



# BXUV.V438

## 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

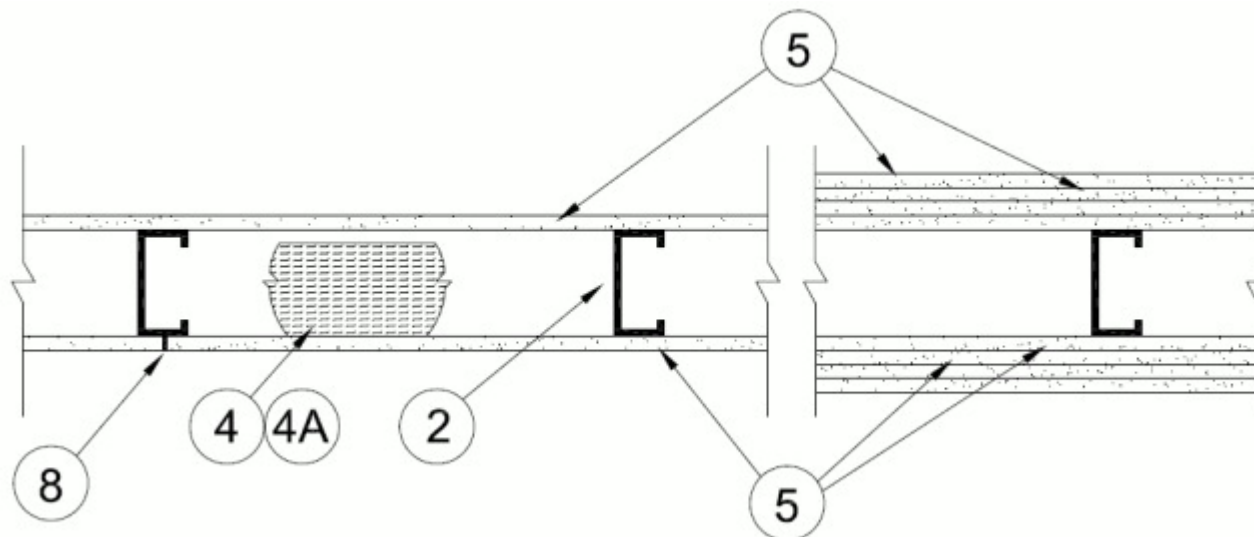
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada  
Design Criteria and Allowable Variances

### **Design No. V438**

June 02, 2020

### **Nonbearing Wall Ratings - 1, 2, 3 or 4 Hr (See Items 4 & 5)**

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



**1. Floor and Ceiling Runners** — (Not Shown) — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min width to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

**1A. Framing Members\* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2A, proprietary channel shaped runners, minimum width to accommodate stud size, with 1-1/4 in. long legs fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**CALIFORNIA EXPANDED METAL PRODUCTS CO** — Viper20™ Track

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper20™ Track

**TELLING INDUSTRIES L L C** — Viper20™ Track

**FUSION BUILDING PRODUCTS** — Viper20™ Track

**IMPERIAL MANUFACTURING GROUP INC** — Viper20™ Track

**1B. Framing Members\* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, minimum width to accommodate stud size, with 1- 1/8 in. long legs, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**SUPER STUD BUILDING PRODUCTS** — The Edge

**1C. Floor and Ceiling Runners** — (Not Shown) — For use with Item 2C, Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min width to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1D. **Framing Members\* — Floor and Ceiling Runners —** (Not Shown) — As an alternate to Item 1. For use with Item 2D, channel shaped, min width to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

**CLARKDIETRICH BUILDING SYSTEMS** — CD ProTRAK

**DMFCWBS L L C** — ProTRAK

**MBA METAL FRAMING** — ProTRAK

**RAM SALES L L C** — Ram ProTRAK

**STEEL STRUCTURAL PRODUCTS L L C** — Tri-S ProTRAK

1E. **Floor and Ceiling Runners —** (Not Shown) — Channel shaped, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below, attached to floor and ceiling with fasteners spaced max 24 in. OC.

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper20™ Track VT100.

**FUSION BUILDING PRODUCTS** — Viper20™ Track VT100

**IMPERIAL MANUFACTURING GROUP INC** — Viper20™ Track VT100

1F. **Framing Members\* — Floor and Ceiling Runners —** (Not Shown) — As an alternate to Item 1. For use with Item 2E, channel shaped, min width to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

**TELLING INDUSTRIES L L C** — TRUE-TRACK™

1G. **Framing Members\* — Floor and Ceiling Runners —** (Not Shown) — In lieu of Item 1 - For use with Item 2F. Channel shaped, attached to floor and ceiling with fasteners 24 in. OC. max.

**ALLSTEEL & GYPSUM PRODUCTS INC** — Type SUPREME D25

**CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV** — Type SUPREME D25

**QUAIL RUN BUILDING MATERIALS INC** — Type SUPREME D25

**SCAFCO STEEL STUD MANUFACTURING CO** — Type SUPREME D25

**STEEL CONSTRUCTION SYSTEMS INC** — Type SUPREME D25

**UNITED METAL PRODUCTS INC** — Type SUPREME D25

1H. **Framing Members\* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size, with 1-1/4 in. long legs, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper25™ Track

**FUSION BUILDING PRODUCTS** — Viper25™ Track

**IMPERIAL MANUFACTURING GROUP INC** — Viper25™ Track

**TELLING INDUSTRIES L L C** — Viper25™ Track

1I. **Framing Members\* — Floor and Ceiling Runners** — Not Shown — As an alternate to Item 1, for use with Item 2I, proprietary channel shaped, min. 3-1/2 in. wide to accommodate stud size, fabricated from min. 0.018 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC max.

**RESCUE METAL FRAMING, L L C** — AlphaTRAK

1J. **Framing Members\* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2J, proprietary channel shaped runners, minimum width to accommodate stud size, with 1-1/4 in. long legs fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**CRACO MFG INC** — SmartTrack20™

2. **Steel Studs** — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min width as indicated under Item 5, min 1-1/4 in. flanges and 1/4 in. return, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

2A. **Framing Members\* — Steel Studs** — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.

**CALIFORNIA EXPANDED METAL PRODUCTS CO** — Viper20™

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper20™

**FUSION BUILDING PRODUCTS** — Viper20™

**IMPERIAL MANUFACTURING GROUP INC** — Viper20™

**TELLING INDUSTRIES L L C** — Viper20™

2B. **Framing Members\* — Steel Studs** — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep galvanized steel. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.

**SUPER STUD BUILDING PRODUCTS** — The Edge

2C. **Steel Studs** — (As an alternate to Item 2, For use with Items 1C and when Item 10 is used) — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min width, min 1-1/2 in. flanges and 1/4 in. return, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2D. **Framing Members\* — Steel Studs** — As an alternate to Item 2. Channel shaped, min width as indicated under Item 5, min 1-1/4 in. flanges and 1/4 in. return, galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

**CLARKDIETRICH BUILDING SYSTEMS** — CD ProSTUD

**DMFCWBS L L C** — ProSTUD

**MBA METAL FRAMING** — ProSTUD

**RAM SALES L L C** — Ram ProSTUD

**STEEL STRUCTURAL PRODUCTS L L C** — Tri-S ProSTUD

2E. **Framing Members\* — Steel Studs** — As an alternate to Item 2. Channel shaped, min width as indicated under Item 5, min 1-1/4 in. flanges and 1/4 in. return, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

**TELLING INDUSTRIES L L C** — TRUE-STUD™

2F. **Framing Members\* — Steel Studs** — In lieu of Item 2 — Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**ALLSTEEL & GYPSUM PRODUCTS INC** — Type SUPREME D25

**CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV** — Type SUPREME D25

**QUAIL RUN BUILDING MATERIALS INC** — Type SUPREME D25

**SCAFCO STEEL STUD MANUFACTURING CO** — Type SUPREME D25

**STEEL CONSTRUCTION SYSTEMS INC** — Type SUPREME D25

**UNITED METAL PRODUCTS INC** — Type SUPREME D25

2G. **Framing Members\* — Steel Studs** — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper25™

**FUSION BUILDING PRODUCTS** — Viper25™

**IMPERIAL MANUFACTURING GROUP INC** — Viper25™

**TELLING INDUSTRIES L L C** — Viper25™

2H. **Framing Members\* — Steel Studs** — As an alternate to Item 2 — For use with Item 1A (3-5/8 in. wide track), channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 1-1/4 in. wide by 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — StudRite™

2I. **Framing Members\* — Steel Studs** — As an alternate to Item 2, for use with Item 1I, proprietary channel shaped studs, min. 3-1/2 in. wide and as under Item 5, fabricated from min. 0.018 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**RESCUE METAL FRAMING, L L C** — AlphaSTUD

2J. **Framing Members\* — Steel Studs** — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.

**CRACO MFG INC** — SmartStud20™

2K. **Steel Studs** — — (As an alternate to Item 2, For use with Items 1C and when item 10 is used) Channel shaped, fabricated from min 20 MSG galvanized steel, min 3-5/8 in. deep, min 1-1/4 in. flanges and 1/4 in. return, spaced max 16 in. OC. Studs to be cut 1/2 in. less than assembly height and friction-fitted into floor and ceiling runners.

3. **Wood Structural Panel Sheathing** — (Optional, For use with Item 5 Only) — (Not Shown) — 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used, gypsum panels attached over OSB or plywood panels and fastener lengths for gypsum panels increased by min. 1/2 in.

4. **Batts and Blankets\*** — (Required as indicated under Item 5) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 5.

See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4A. **Batts and Blankets\*** — (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.

See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4B. **Batts and Blankets\*** — For use with Item 5H. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.

See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

5. **Gypsum Board\*** — Gypsum panels with beveled, square or tapered edges. **For single layer systems** gypsum panels applied vertically or horizontally with vertical joints centered over studs. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. For all products except FSW-8, horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. For FSW-8 application refer to Item 5G. **For two layer systems** (constructed with 5/8 in. or 3/4 in. thick board) gypsum panels applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs and in adjacent layers. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints in adjacent layers staggered a min of 12 in. For two layer systems (constructed with 1/2 in. thick board) inner layer of gypsum panels applied vertically and outer layer of gypsum panels may be applied vertically or horizontally. Vertical joints in adjacent layers staggered one stud cavity. For three and four layer systems inner layers to be applied vertically with joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers staggered one stud cavity. Outer layer may be applied vertically or horizontally. When installed in widths other than 48 in. gypsum panels to be installed horizontally. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

### Wallboard Protection on each Side of Wall

Rating, Hr	Min Stud Depth, In.	No. of Layers & Thks of Panel	Min Thks of Insulation (Item 4)
1	3-5/8	1 layer, 5/8 in. thick	Optional
1	2-1/2	1 layer, 1/2 in. thick	2 in. thick
2	1-5/8	2 layers, 1/2 in. thick	Optional

2	2-1/2	2 layers, 5/8 in. thick	Optional
2	3-5/8	1 layer, 3/4 in. thick	3 in. thick
3	1-5/8	3 layers, 1/2 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
3	1-5/8	2 layers, 3/4 in. thick	Optional
4	1-5/8	4 layers, 1/2 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional

**NATIONAL GYPSUM CO** — 1/2 in. thick Type eXP-C, FSW-G, FSK-G, FSW-C, FSMR-C or FSK-C; 5/8 in. thick Type FSL, FSW, FSK, FSW-3, FSW-5, FSW-G, FSK-G, FSW-6, FSW-C, FSMR-C or FSK-C, 3/4 in. thick type UltraShield

5A. **Gypsum Board\*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified. For direct attachment only to steel studs Item 2C) — Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

**RAY-BAR ENGINEERING CORP** — Type RB-LBG

5B. **Gypsum Board\*** — (As an alternate to Item 5) — Installed vertically only — As described in Item 5. 5/8 in. thick, 4 ft. wide.

**NATIONAL GYPSUM CO** — SoundBreak XP Type X Gypsum Board

5D. **Gypsum Board\*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

**RADIATION PROTECTION PRODUCTS INC** — Type RPP - Lead Lined Drywall



5E. **Gypsum Board\*** — (As an alternate to Item 5) — For Direct Application to studs Item 2C only- For use as the base layer. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 10 ft long with a max thickness of 0.140 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, max 5/16 in. diam by max 0.140 in. thick. compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grades "A, B, C or D". Fasteners for face layer gypsum panels (Item 5) when installed over lead backed board to be min 2-1/2 in. Type S-12 bugle head steel screws spaced as described in Item 6.

**MAYCO INDUSTRIES INC** — "X-Ray Shielded Gypsum"

5F. **Gypsum Board\*** — (As an alternate to Item 5/8 in. Type FSW in Item 5) — Nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 5. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in item 4, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item 5.

**NATIONAL GYPSUM CO** — Type FSW

5G. **Gypsum Board\*** — (As an alternate to Item 5/8 in. Type FSW in Item 5 for single layer systems) — Nom. 5/8 in. thick gypsum panels applied vertically or horizontally for single layer systems. When applied vertically, fasteners 1 in. long, spaced 8 in. OC along edges of board and 12 in. OC in the field of board. When panels applied horizontally, fasteners spaced 8 in. OC along vertical edges and in the field, and 12 in. OC along top and bottom of wall.

**NATIONAL GYPSUM CO** — Type FSW-8

5H. **Gypsum Board\*** — (As an alternate to Item 5) - Nom. 5/8 in. thick gypsum panels applied vertically or horizontally (Item 4B). Required for single layer system. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers staggered one stud cavity. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Horizontal edge joints and horizontal butt joints in adjacent layers need not be staggered. When used in widths other than 48 in., gypsum panels to be installed horizontally.

### Gypsum Board Protection on each Side of Wall

Rating, Hr	Min Stud Depth, in. Items 2 through 2J	No. of Layers & Thks of Panel	Min Thks of Insulation (Item 4B)
1	3-5/8	1 layer, 5/8 in. thick	3-1/2 in.
2	1-5/8	2 layers, 5/8 in. thick	Optional

**NATIONAL GYPSUM CO** — Type FSLX

6. **Fasteners** — (Not Shown) — Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Items 7 or 7A). **Single layer systems:** When 5/8 in. thick gypsum panels applied vertically or horizontally, 1 in. long spaced 12 in. OC along vertical edges and in the field, and 12 in. OC along top and bottom of wall. When 1/2 in. thick panels are applied vertically or horizontally, 1 in. long, spaced 8 in. OC along edges of board and 12 in. OC in the field of board. When 3/4 in. thick panels are applied vertically or horizontally, 1-1/4 in. long spaced 8 in. OC along edges of board and in the field. **Two layer systems:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels, 1-1/4" long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in. and 5/8 in. thick panels, 2 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer. **Three-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. **Four-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

7. **Furring Channels** — (Optional, Not Shown, for single or double layer system, not for use with Items 5A, 5D, or 5E) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws.

7A. **Framing Members\*** — (Optional on one or both sides, not shown, for single or double layer systems, not for use with Items 5A, 5D or 5E) — As an alternate to Item 7, 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 max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 7Aa) to studs. Clips spaced max. 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels.

**PAC INTERNATIONAL L L C** — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75).

7B. **Framing Members\*** — (Optional on one or both sides, not shown, for single or double layer systems, not for use with Items 5A, 5D or 5E) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-5/8 in. wide by 7/8 in deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 5.

b. **Steel Framing Members\*** — Used to attach furring channels (Item a) to studs. Clips spaced 48in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.

**STUDCO BUILDING SYSTEMS** — RESILMOUNT Sound Isolation Clips - Type A237R

7C. **Steel Framing Members\*** — (Optional on one or both sides, not shown, for single or double layer systems, not for use with Items 5A, 5D or 5E) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with a double strand of No. 18 AWG twisted steel wire. Gypsum board attached to furring channels as

described in Item 5.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 7Ca) to studs. Clips spaced 48 in. OC, and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

**REGUPOL AMERICA** — Type SonusClip

7D. **Steel Framing Members\*** — (Optional on one or both sides, not shown, for single or double layer systems, not for use with Items 5A, 5D or 5E) — As an alternate to Item 7, resilient channels and Steel Framing Members as described below:

a. **Resilient Channels** — Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 5.

b. **Steel Framing Members\*** — Used to attach resilient channels (Item 7Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.

**KEENE BUILDING PRODUCTS CO INC** — Type RC+ Assurance Clip

8. **Joint Tape and Compound** — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer panels. Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge. For the two layer system with 3/4 in. thick panels screw heads may or may not be covered with joint compound, and joints may or may not be covered with joint compound and paper or mesh tape.

9. **Siding, Brick or Stucco** — (Optional, Not Shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies, installed over gypsum panels. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

10. **Cementitious Backer Units\*** — (Optional Item Not Shown — For Use On Face Of Rated Systems With All Standard Items Required and item 2C or 2K) — 7/16 in., 1/2 in., 5/8 in., 3/4 in. or 1 in. thick, min. 32 in. wide.- Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. for steel framing members spaced a max of 8 in. OC. When 4 ft. wide boards are used, horizontal joints need not be backed by framing.

**NATIONAL GYPSUM CO** — Type DuraBacker, PermaBase, DuraBacker Plus, or PermaBase Plus

11. **Lead Batten Strips** — (Not Shown, For Use With Item 5A) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum board (Item 5A) and optional at remaining stud locations. Required behind vertical joints.

12. **Lead Discs or Tabs** — (Not Shown, For Use With Item 5A) — Used in lieu of or in addition to the lead batten strips (Item 11) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum

boards (Item 5A) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

13. **Barrier Mesh** — (Optional, Not Shown) - Attached to steel studs on one or both sides of the wall using Barrier Mesh Clips spaced at maximum 12 inches on center vertically, using a flat head type screw penetrating through the steel at least 3/8 of an inch. For Steel Studs less than 0.033 inches in thickness, use self-piercing screws. For Steel Studs equal to or greater than 0.033 inches in thickness, use steel drill screws (self-tapping). Gypsum Board (Item 5) to be installed directly over the Barrier Mesh using prescribed screw patterns with lengths increased by a minimum 1/8 in. Barrier Mesh may be installed with the long dimension of the diamond pattern positioned vertically or horizontally. Barrier Mesh joints may occur as butt joints at the framing members and secured using the Barrier Mesh Clips or occur in between framing members as overlapping joints secured using 18 SWG wire ties spaced a maximum 12 in. on center.

**CLARKDIETRICH BUILDING SYSTEMS** — Barrier Mesh, Barrier Mesh Clips

**\* 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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