

# Design No. U311

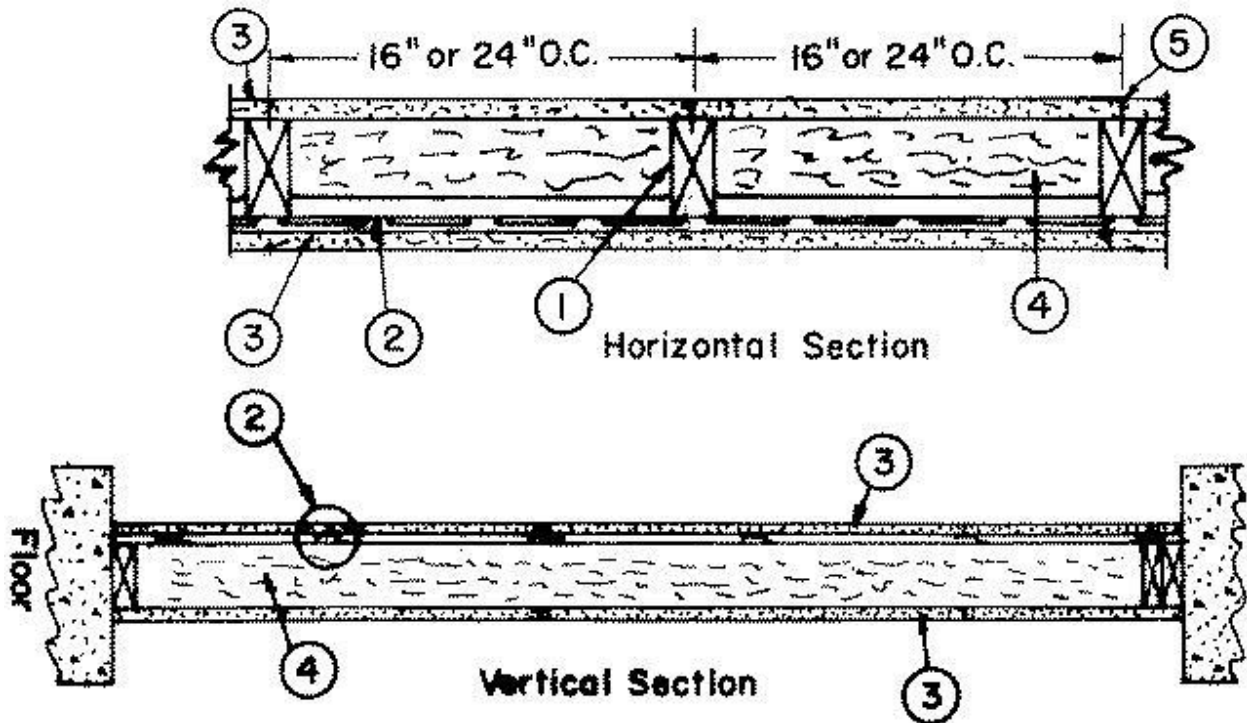
December 01, 2022

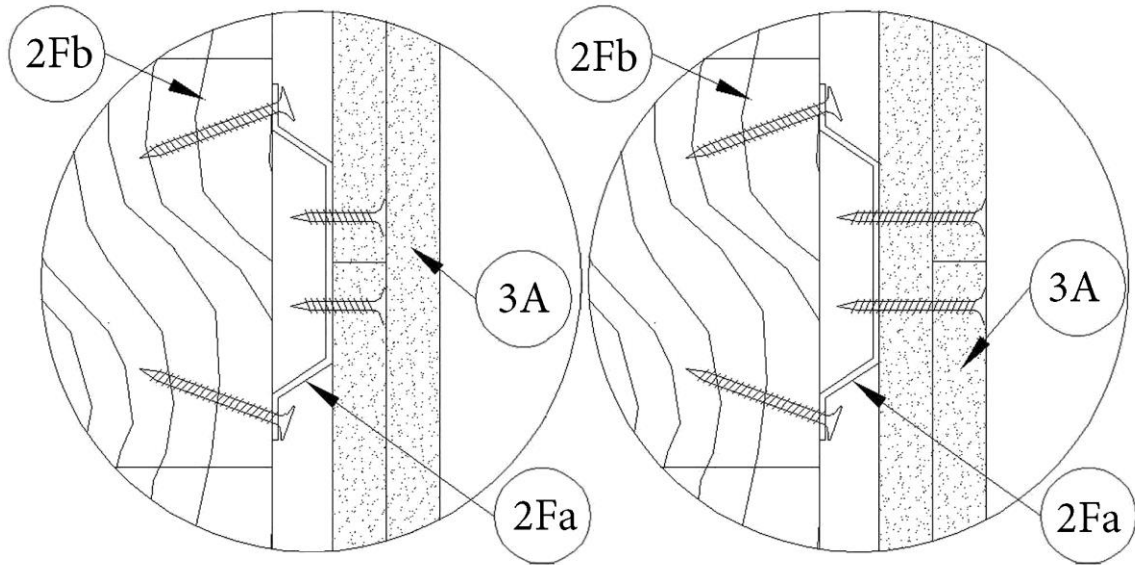
**Bearing Wall Rating — 1 HR.**

**Finish Rating — 23 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](#)

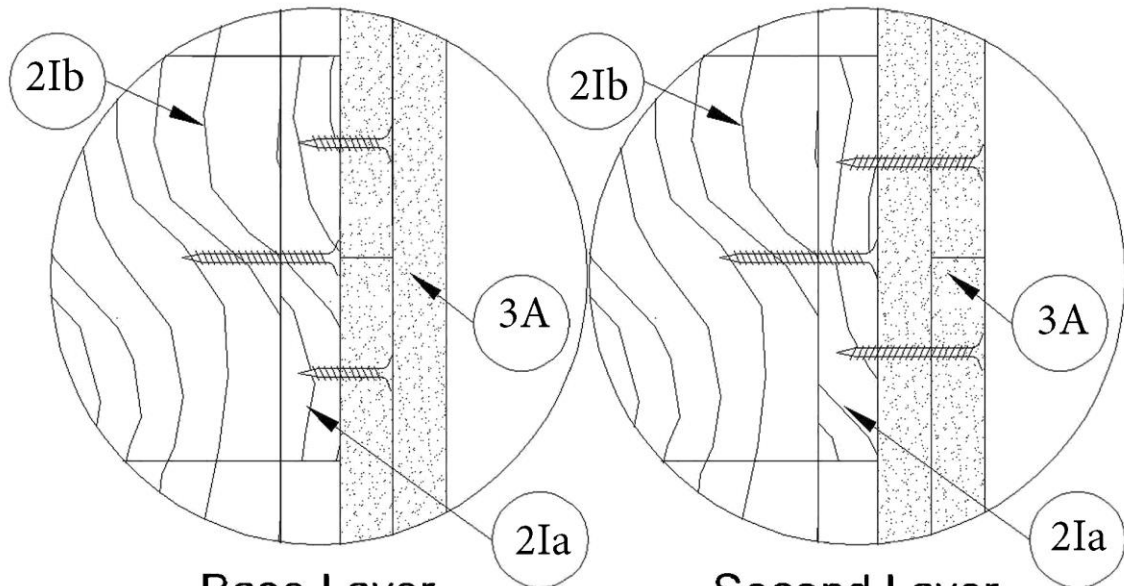
\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.





Base Layer  
End Joint Detail

Second Layer  
End Joint Detail



Base Layer  
End Joint Detail

Second Layer  
End Joint Detail

1. **Wood Studs** — Nom 2 by 4 in., spaced 16 or 24. OC. Effectively cross braced.

2. **Resilient Channel** — 25 MSG galv steel. Resilient channels spaced vertically 24 in. OC, flange portion screw attached to one side of studs with 1-1/4 in. long Type W coarse thread gypsum panel steel screws.

2A. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 2) — As an alternate to Item 2, 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.

b. **Steel Framing Members\*** — Used to attach furring channels (Item a) to studs (Item 1). 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).

2B. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 2) — 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 3.

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

2C. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 2) — 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 3.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 2Ca) 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

2D. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 2) — 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 2Db. 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 3.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 2Da) 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

2E. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 2) — 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 2.

b. **Steel Framing Members\*** — Used to attach resilient channels (Item 2Ea) 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

2F. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 2) — 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. First channel centered max. 3 in. from end of studs. Channels secured to rafts with two angled 1-1/4 inch (No. 6) Type W drywall screws. One on each side of the channel.. 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 Item 3A.

b. **Framing Members\*** — Used to attach furring channels (Item 2Fa) to studs (Item 1). Rafts secured to each stud, spaced a maximum of 48 in. OC. vertically. Staggered 24 inch on center vertically on each adjacent stud. At the beginning or end of furring channel runs, additional rafts installed to support the ends of all furring channels. At stud ends, rafts may be installed on plates to achieve required furring channel spacing. Secured with two 1-5/8 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

2G. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 2) — 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 16 or 24 in. O.C (depending on stud spacing). 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. Gypsum board screws spaced 8 in. OC (in lieu of 12 in.) when used.

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

2H. **Steel Framing Members\*** — (Optional, Not Shown, As an alternate to Item 2) — 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 3.

b **Steel Framing Members\*** — Used to attach furring channels (Item 2Ha) 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

2l. **Framing Members** - (Optional, Not Shown, As an alternative to Item 2) — Furring channels and Framing Members as described below:

a. **Furring Strips** — Nominal 1 in. deep by 3 in. wide wooden furring strips, spaced 24 in. OC perpendicular to studs. First channel centered max. 3 in. from end of studs. Furring secured with one 2 in. long, Type W screw into the rafts. Ends of adjoining furring butted, between studs, and joined with an overlapping 12 in. furring strip fastened with two 2 in. long Type W screws equally spaced on both sides of the butt joint. Two layers of gypsum board attached to furring strips as described in Item 3A.

b. **Framing Members\*** — Used to attach furring channels (Item 2la) to studs (Item 1). Rafts secured to each stud, spaced a maximum of 48 in. OC. vertically. Staggered 24 inch on center vertically on each adjacent stud. At the beginning or end of furring channel runs, additional rafts installed to support the ends of all furring channels. At stud ends, rafts may be installed on plates to achieve required furring channel spacing. Secured with two 1-5/8 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

3. **Gypsum Board\*** — 5/8 in. thick, 4 ft wide. Screw attached on one side of wall to furring channels with 1 in. long, self-drilling, self-tapping steel screws spaced 12 in. OC, vertical joints located midway between studs and back blocked with furring channels, attached with 1 in. long, self-drilling, self-tapping screws, spaced 12 in. OC, along each edge. Gypsum board on opposite side of wall attached directly to studs with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced 12 in. OC. Vertical joints shall be located over studs on this side of the wall.

**AMERICAN GYPSUM CO** — Types AG-C

**CERTAINEED GYPSUM INC** — Type C

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

**CERTAINEED GYPSUM INC** — Type LGFC-C/A

**GEORGIA-PACIFIC GYPSUM L L C** — Types 5, DAPC, TG-C

**NATIONAL GYPSUM CO** — Types -eXP-C, FSK-C, FSW-C, FSW-G

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Type C or PG-C

**SAINT-GOBAIN GYPROC MIDDLE EAST FZE** — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc DuraLine, Gyproc DuraLine MR, Gyproc DuraLine M2TECH, Gyproc DuraLine ACTIV'Air, Gyproc DuraLine MR ACTIV'Air, Gyproc DuraLine M2TECH ACTIV'Air

**THAI GYPSUM PRODUCTS PCL** — 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

3A. **Gypsum Board\*** — (For use with Item 2F and 2I) - Any 5/8 in. thick, 4 ft. wide, Gypsum Board UL Classified for Fire Resistance (CKNX) eligible for use in Design No. G512. Two layers, applied vertically, and attached to steel studs (Item 2A) and furring (Item 2Fa or 2Ia). Vertical gypsum board side joints offset 24 inches between layers. Vertical joints staggered one stud cavity on opposite sides of studs. Type W steel screws used for wood framing. Type S steel screws used for steel framing. Attachment to furring channels - First layer - 1-1/4 in. long, 3, 6 and 18 inches from each board edge. Second layer - 1-7/8 in. long (2 in. with wood framing), spaced 12 inch OC with first fastener 2 in. from vertical board edge. Direct attachment to framing - First layer (to plates) - 1-1/4 in. long, 3, 6 and 18 inches from each board edge. First layer (to studs) - 1-1/4 in. long, 3, 6 and 18 inches board ends and 24 in. OC thereafter. Second layer - 1-7/8 in. long, spaced 2 inch from each board edge and 12 in. OC thereafter.

4. **Batts and Blankets\*** — 3-1/2 in. thick mineral wool batts, placed to fill interior of wall, attached to the 4-in. face of the studs with staples placed 24 in. OC.

**JOHNS MANVILLE**

**ROCKWOOL** — Types Acoustical Fire Batts and AFB, min. density 1.69 pcf / 27.0 kg/m<sup>3</sup>

**ROCKWOOL MALAYSIA SDN BHD** — Type Acoustical Fire Batts.

**ROCK WOOL MANUFACTURING CO** — Type Delta Board

**THERMAFIBER INC** — Type SAFB, SAFB FF.

3B. **Gypsum Board\*** — (As an alternate to Item 4) - 5/8 in. thick, 4 ft wide. Screw attached on one side of wall to furring channels with 1 in. long, self-drilling, self-tapping steel screws spaced 7 in. OC, vertical joints located midway between studs and back blocked with furring channels, attached with 1 in. long, self-drilling, self-tapping screws, spaced 7 in. OC, along each edge. Gypsum board on opposite side of wall attached directly to studs with 1-7/8 in. nails or screws spaced 7 in. OC.

**PANEL REY S A** — Type PRX2

4A. **Glass Fiber Insulation** — (As an alternate to Item 4) — 3 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, friction-fitted to fill the interior of the wall. See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4B. **Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 4) — 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.

**Applegate Greenfiber Acquisition LLC** — INS735, INS745, INS750LD, Insulmax, and SANCTUARY for use with wet or dry application. INS515LD, INS541LD, INS735, INS765LD and INS773LD are to be used for dry application only

4C. **Fiber, Sprayed\*** — As an alternate to Items 4, 4A, and 4B — 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

4D. **Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 4) — 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

5. **Joints and Screw Heads** — Wallboard joints covered with paper tape and joint compound. Screw heads covered with joint compound. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with joints reinforced with paper tape.

6. **Wall and Partition Facings and Accessories\*** — (Optional, Not Shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the wood framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Type QuietRock QR-500 and QR-510

7. **Mineral and Fiber Board** — (Optional, Not Shown) — 1/2 in. thick, 4 ft wide, square edge fiber boards applied vertically to studs on the side of the wood framing without the resilient channels, in between the wood framing and the UL Classified gypsum board (Item 3). Fiber boards installed with 1-1/4 in. long, Type W, bugle head, coarse thread gypsum board screws spaced 12 in. OC max, with the last screws spaced 2 in. and 6 in. from edge of board. Gypsum board (Item 3) installed horizontally or vertically and fastened through the fiber boards to wood framing with 2 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. Gypsum board joints staggered from fiber board joints. Fiber boards not evaluated or intended as a substitute for the required layer of UL Classified Gypsum Board.

**BLUE RIDGE FIBERBOARD INC** — SoundStop

**\* 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 2022-12-02