is to consist of corrugated or fluted steel form units, minimum 9/16 in. deep, 22 MSG painted or galv steel, welded or mechanically fastened at a max. 12 in. OC to the top chord of the roof trusses (Item 1). Nominal 19 mm (3/4 in.) thick structural cement-fiber units or building units installed over the steel roof deck and secured to trusses with fasteners spaced a max of 12 in. OC. Batts and Blankets (Item 8) must be used and the Class A, B or C Roofing System must include application over structural cement-fiber units.

ECTEK INTERNATIONAL INC — Armoroc Panel, Type MegaBoard.

4. **Vapor Barrier** — (Not Shown)—Optional—Commercial asphalt saturated felt, 0.030 in. thick, applied over the wood.

5. **Resilient Channels** — Resilient channels formed of 25 MSG galv steel, installed perpendicular to the steel trusses, (Item 1) when trusses are spaced 24 in. OC. Resilient channels spaced a max of 16 in. OC when no insulation (Item 8 or 8A) is fitted in the concealed spaced, or a max of 12 in. OC when insulation (Item 8 or 8A) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane. Two courses of resilient channel positioned 6 in. OC at wallboard butt-joints (3 in. from each end of wallboard). Channels oriented opposite at wallboard butt-joints. Channel splices overlapped 4 in. beneath steel trusses. Channels secured to each truss with Type S12 by 1/2 in. long screws.

5A. **Furring Channels** — (Not Shown) — As an alternate to item 5A— Hat channels min 20 MSG galv steel, min 2-5/8 in. wide by min 7/8 in. deep, installed perpendicular to the trusses (Item 1) spaced a max of 16 in. OC. When no insulation (Item 8 or 8A) is fitted in the concealed space, or a max 12 in.OC when insulation (Item 8 or 8A) is fitted in the concealed space, draped over the hat channel/gypsum board ceiling membrane . Two courses of channel positioned 6 in. OC, 3 in. from each end of wallboard. Channel splices overlapped 6 in. beneath steel trusses. Channels secured to each truss with No. 18 SWG steel wire double strand saddle ties. Channels tied together with double strand of No. 18 SWG steel wire at each end overlap.

5B. **Resilient Channels** — (Not Shown) — As an alternate to Items 5 and 5A, resilient channels, double legged formed of 25 MSG galv steel, 2-7/8 in. wide by 1/2 in. deep, installed perpendicular to the trusses (Item 1) spaced max 16 in. OC when no insulation (Item 8 or 8A) is fitted in the concealed space, or a max of 12 in. OC when Insulation (8 or 8A) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane. Two courses of resilient channel positioned 6 in. OC at wallboard butt-joints (3 in. from each end of wallboard). Channel splices overlapped 4 in. beneath steel trusses. Channels secured to each truss with Type S12 by 1/2 in. long screws or with No. 18 SWG galv steel wire double strand saddle ties. Channels tied together with double strand of No. 18 SWG galv steel wire at each end of overlap.

5C. **Resilient Channels** — (Not Shown) — As an alternate to Items 5, 5A, and 5B, resilient channels formed of 22 MSG galv steel, installed perpendicular to the steel trusses (Item 1), spaced a max of 12 in OC, when a min 9-1/2 in. thickness of insulation (Item 8) is used. Channels secured to each truss with Type S12 by 1/2 in. long screws.

5D. **Resilient Channels** — (Not Shown) — For use with Items 6A and 8B. As an alternate to Items 5 through 5C. Resilient channels formed of 25 MSG galv steel, installed perpendicular to the steel trusses (Item 1) when steel trusses are spaced a max 24 in. OC. Resilient channels spaced a max of 16 in. OC. Two courses of resilient channel positioned 6 in. OC at wallboard butt-joints (3 in. from each end of wallboard). Channels oriented opposite at wallboard butt-joints. Channel splices overlapped 4 in. beneath steel trusses. Channels secured to each truss with Type S12 by 1/2 in. long screws.

5E. **Furring Channels** — (Not Shown) — For use with Items 6A and 8B. As an alternate to Items 5 through 5D. Hat channels min 25 MSG galv steel, min 2-5/8 in. wide by min 7/8 in. deep, installed perpendicular to the trusses (Item 1), spaced a max of 16 in. OC. Two courses of channel positioned 6 in. OC at wallboard butt-joints (3 in. from each end of wallboard). Channel splices overlapped 4 in. beneath steel trusses. Channels secured to each truss with No. 18 SWG steel wire double strand saddle ties. Channels tied together with double strand of No. 18 SWG steel wire at each end overlap.

5F. **Resilient Channels** — (Not Shown) — For use with Items 6A and 8B. As an alternate to Items 5 through 5E. Resilient channels, double legged formed of 25 MSG galv steel, 2-7/8 in. wide by 1/2 in. deep, installed perpendicular to the trusses

(Item 1) when steel trusses are spaced a max 24 in. OC. Resilient channels spaced a max of 16 in. OC. Two courses of resilient channel positioned 6 in. OC at wallboard butt-joints (3 in. from each end of wallboard). Channel splices overlapped 4 in. beneath steel trusses. Channels secured to each truss with Type S12 by 1/2 in. long screws or with No. 18 SWG galv steel wire double strand saddle ties. Channels tied together with double strand of No. 18 SWG galv steel wire at each end overlap.

6. Gypsum Board* — For the 1 Hr. Ratings - One layer of nom 5/8 in. thick by 48 in. wide boards, installed with long dimension parallel to trusses. Attached to the resilient channels using 1 in. long Type S bugle-head screws. Screws spaced a max of 12 in. OC along butted end-joints and in the field when no insulation (Item 8 or 8A) is fitted in the concealed space or a max of 8 in. OC along butted end-joints and in the field when insulation (Item 8 or 8A) is fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane. For the 1-1/2 Hr. Ratings - Two layers of nom 5/8 in. thick by 48 in. wide boards, installed with long dimension parallel to trusses. Base layer attached to the resilient channels using 1 in. long Type S bugle-head screws spaced a max of 8 in. OC along butted end-joints and in the field. Face layer attached to the resilient channels using 1-5/8 in. long Type S bugle-head screws spaced a max of 8 in. OC along butted end-joints and in the field. Screws staggered from base layer screws. Face layer side and end joints offset a min 16 in. from base layer side and end joints.

CGC INC — Types C, IP-X2, IPC-AR.

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR.

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

6A. Gypsum Board* — (Not Shown) — For use with Items 5D through 5F and 8B. Rating limited to 1 Hour. One layer of nom 5/8 in. thick by 48 in. wide boards, installed with long dimension parallel to trusses. Attached to the furring channels using 1 in. long Type S bugle-head screws spaced 8 in. OC along butted end-joints and in the field.

CGC INC — Type ULIX

UNITED STATES GYPSUM CO — Type ULIX

7. Finishing System — (Not Shown) — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum wallboard.

8. Batts and Blankets* — For the 1 Hr. Ratings when 23/32 in. thick plywood sheathing (Item 3 is used) — (Optional) — Any thickness mineral wool or glass fiber insulation bearing the UL Classification Marking for Surface Burning Characteristics, having a flame spread value of 25 or less and a smoke value of 50 or less. Insulation fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane. For the 1 Hr. Ratings when 15/32 in. thick plywood sheathing (Item 3 is used) -Min 9-1/2 in. thickness is required. For the 1-1/2 Hr. Ratings -Min 9-1/2 in. thickness is required.

8A. Loose Fill Material* — As an alternate to Item 8 - For the 1 Hr. Ratings when 23/32 in. thick plywood sheathing (Item 3 is used) -Optional -Any thickness of loose fill material bearing the UL Classification Marking for Surface Burning Characteristics having a flame spread value of 25 or less and a smoke spread value of 50 or less. Loose fill material fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane. For the 1 Hr. Ratings when 15/32 in. thick plywood sheathing (Item 3 is used) -Min 9-1/2 in. thickness is required. For the 1-1/2 Hr. Ratings -Min 9-1/2 in. thickness is required.

8B. Cavity Insulation — Batts and Blankets* or Loose Fill Material* — (Not Shown) — (As described above in Items 8 and 8A) — For Use with Items 5D through 5F and 6A — Rating limited to 1 Hour — Min. 3-1/2 in thick with no limit on maximum thickness fitted in the concealed space, draped over the resilient and furring channel (Items 5D through 5F)/gypsum board (Item 6A) ceiling membrane.

9. Steel Framing Members —

a. **Main Runners** — Installed perpendicular to Structural Steel Members — Nom 10 or 12 ft long, 15/16 in. or 1-1/2 in. wide face, spaced 4 ft OC. Main runners hung a min of 2 in. from bottom chord of Structural Steel Members with 12 SWG galv steel wire. Wires located a max of 48 in. OC.

b. **Cross tees or channels** — Nom 4 ft long, 15/16 in. or 1-1/2 in. wide face, or cross channels, nom 4 ft long, 1-1/2 in. wide face, installed perpendicular to the main runners, spaced 16 in. OC. Additional cross tees or channels used at 8 in. from each side of butted wallboard end joints. The cross tees or channels may be riveted or screw-attached to the wall angle or channel to facilitate the ceiling installation.

c. **Wall angles or channels** — Used to support steel framing member ends and for screw-attachment of the gypsum wallboard — Min 0.016 in. thick painted or galvanized steel angle with 1 in. legs or min. 0.016 in. thick painted or galvanized steel channel with a 1 by 1-1/2 by 1 in. profile, attached to walls at perimeter of ceiling with fasteners 16 in. OC.

CGC INC — Type DGL or RX

USG INTERIORS LLC — Type DGL or RX

9A. **Alternate Steel Framing Members*** — (Not Shown) - As an alternate to Item 9 - Not for use with Items 8 or 8A - Main runners nom 12 ft long, spaced 72 in. OC. Main runners suspended by min 12 SWG galv steel hanger wires spaced 48 in. OC. Cross tees, nom 6 ft long, installed perpendicular to main runners and spaced 24 in. OC. Additional 6 ft long cross tees required at each gypsum board end joint with butted gypsum board end joints centered between cross tees spaced 8 in. OC. The main runners and cross tees may be riveted or screw attached to the wall angle or channel to facilitate the ceiling installation.

USG INTERIORS LLC — Type DGL or RX

10. **Gypsum Board*** — For use with Steel Framing Members (Item 9) when Batts and Blankets* (Item 8) are not used - One layer of nominal 5/8 in. thick by 48 in. wide boards, installed with long dimension parallel to the main runners. Wallboard fastened to each cross tee or channel with five wallboard screws, with one screw located at the midspan of the cross tee or channel, one screw located 12 in. from and on each side of the cross tee or channel mid span, and one screw located 1-1/2 in. from each wallboard side joint. Except at wallboard end joints, wallboard screws shall be located on alternating sides of cross tee flange. At wallboard end joints, wallboard screws shall be located 1/2 in. from the joint. Wallboard fastened to main runners with wallboard screws 1/2 in. from side joints, midway between intersections with cross tees or channels (16 in. OC). End joints of adjacent wallboard sheets shall be staggered not less than 32 in. Wallboard sheets screw attached to leg of wall angle with wallboard screws spaced 12 in. OC. Joints treated as described in Item 7. For use with **Steel Framing Members*** (Item 9) when **Batts and Blankets*** (Item 8) are used - - Ratings limited to 1 Hour- 5/8 in. thick, 4 ft wide; installed with long dimension perpendicular to cross tees with side joints centered along main runners and end joints centered along cross tees. Fastened to cross tees with 1 in. long steel wallboard screws spaced 8 in. OC in the field and 8 in. OC along end joints. Fastened to main runners with 1 in. long wallboard screws spaced midway between cross tees. Screws along sides and ends of boards spaced 3/8 to 1/2 in. from board edge. End joints of the sheets shall be staggered with spacing between joints on adjacent boards not less than 4 ft OC.

CGC INC — Type C, IP-X2, IPC-AR

UNITED STATES GYPSUM CO — Type C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Type C, IP-X2, IPC-AR

11. **Gypsum Board*** — For use with Steel Framing Members (Item 9A) - One layer of nominal 5/8 in. thick by 48 in. wide boards, installed with long dimension (side joints) perpendicular to the 6 ft long cross tees with the end joints staggered min 4 ft and centered between cross tees which are spaced 8 in. OC. Gypsum board side joints may occur beneath or between main runners. Prior to installation of the gypsum board sheets, backer strips consisting of nom 7-3/4 in. wide pieces of gypsum board are to be laid atop the cross tee flanges and centered over each butted end joint location. The backer strips are to be secured to the flanges of the cross tees at opposite corners of the backer strip with hold down clips to prevent the backer strips from being uplifted during screw-attachment of the gypsum board sheets. Gypsum board fastened to cross tees with 1 in. drywall screws spaced 1 in. and 4 in. from the side joints and max 8 in. OC in the field of the board. The butted end joints are to be secured to the backer strip with No. 10 by 1-1/2 in. long Type G laminating screws located 1 in. from each side of the butted end joint and spaced 1 in. and 4 in. from the side joints and max 8 in. OC in the field of the board.

CGC INC — Type C, IP-X2, IPC-AR

UNITED STATES GYPSUM CO — Type C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Type C, IP-X2, IPC-AR

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