

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.
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BXUV - Fire-resistance Ratings - ANSI/UL 263

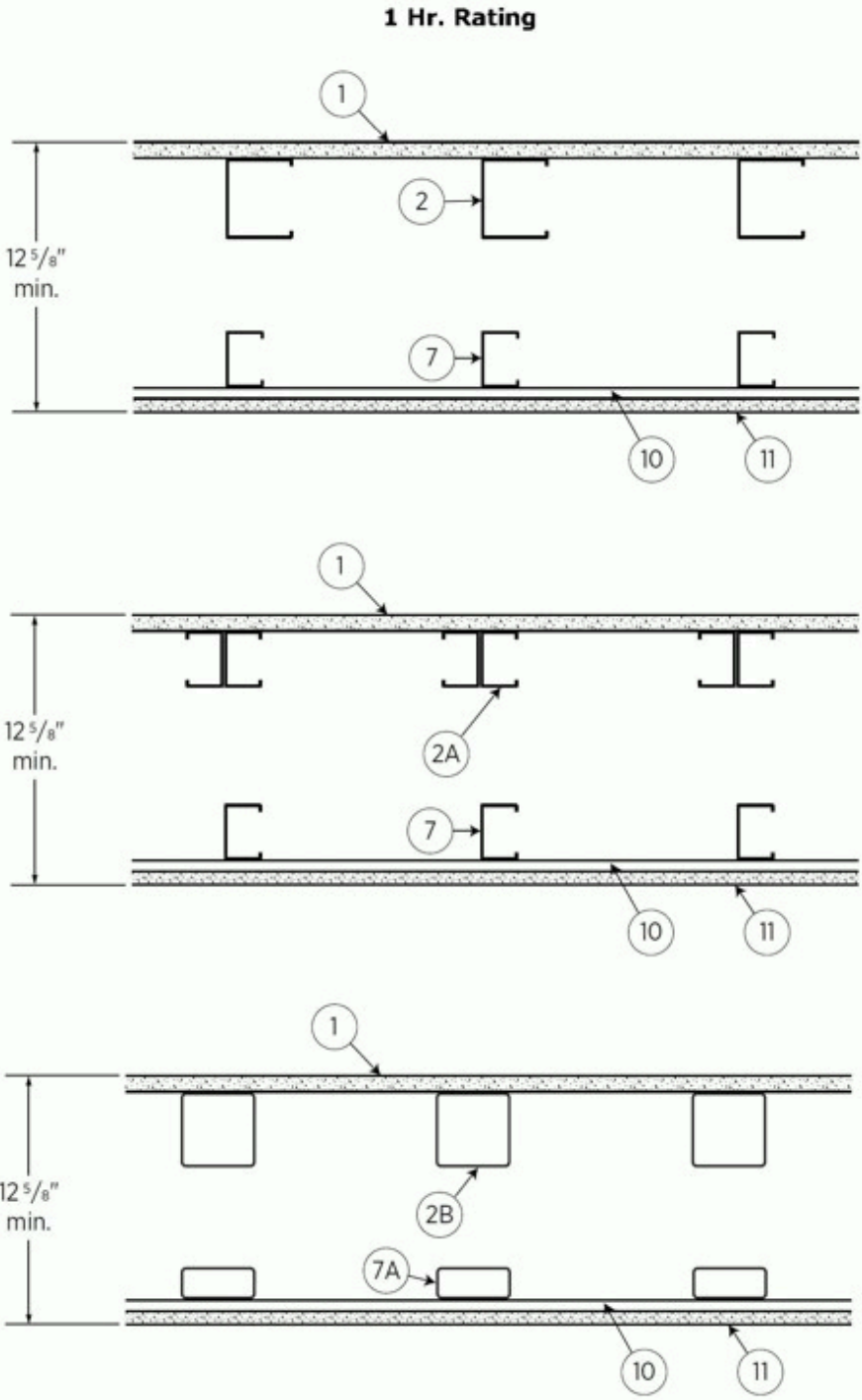
[See General Information for Fire-resistance Ratings - ANSI/UL 263](#)

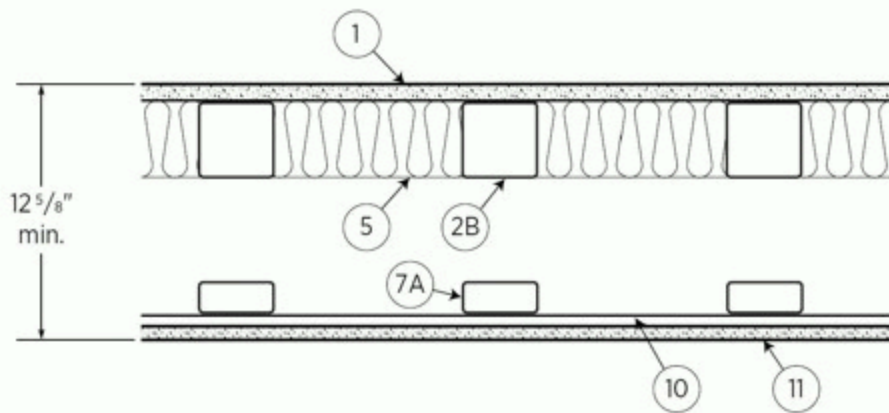
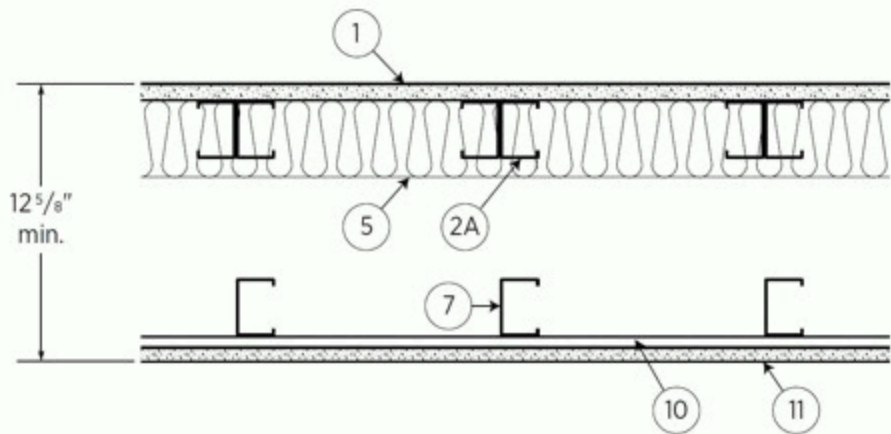
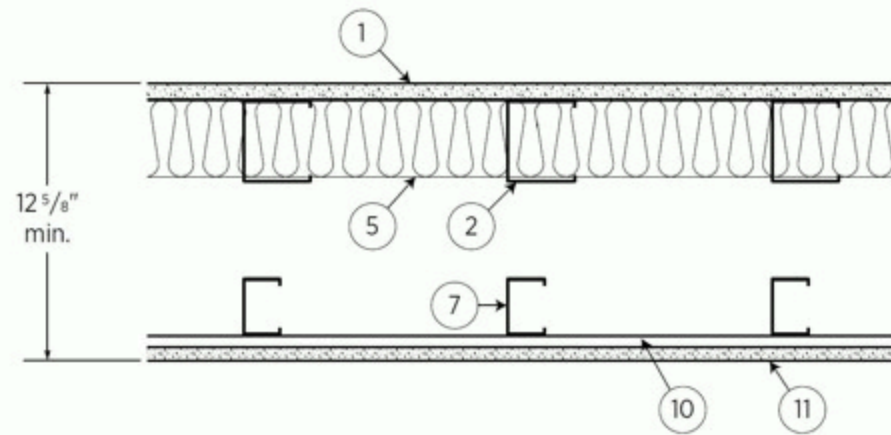
Design No. H522

June 7, 2021

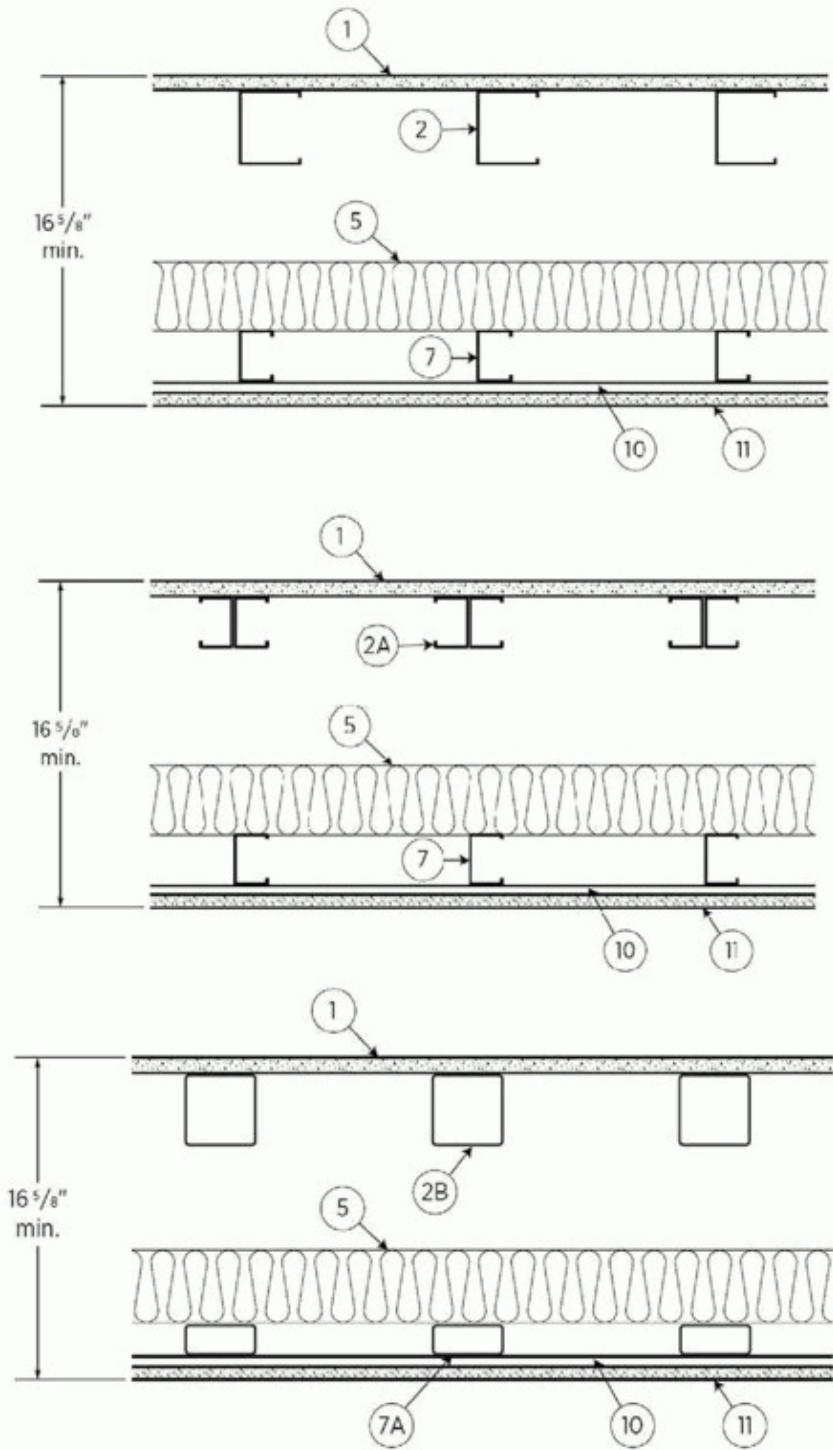
Unrestrained Assembly Ratings - 1 and 2 Hr. (See Item 4)

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



2 Hr. Rating OPTION 1

2 Hr. Rating OPTION 2



Floor Construction (top framing)

1. **Structural Cement-Fiber Units*** — Nom 3/4 in. thick, with tongue and grooved on long edges. Long dimension of panels to be perpendicular to joists with end joints staggered a min of one joist spacing and centered over the joists. Panels secured to steel joists with 1-5/8 in. long No. 8 self-drilling, self-countersinking steel screws spaced a max of 12 in. OC in the field with a screw located 1 in. and 2 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the side edges of the panel.

UNITED STATES GYPSUM CO — Types STRUCTO-CRETE, USGSP

2. **Steel Joists** — For maximum clear spans not exceeded 8 ft. min. 14 MSG (68 mil) corrosion-protected single steel joist, min 3-5/8 in. deep, with 2-1/2 in wide flanges (362S250-68), min yield strength of 50 ksi, cold formed spaced max. 12 in. OC, designed in accordance with the 2012 edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI). All design details including the flexural design load of the joist, shall be as specified by the steel designer and/or producer, and shall meet the requirements of all applicable local code agencies.

2A. **Steel Joists** — (Alternate to item 2) - For maximum clear spans not exceeded 8 ft. Min. 14 MSG (68 mil) corrosion-protected double steel joist, min 2-1/2 in. deep, with 1-5/8" in wide flanges (250S162-68), min yield strength of 33 ksi, cold formed spaced max. 12 in. OC, designed in accordance with the 2012 edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI). All design details including the flexural design load of the joist, shall be as specified by the steel designer and/or producer, and shall meet the requirements of all applicable local code agencies.

2B. **Steel Joists** — (Alternate to items 2 & 2A) - For maximum clear spans not exceeded 8 ft. Hollow Structural Sections (HSS) with 50 ksi steel, as shown below. For rectangular sections, larger dimensions oriented horizontally. All design details including the flexural design load of the joist, shall be as specified by the steel designer and/or steel fabricator, and shall meet the requirements of all applicable local code agencies. Joist size shall be min 3-1/2 in. deep as per table below and spaced max. 12 in. OC. Welded to perimeter framing.

Min. HSS 3-1/2 x 3-1/2 x 1/4"	Min. HSS 6 x 3 x 1/4"	Min. HSS 7 x 5 x 1/4"
Min. HSS 4 x 4 x 3/16"	Min. HSS 6 x 4 x 3/16"	Min. HSS 8 x 2 x 3/8"
Min. HSS 4-1/2 x 4-1/2 x 3/16"	Min. HSS 6 x 5 x 3/16"	Min. HSS 8 x 3 x 3/16"
Min. HSS 5 x 3 x 5/16"	Min. HSS 7 x 3 x 1/4"	Min. HSS 8 x 4 x 3/16"
Min. HSS 5 x 4 x 1/4"	Min. HSS 7 x 4 x 3/16"	

3. **Clip Angles** — For use with Items 2 & 2A designed with enough shear capacity for design load, all in accordance with the 2012 edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI).

4. **Rim Track** — For use with Items 2 & 3 or 2A & 3 to connect cold-formed steel joists (Item 2 or 2A) with clip angles (Item 3) designed in accordance with the 2012 edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI).

5. **Insulation — Batts and Blankets*** — 1 Hr. rating when Insulation is not used. 2 Hr. rating OPTION 1 - Min. 3-1/2 in. thick glass fiber batt or mineral wool insulation installed in floor joist cavities. Any glass fiber or mineral wool batt insulation bearing the UL Classification Marking for Surface Burning Characteristics may be used. See Batts and Blankets (BKNV) category in the Building Materials Directory for names of manufacturers. Items 6, 6A or 6B required to support insulation between floor joists. 2 Hr. rating OPTION 2 - Min. 3-1/2 in. thick glass fiber batt or mineral wool insulation installed over the ceiling joist. Any glass fiber or mineral wool batt insulation bearing the UL Classification Marking for Surface Burning Characteristics may be used. See Batts and Blankets (BKNV) category in the Building Materials Directory for names of manufacturers. Items 6, 6A or 6B not required.

6. **Hexagonal Wire Netting** — To be used with 2 Hr. rating OPTION 1 where insulation is placed in between floor joists in Item 5. Min. 20 MSG attached to bottom of steel joists (Items 2, 2A & 2B) with min. 18 MSG hanger wire wrapped around joist at 24 in. OC. Alternate Attachment Method-I - Use 1/2 in long, pan head, self-drilling screws with washers, spaced 24 in OC to attach Hexagonal Wire Netting to bottom of the Steel Joists (Items 2, 2A & 2B). Alternate Attachment Method-II -Use 3/4 in wide, min 25 MSG steel

straps to attach Hexagonal Wire Netting to bottom of Steel Joists (Items 2, 2A & 2B), metal straps screw attached parallel to the bottom of the Steel Joists or perpendicular to the Steel Joists spaced 24 in OC with 1/2 in long, self-drilling screws spaced 24 in OC.

6A. Hexagonal Wire Netting — As an alternate to Item 6 - Min 20 MSG, min 36 in wide, centered over the top of the floor joist cavity, bending Hexagonal Wire Netting over top of two adjacent flanges of floor steel joists (Items 2, 2A & 2B) to accommodate the insulation, with insulation installed between Hexagonal Wire Netting and Structural Cement- Fiber Units (Item 1), prior to the Structural Cement-Fiber Units being screw attached to the top of the steel joists.

6B. Metal Strap — As an alternate to Item 6 or 6A, 3/4 in wide, min 25 MSG steel straps attached perpendicular to the bottom of the floor steel joists (Item 2), spaced 16 in OC with 1/2 in long, self-drilling screws.

Ceiling Construction (bottom framing)

7. Steel Joists — For maximum clear spans not exceeded 8 ft. min. 16 MSG (54 mil) corrosion-protected single steel joist, min 2.5 in. deep, with 1-5/8 in wide flanges (250S162-54), min yield strength of 33 ksi, cold formed spaced max. 12 in. OC, designed in accordance with the 2012 edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI). All design details, including the flexural design load of the joist, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies.

7A. Steel Joists — (Alternate to item 7) - For maximum clear spans not exceeded 8 ft. Hollow Structural Sections (HSS) with 50 ksi steel. For rectangular sections, larger dimensions oriented horizontally. All design details including the flexural design load of the joist, shall be as specified by the steel designer and/or steel fabricator, and shall meet the requirements of all applicable local code agencies. Joists shall be min. HSS 3"x1-1/2"x 3/16" in. and spaced max. 24 in. OC. Welded to perimeter framing.

8. Clip Angles — For use with Item 7 designed with enough shear capacity for design load, all in accordance with the 2012 edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI).

9. Rim Track — For use with Item 7 or 7A & 8 to connect cold-formed steel joists (Items 7 or 7A) with clip angles (Item 8) designed in accordance with the 2012 edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI).

10. Resilient Channels — Formed of min. 25 MSG galv. steel, 1/2 in. deep, spaced max 16 in. OC, perpendicular to ceiling joists (Items 7 and 7A). Channel splices located beneath joists and overlapped 4 in. Channels secured to each joist with one 7/16 in. long Type S-12 low profile steel screw. Two channels spaced 6 in. OC, oriented opposite each gypsum board end joint. These channels shall extend min 6 in. beyond each side edge of board.

10A. Steel Framing Members* — (Optional, Not Shown) — As an alternate to Item 10 — Furring channels and Steel Framing Members as described below:

a. **Furring channels** — Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep, spaced 16 in. OC, perpendicular to ceiling joists (Items 7 or 7A). Channel secured to joists as described in Item 10Ab. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Additional channels shall be positioned so that the distance from the end of the board to the center of the first channel is 3 in. and from the board end to the center of the next channel is 12 in.

b. **Steel Framing Members*** — Used to attach furring channels (Item 10Aa) to joists (Items 7 or 7A). Clips spaced 48 in. OC and secured to the bottom chord of joists with min 1-5/8 in. long No. 8 self-drilling, self-tapping, bugle, flat or hex head screw through the center grommet. Furring channels are friction fitted into clips. Additional clips required to hold furring channel that supports the gypsum board butt joints.

PLITEQ INC — Type Genie Clip

10B. Alternate Steel Framing Members* — (Optional, Not Shown) — As an alternate to Items 10 and 10A, furring channels and Steel Framing Members as described below.

a. **Furring channels** — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 16 in. OC, perpendicular to joists. Channels secured to joists as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to the steel joists (Items 7 or 7A). Clips spaced a max of 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to alternating joists with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the wallboard butt joints, as described in Item 11.

PAC INTERNATIONAL L L C — Types RSIC-1 or RSIC-1 (2.75)

10C. **Steel Framing Members*** — (Optional, Not Shown) — As an alternate to Item 10, 10A or 10B.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 16 in. OC, perpendicular to the joists (Items 7 or 7A). Channels secured to Cold Rolled Channels (Item 10Ca) at every intersection with a 3/4 in. TEK screw through each furring channel leg. Ends of adjoining channels overlapped 12 in. and fastened together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap, or with two 3/4 in. TEK screws in each leg of the overlap section. Two furring channels used at end joints of gypsum board (Item 11), each extending a min of 6 in. beyond both side edges of the board.

b. **Cold Rolled Channels** — 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to joists, friction-fitted into the channel caddy on the Steel Framing Members (Item 10Cc) and secured with two 3/4 in. TEK screws. Adjoining lengths of cold rolled channels lapped min. 12 in. and secured along bottom legs with four 3/4 in. TEK screws and wire-tied together with two double strand 18 SWG galv steel wire ties, one at each end of overlap.

c. **Steel Framing Members*** — Spaced 48 in. OC. max along joist, and secured to the joist on alternating joists with two, No. 10-16 TEK screws through mounting holes on the hanger bracket.

PAC INTERNATIONAL L L C — Type RSIC-SI-CRC EZ Clip

10D. **Steel Framing Members*** — (Optional, Not Shown) — As an alternate to Item 10, 10A, 10B or 10C.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 16 in. OC perpendicular to joists and friction fit into Steel Framing Members (Item 10Db). Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap or with two TEK screws along each leg of the 6 in. overlap. Two furring channels used at end joints of gypsum board (Item 11). Butt joint channels held in place by strong back channels placed upside down, on top of, and running perpendicular to primary furring channels, extending 6 in. longer than length of gypsum side joint. Strong back channels spaced maximum 48 in. OC. Strong back channels secured to every intersection of primary furring channels with four 7/16 in. pan head screws, two along each of the legs at intersections. Butt joint channels run perpendicular to strong back channels and shall be minimum 6 in. longer than length of joint, secured to strong back channels with 7/16 in. pan head screws, two along each of the legs at intersection with strong back channels.

b. **Steel Framing Members*** — Used to attach furring channels (Item 10Da) to joists. Clips spaced 48 in. OC and secured along joist webs at each furring channel intersection with min. 3/4 in. long self-drilling No. 10-16 TEK screws through each of the provided hole locations. Furring channels are friction fitted into clips.

PAC INTERNATIONAL L L C — Type RSIC-S1-1 Ultra

11. **Gypsum Board*** — One layer of nom 5/8 in. thick by 48 in. wide gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured to resilient channels with 1 in. long Type S bugle-head screws spaced 8 in. OC, with screws located 4 in. from and on each side of the gypsum panel midspan, and 1 in. from tapered edges of the board. End joints secured to both resilient/furring channels.

CGC INC — Types C, IP-X2, IPC-AR, ULIX

NATIONAL GYPSUM CO — Type FSW-C

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type C

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

USG BORAL DRYWALL SFZ LLC — Type C

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

12. **Finishing System (Not Shown)** — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads. Nom 2 in. wide paper tape 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 panels.

*** 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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