

Design No. **U344**

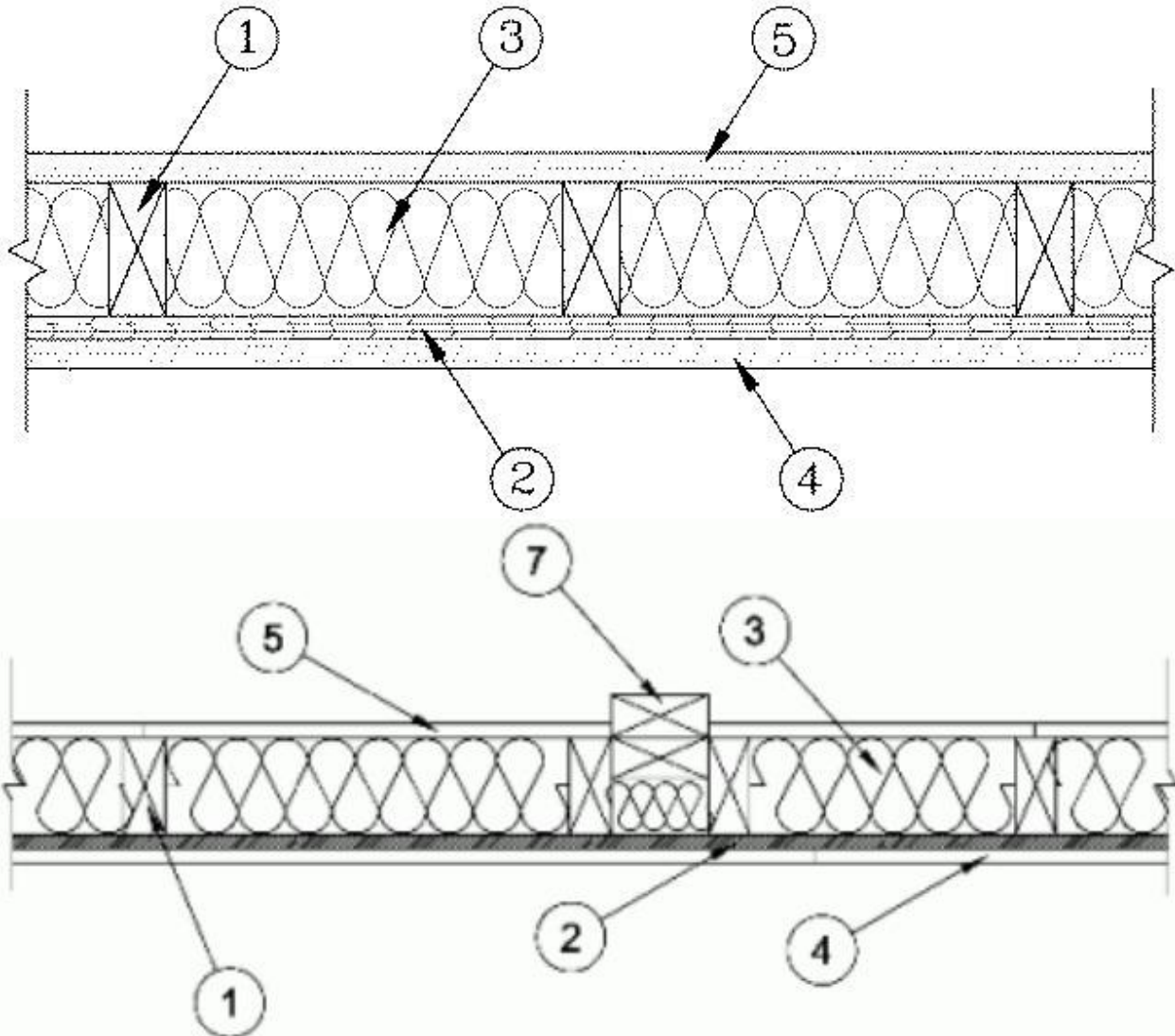
May 24, 2022

**Bearing Wall Rating — 1 Hr.**

**Finish Rating — 26 Min.**

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. **Wood Studs** — Nom 2 by 4 in. spaced 24 in. OC, laterally braced, and effectively fire stopped at top and bottom.

2. **Wood Structural Panel Sheathing** — Nom 15/32 in. thick, 4 ft wide APA Rated Sheathing 32/16. Exposure 1, plywood or oriented strand board (OSB) per PS1, PS2 or APA Standard PRP-108. Installed with long dimension of sheet (strength axis) or face grain of plywood, parallel with studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Horizontal joints backed with nom 2 by 4 in. wood backing. Attached to studs on exterior side of wall with 6d cement coated steel box nails spaced 12 in. OC along interior studs and 6 in. OC at perimeter of panels.

3. **Batts and Blankets\*** — 3-1/2 in. thick foil-faced glass fiber batts. Supplied in rolls 23 in. wide. Density to be nom 0.70 pcf. Friction-fitted to completely fill the stud cavity.  
See **Batts and Blankets\*** (BZJZ) category for names of Classified Companies.

3A. **Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 3) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft<sup>3</sup>. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft<sup>3</sup>, in accordance with the application instructions supplied with the product.

**U S GREENFIBER L L C** — INS735, INS745 and INS750LD for use with wet or dry application. INS515LD, INS541LD, INS735, INS765LD, and INS773LD are to be used for dry application only.

3B. **Fiber, Sprayed\*** — As an alternate to Item 3 and 3A — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 4.58 lb/ft<sup>3</sup>.

**NU-WOOL CO INC** — Cellulose Insulation

3C. **Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 3) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft<sup>3</sup>.

**INTERNATIONAL CELLULOSE CORP** — Celbar-RL

4. **Gypsum Board\*** — 5/8 in. thick, 4 ft wide, applied horizontally or vertically. Attached to studs through plywood sheathing with 8d cement coated nails 2-3/8 in. long, 0.113 in. shank diam, 9/32 in. diam head nails spaced 7 in. OC along studs and at perimeter of panels. When used in widths other than 48 in., wallboard is to be installed horizontally. Joints exposed or covered with tape and compound.

**Steel Framing Members\*** (Items 6 or any alternate clips) is used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

**AMERICAN GYPSUM CO** — Types AGX-1, M-Glass, AG-C, LightRoc.

**CABOT MANUFACTURING ULC** — 5/8 Type X, Type Blueglass Exterior Sheathing

**CERTAINTEED GYPSUM INC** — Type C or Type X-1 (Finished Rating is 23 minutes); Type EGRG, Type GlasRoc, GlasRoc-2, Easi-Lite Type X-2, SilentFX.

**CGC INC** — Type AR, C, IP-X2, IPC-AR, SCX, SHX, ULIX, ULX, USGX, WRC, WRX.

**CERTAINTEED GYPSUM INC** — Types LGFC6, LGFC6A, LGFC-C, LGFC-C/A.

**GEORGIA-PACIFIC GYPSUM L L C** — Types TG-C, Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, GreenGlas Type X, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW, Sheathing Type- DGLW, Soffit-Type DGLW, Type LW2X, Veneer Plaster Base - Type LW2X, Water Rated - Type LW2X, Sheathing - Type LW2X, Soffit - Type LW2X, Type DGL2W, Water Rated - Type DGL2W, Sheathing - Type DGL2W, Type DGG, Type DAP, Type DS.

**NATIONAL GYPSUM CO** — Types FSK, FSK-G, FSW, FSW-3, FSW-5, FSW-G, FSK-C, FSW-C, FSMR-C, FSW-6, FSL, FSW-8

**NATIONAL GYPSUM CO** — Riyadh, Saudi Arabia — Type FR, or WR.

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Types PG-11, PGS-WRS, PGI

**THAI GYPSUM PRODUCTS PCL** — Type C or Type X

**UNITED STATES GYPSUM CO** — Types AR, C, FRX-G, IP-X2, IPC-AR, WRC, SCX, SHX, ULIX, ULX, USGX or WRX

**USG BORAL DRYWALL SFZ LLC** — Types C, SCX, USGX

**USG MEXICO S A DE C V** — Type AR, C, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC or WRX.

4A. **Gypsum Board\*** — (As an alternate to Item 4) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically and secured as described in Item 4.

**GEORGIA-PACIFIC GYPSUM L L C** — Type X ComfortGuard Sound Deadening Gypsum Board (finish rating 27 min).

4B. **Gypsum Board\*** — (As an alternate to Items 4, 4A) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 4.

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Type QuietRock ES.

4C. **Wall and Partition Facings and Accessories\*** — (As an alternate to Items 4, 4A, 4B) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 4.

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Type QuietRock 527.

4D. **Gypsum Board\*** — (As an alternate to Item 4) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.

**CERTAINTED GYPSUM INC** — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

4E. **Gypsum Board\*** — (As an alternate to Item 4) - 5/8 in. thick, 4 ft wide, applied horizontally or vertically. Attached to studs through plywood sheathing with 8d cement coated nails 2-3/8 in. long, 0.113 in. shank diam, 9/32 in. diam head nails spaced 7 in. OC along studs and at perimeter of panels. When used in widths other than 48 in., wallboard is to be installed horizontally. Joints exposed or covered with tape and compound. **Steel Framing Members\*** (Items 6 or any alternate clips) is used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 7 in. OC.

**PANEL REY S A** — Type PRX2

5. **Gypsum Board\*** — 5/8 in. thick, 4 ft wide applied horizontally or vertically. Attached to studs or blocking at 7 in. OC with 6d cement coated nails, 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads. When used in widths other than 48 in., wallboard to be installed horizontally. Joints exposed or covered with tape and compound.

When Item 6-6D, **Steel Framing Members\***, is used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

**AMERICAN GYPSUM CO** — Types AGX-1, M-Glass, AG-C, LightRoc

**CABOT MANUFACTURING ULC** — 5/8 Type X, Type Blueglass Exterior Sheathing

**CGC INC** — Type AR, C, IP-X1, IP-X2, IPC-AR, SCX, ULX, USGX, WRX

**CERTAINTED GYPSUM INC** — Types LGFC6, LGFC6A, LGFC-C, LGFC-C/A

**GEORGIA-PACIFIC GYPSUM L L C** — Type TG-C, GreenGlass Type X, Type DGG

**NATIONAL GYPSUM CO** — Types FSK, FSK-G, FSW, FSW-3, FSW-5, FSW-G, FSK-C, FSW-C, FSMR-C, FSW-6, FSL, FSW-8

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Types PG-11, PGS-WRS, PGI

**UNITED STATES GYPSUM CO** — Type AR, C, FRX-G, IP-X1, IP-X2, IPC-AR, SCX, ULIX, ULX, USGX or WRX

**USG BORAL DRYWALL SFZ LLC** — Types C, SCX, USGX

**USG MEXICO S A DE C V** — Type AR, C, IP-X1, IP-X2, IPC-AR, SCX, ULX, USGX or WRX

5A. **Gypsum Board\*** — As an alternate to Item 5 — (not shown) - 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths of other than 48 in., gypsum boards are to be installed horizontally. Joints exposed or covered with tape and compound.

**AMERICAN GYPSUM CO** — Types AGX-1, M-Glass, AG-C (Finished Rating is 25 minutes), LightRoc.

**CERTAINTEED GYPSUM INC** — Type C or Type X-1 (Finished Rating is 23 minutes); Type EGRG, Type GlasRoc, GlasRoc-2.

**CGC INC** — Type AR, C, IP-X2, IPC-AR, SCX, SHX, ULIX, ULX, USGX, WRC or WRX. (Finished Rating is 24 minutes).

**NATIONAL GYPSUM CO** — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type FSMR-C, Type FSW-6, Type FSL

**THAI GYPSUM PRODUCTS PCL** — Type C or Type X

**UNITED STATES GYPSUM CO** — Type AR, C, FRX-G, IP-X1, IP-X2, IPC-AR, SCX, ULX, USGX or WRX.  
(Finished Rating is 24 minutes)

**USG BORAL DRYWALL SFZ LLC** — Types C, SCX, USGX

**USG MEXICO S A DE C V** — Type AR, C, IP-X1, IP-X2, IPC-AR, SCX, ULX, USGX or WRX. (Finished Rating is 24 minutes)

5B. **Gypsum Board\*** — (As an alternate to Items 5 and 5A) — 5/8 in. thick gypsum panels, with square edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last 2 screws 1 and 4 in. from edge of board or nailed as described in Item 5. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.

**GEORGIA-PACIFIC GYPSUM L L C** — GreenGlas Type X, Type DGG.

5C. **Gypsum Board\*** — (As an alternate to Items 5 through 5B) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically and secured as described in Item 5.

**GEORGIA-PACIFIC GYPSUM L L C** — Type X ComfortGuard Sound Deadening Gypsum Board (finish rating 27 min)

5D. **Gypsum Board\*** — (As an alternate to Items 5 through 5C) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 5.

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Type QuietRock ES.

5E. **Wall and Partition Facings and Accessories\*** — (As an alternate to Items 5 through 5D) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 5.

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Type QuietRock 527

5F. **Gypsum Board\*** — (As an alternate to Items 5 through 5E) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 5.

**NATIONAL GYPSUM CO** — Type SBWB

5G. **Gypsum Board\*** — (As an alternate to Item 5) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.

**CERTAINTED GYPSUM INC** — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

5H. **Gypsum Board\*** — (As an alternate to Item 5-5G) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically or horizontally and secured with 1-1/4 in. Type W coarse thread gypsum panel steel screws spaced a maximum of 12 in. OC.

**CERTAINTED GYPSUM INC** — Type SilentFX

5I. **Gypsum Board\*** — (As an alternate to Item 5. For use with Item 6E) - Any 5/8 in. thick, 4 ft. wide, Gypsum Board UL Classified for Fire Resistance (CKNX) eligible for use in Design Nos. U305, L501 or G512. Two layers, applied vertically, and attached to furring channels (Item 6Ea). Vertical gypsum board side joints offset 24 inches between layers. Horizontal butt joints offset 48 inches from adjacent board horizontal joints and 24 inches from base layer butt joint. Vertical joints staggered one stud cavity on opposite sides of studs. Type S steel screws used to attach gypsum board to furring channels. First layer - 1 in. long, 3 inches from the edge and 24 in. OC. Second layer- 1-5/8 in. long, spaced 1 inch from the edge and 12 in. OC.

5J. **Gypsum Board\*** — 5/8 in. thick, 4 ft wide applied horizontally or vertically. Attached to studs or blocking at 7 in. OC with 6d cement coated nails, 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads. When used in widths other than 48 in., wallboard to be installed horizontally. Joints exposed or covered with tape and compound.

When Item 6-6D, **Steel Framing Members\***, is used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 7 in. OC.

**PANEL REY S A** — Type PRX2

6. **Steel Framing Members\*** — (Optional, Not Shown) — 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 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Items 4 and 5.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 6a) 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 grommet. Furring channels are friction fitted into clips. . RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.

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

6A. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — 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 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. 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 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

**PLITEQ INC** — Type Genie Clip

6B. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 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 6Ba) to studs. Clips spaced 48 in. 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

6C. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 6Cb. 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 6Ca) 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

6D. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — 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 6Da) 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

6E. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 6Eb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. 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. Two layers of gypsum board attached to furring channels as described in 5I.



b. **Framing Members\*** — Used to attach furring channels (Item 6Ea) to studs (Item 1). Rafts secured to stud, spaced a maximum of 24 in. OC. horizontally, vertically spaced 3 in. from the top and bottom and 24 inch on center along each stud and secured with two 1-1/4 inch (No. 6) Type W drywall screws. One on each side of the core. Fasteners should not be placed closer than 1/4 inch to the edges of the mounts.

**BCD LLC** — Type HushFrame Raft Connector

6F. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — Used as an alternate method to attach resilient channels to wall studs. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels and spaced max 24 in. O.C. Channel ends butted and centered under the structural members and attached with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the structural members with the screws supplied with the accessory and per the accessory manufacturer's installation instructions.

**PAC INTERNATIONAL L L C** — Type RC-1 Boost

6G **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 6) — Furring channels and Steel Framing Members as described below:

a **Furring Channels** — Formed of No. 25 MSG galv steel. 2-23/32 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 are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 5.

b **Steel Framing Members\*** — Used to attach furring channels (Item 6Ga) to studs. Clips spaced maximum 48 in. OC. Clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips.

**CLARKDIETRICH BUILDING SYSTEMS** — Type ClarkDietrich Sound Clip

7. **Non-Bearing Wall Partition Intersection** — (Optional) — Two nominal 2 by 4 in. stud or nominal 2 by 6 in. stud nailed together with two 3-1/2 in. long 10d nails spaced a max. 16 in. OC. vertically and fastened to one side of the minimum 2 by 4 in. stud with 3 in. long 10d nails spaced a max 16 in. OC. vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed by with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the bearing wall.

**\* 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 2022-05-24