

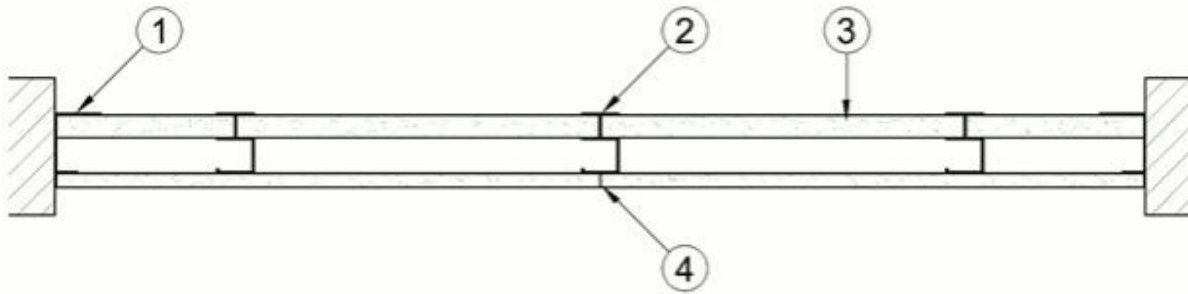
# Design No. W419

December 05, 2022

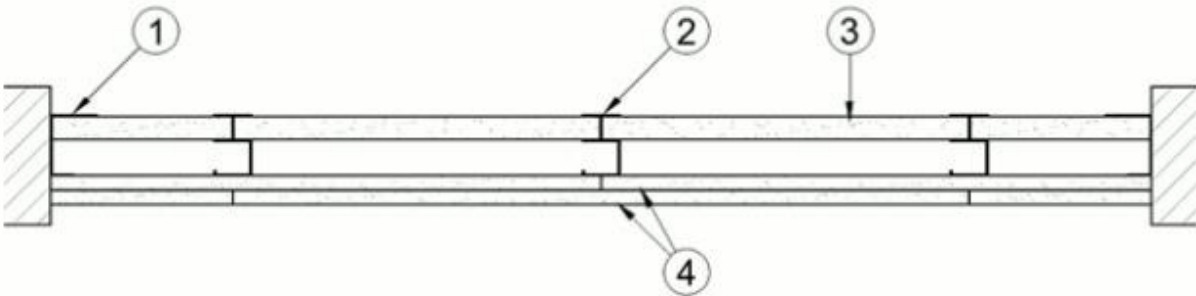
## Nonbearing Wall Rating — 1, 2, 3, or 4 Hr.

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

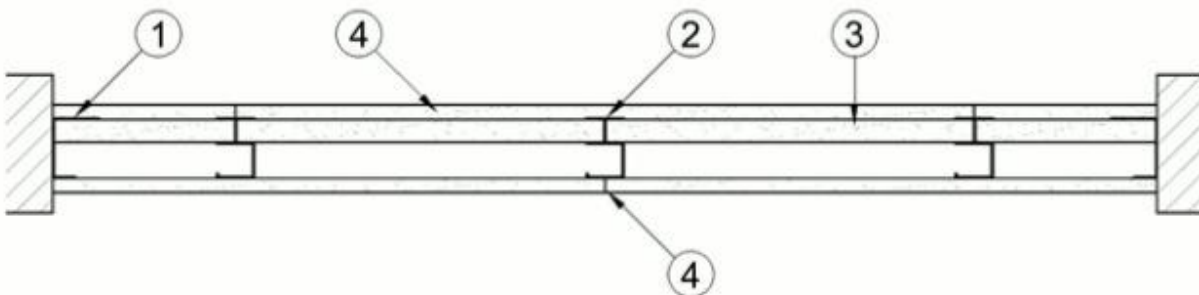
### System A - 1 Hr.



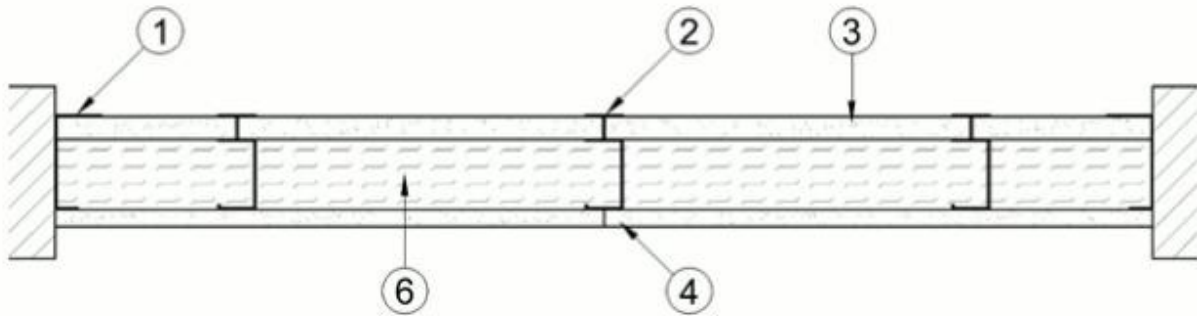
### System B - 2 Hr.



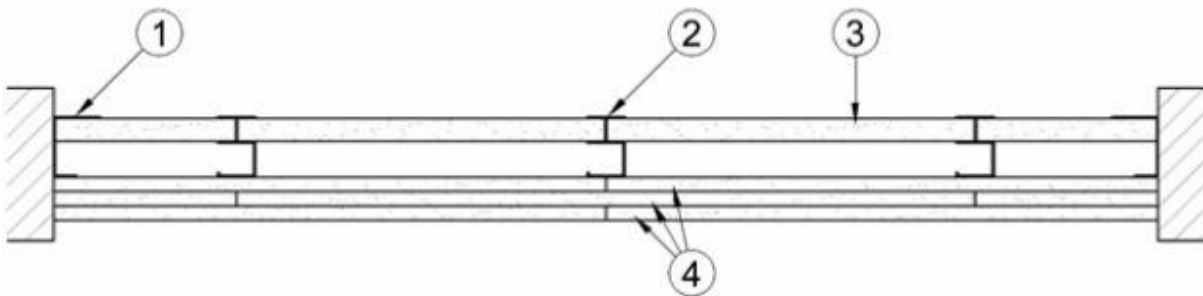
### System C - 2 Hr.



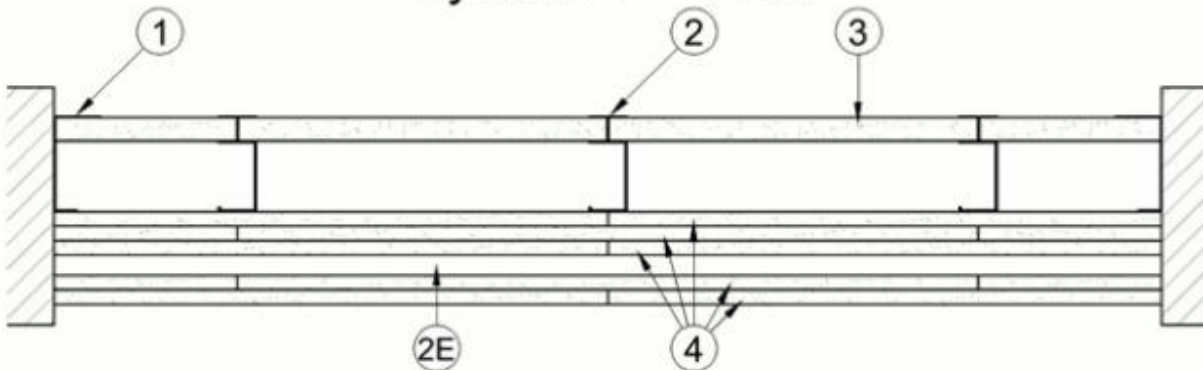
## System D - 2 Hr.



## System E - 3 Hr.



## System F - 4 Hr.



1. **Channel Track** — "J" -shaped channel, 2-1/2 in. deep (min. 4 in. deep when Systems D and F are used) with unequal legs of 1 in. and 2 in., fabricated from No. 25 MSG galv steel. Channel positioned with short leg toward finished side of wall. Channel attached to structural supports with steel fasteners located not greater than 2 in. from ends and not greater than 24 in. OC.

2. **Steel Studs** — (Not shown) "I" -shaped studs, min 2-1/2 in. deep (min. 4 in. deep when System F is used, not for use with System D) by 1-1/2 in. wide, fabricated from min 25 MSG galv steel. Cut to lengths 1/2 in. less than floor to ceiling height and spaced 24 in. OC.

2A. **Steel Studs** — — "C-H" -shaped studs, min 2-1/2 in. deep (min. 4 in. deep when Systems D and F are used) by 1-1/2 in. wide, fabricated from min 25 MSG galv steel. Cut to lengths 1/2 in. less than floor to ceiling height and spaced 24 in. OC.

2B. **Steel Studs** — (Not Shown) — "C-T" - shaped studs, min 2-1/2 in. deep (min. 4 in. deep when Systems D and F are used) by 1-1/2 in. wide, fabricated from min 25 MSG galv steel. Cut to lengths 1/2 in. less than floor to ceiling height and spaced 24 in. OC.

2C. **Furring Channels** — (Optional, Not Shown) — For use with single or double layer systems. Resilient furring channels fabricated from min. 25 MSG corrosion protected steel, installed horizontally, and spaced vertically a max. 24 in. OC. Flange portion of channel attached to each intersecting stud on side of stud opposite the 1 in. liner panels with 1/2 in. long Type S or S-12 pan-head steel screws. When furring channels are used, gypsum board to be installed vertically.

2D. **Steel Framing Members\*** — (Optional, Not Shown) — For use with single or double layer systems. Furring channels and Steel Framing Members as described below. Not to be used with cementitious backer units (Item 7):

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board installed vertically only and attached to furring channels as described in Item 4.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 2Da) to studs (Items 2, 2A, or 2B). Clips spaced max. 24 in. OC., and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.

**PAC INTERNATIONAL L L C** — Types RSIC-1

2E. **Furring Channels** — For use with System F. "Hat" shaped, min. 22 MSG galv steel furring channels attached directly over the three inner layers of wallboard to each stud with 2-1/4 in. long Type S bugle head steel screws. Screws alternate from top flange to bottom flange at each stud intersection. Furring channels spaced vertically max 16 in. OC.

2F. **Steel Framing Members\*** — (Optional, Not Shown) — For use with single or double layer systems. Furring channels and Steel Framing Members as described below. Not to be used with cementitious backer units (Item 7):

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 installed vertically only and attached to furring channels as described in Item 4.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 2Fa) to studs (Items 2, 2A, or 2B). Clips spaced 24 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

2G. **Steel Framing Members\*** — (Optional, Not Shown) — For use with single or double layer systems. Furring channels and Steel Framing Members as described below. Not to be used with cementitious backer units (Item 7):

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 installed vertically only and attached to furring channels as described in Item 4.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 2Ga) to studs (Items 2, 2A, or 2B). Clips spaced 24 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

2H. **Steel Framing Members\*** — (Optional, Not Shown) — For use with single or double layer systems. Resilient channels and Steel Framing Members as described below. Not to be used with cementitious backer units (Item 7):

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 4.

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

3. **Gypsum Board\*** — 1 in. thick gypsum wallboard liner panels, supplied in nom 24 in. widths. Panels cut 1 in. less in length than floor to ceiling heights. Vertical edges inserted in "I" studs. Free edge of end panels attached to long leg of channel track with 1-5/8 in. long Type S self-drilling, self-tapping bugle head steel screws spaced not greater than 24 in. OC. For System F, screws spaced not greater than 12 in. OC.

**NATIONAL GYPSUM CO** — Types FSW, FSW-B, FSW-7

#### **System A - 1 Hr.**

4. **Gypsum Board\*** — 5/8 in. thick, 4 ft wide, applied horizontally or vertically and attached to studs with 1 in. long Type S steel screws spaced 12 in. OC along the edges and in the field of the boards. When Furring Channels (Item 2C) are used, gypsum board attached vertically to furring channels with 1 in. long Type S steel screws spaced 12 in. OC.

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

4A. **Gypsum Board\*** — (As an alternate to item 4) - 5/8 in. thick, 4 ft wide, applied vertically and attached to studs with 1 in. long Type S steel screws spaced 12 in. OC along the edges and in the field of the boards. When Furring Channels (Item 2C) are used, gypsum board attached vertically to furring channels with 1 in. long Type S steel screws spaced 12 in. OC.

**NATIONAL GYPSUM CO** — Types FSW-3, FSMR-C.

4B. **Gypsum Board\*** — (As an alternate to Items 4 through 4A) — Installed as described in Item 4. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically and fastened to the studs with 1 in. long Type S steel screws spaced 8 in. OC.

**NATIONAL GYPSUM CO** — Type SBWB

4C. **Gypsum Board\*** — (As an alternate to 5/8 in. Type FSW in Item 4) — 2 layers nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Horizontal joints on the same side need not be

staggered. Inner layer attached with fasteners, as described in item 4, spaced 24 in. OC. Outer layer attached per Item 4.

**NATIONAL GYPSUM CO** — Type FSW

#### **System B - 2 Hr.**

4. **Gypsum Board\*** — 1/2 in. or 5/8 in. thick, 4 ft wide wallboard applied vertically in two layers. Inner or base layer attached to studs with 1 in. long Type S self-drilling, self-tapping bugle head steel screws spaced 24 in. OC along the edges and in the field of the boards. Outer or face layer attached to studs and channel track with 1-5/8 in. long Type S self-drilling, self-tapping bugle head steel screws spaced 12 in. along the edges and in the field of the boards, staggered from screws in inner layer. When Furring Channels (Item 2C) are used, inner or base layer attached to furring channels with 1 in. long Type S self-drilling, self-tapping bugle head steel screws. Outer or face layer attached to furring channels with 1-5/8 in. long Type S self-drilling, self-tapping bugle head steel screws spaced 12 in. OC and staggered 12 in. from base layer screws. Joints between inner and outer layers staggered. Outer layer joints covered with paper tape and joint compound. Exposed screw heads covered with joint compound.

**NATIONAL GYPSUM CO** — 1/2 in. thick, Types eXP-C, FSK-C, FSW-C, FSMR-C, 5/8 in. thick Types eXP-C, FSMR-C, FSK, FSK-C, FSL, FSW-C, FSW, FSW-3, FSW-5, FSW-6, and FSW-8

4A. **Gypsum Board\*** — (As an alternate to 5/8 in. Type FSW in Item 4) — 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 4. 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 4.

**NATIONAL GYPSUM CO** — Type FSW

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

**NATIONAL GYPSUM CO** — Type SBWB

4C. **Gypsum Board\*** — (As an alternate to Items 4 through 4B) - 1/2 or 5/8 in. thick, 4 ft wide, applied in two layers. Base layer attached horizontally to studs and side "J" runners with 1 in. long Type S self-tapping steel screws starting at 2 in. from the floor and ceiling runners and spaced a maximum 24 in. OC along the vertical edges and in the field of the boards. Face layer installed vertically to studs and side "J" runners and attached with 1-5/8 in. long Type S self-tapping steel screws, starting at 3 in. from the floor and ceiling runners and spaced a maximum 12 in. OC along the vertical edges and in the field of the boards. Face layer joints covered with paper tape and two coats of joint compound. Exposed screw heads covered with two coats of joint compound.

**NATIONAL GYPSUM CO** — 1/2 in. thick Types eXP-C, FSW-C, FSMR-C, 5/8 in. thick Types eXP-C, FSK, FSW, FSL, FSMR-C, FSW-3, FSW-8, FSW-C, FSW-G.

4D. **Gypsum Board\*** — (As an alternate to Items 4 through 4C) - For use with 1 in. Type FSW-7 gypsum board (Item 3) only. 5/8 in. thick, 4 ft wide, applied in two layers. Base layer attached vertically to studs and side "J" runners with 1 in. long Type S self-tapping steel screws spaced 16 in. OC. Face layer installed vertically to studs and side "J" runners and attached with 1-5/8 in. long Type S self-tapping steel screws spaced 12 in. OC. Face layer vertical joints staggered minimum one stud

cavity from base layer vertical joints. Face layer joints covered with paper tape and two coats of joint compound. Exposed screw heads covered with two coats of joint compound.

**NATIONAL GYPSUM CO** — Type FSLX

#### **System C - 2 Hr.**

4. **Gypsum Board\*** — 1/2 in. or 5/8 in. thick, 4 ft wide applied either horizontally or vertically and attached to studs and runners with 1 in. long Type S steel screws spaced 12 in. OC. When Furring Channels (Item 2C) are used, gypsum board attached vertically to furring channels with 1 in. long Type S steel screws spaced 12 in. OC. Outer layer joints covered with paper tape and joint compound. Exposed screw heads covered with joint compound.

**NATIONAL GYPSUM CO** — 1/2 in. thick Types eXP-C, FSK-C, FSW-C, FSMR-C, 5/8 in. thick Types eXP-C, FSMR-C, FSK, FSK-C, FSL, FSW-C, FSW, FSW-3, FSW-5, FSW-6, and FSW-8

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

**NATIONAL GYPSUM CO** — Type SBWB

#### **System D - 2 Hr.**

3A. **Gypsum Board\*** — (As an alternate to item 3) - 1 in. thick gypsum wallboard liner panels, supplied in nom 24 in. widths. Panels cut 1 in. less in length than floor to ceiling height. Vertical edges inserted in "T"-shaped section of "C-T" studs or "H"-shaped section of "C-H" studs (minimum 4 in. wide). Free edges of end panels attached to long leg of "J"-runners with 1-5/8 in. long Type S self-drilling, self-tapping bugle head steel screws spaced not greater than 12 in. OC.

**NATIONAL GYPSUM CO** — Type FSW-7, FSW-9

4. **Gypsum Board\*** — 3/4 in. thick, 4 ft wide, applied vertically and secured with 1-1/4 in. long Type S self-drilling, self-tapping steel screws spaced 16 in. OC along floor and ceiling runners and 12 in. OC along studs and in the field.

**NATIONAL GYPSUM CO** — Type UltraShield

#### **System E - 3 Hr.**

4. **Gypsum Board\*** — 5/8 in. thick, 4 ft wide wallboard applied vertically in three layers. Vertical joints centered over steel studs (Item 2, 2A, or 2B) and staggered min 24 in. First layer secured to studs with 1 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC at the perimeter and in the field. Second layer secured to studs with 1-5/8 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC at the perimeter and in the field. Joints in second layer shall be secured to first layer of gypsum board with 1-1/2 in. long Type G screws spaced 12 in. OC vertically, 2 in. from each side of the joint. Third layer secured to studs with 2-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC at the perimeter and in the field starting with a 6 in. stagger so as not to hit previous layers' screws. Joints in third layer also secured to inner layers with 1-1/2 in. long Type G screws spaced 12 in. OC vertically, 2 in. from each side of the joint.

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

#### **System F - 4 Hr.**

4. **Gypsum Board\*** — 5/8 in. thick, 4 ft wide wallboard applied vertically in five layers. Vertical joints centered over steel studs (Item 2) and staggered min 24 in. First layer secured to studs with 1-1/8 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC at the perimeter and in the field. Second layer secured to studs with 1-5/8 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC at the perimeter and in the field. Horizontal butt joints in second layer shall be secured to first layer of gypsum board with 1-1/2 in. long Type G screws spaced 8 in. OC on both sides of the joint and in joint corners. Third layer secured to studs with 2-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC at the perimeter and in the field. Third layer also secured to inner layers with 1-1/2 in. long Type G screws spaced 12 in. OC vertically and centered between the Type S screws in the studs. Horizontal butt joints in third layer shall be secured to inner layers of gypsum board with 1-1/2 in. long Type G screws spaced 8 in. OC on both sides of the joint and in joint corners. Fourth layer secured to the furring channels (Item 3) with 1-1/8 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Horizontal butt joints in fourth layer shall be centered over furring channels (Item 3) and secured to furring channels with 1-1/8 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 8 in. OC on both sides of the joint. Fifth layer secured to furring channels with 1-5/8 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Fifth layer also secured to fourth layer with 1-1/2 in. long Type G screws spaced 16 in. OC along the vertical joints and centered between the Type S screws in the furring channels. Horizontal butt joints in fifth layer shall be centered over furring channels (Item 3) and secured to furring channels with 1-5/8 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 8 in. OC on both sides of the joint. Screws and horizontal butt joints staggered.

**NATIONAL GYPSUM CO** — Type eXP-C, FSW-C, FSK-C

5. **Joint Tape and Compound** — (Not Shown) — Joints on outer layer of gypsum board (Item 4) covered with paper tape and joint compound. Paper tape and joint compound may be omitted when gypsum panels are supplied with square edges. Exposed screw heads covered with joint compound.

6. **Batts and Blankets\*** — (Optional for all except System D) — When optional, mineral wool or glass fiber batts partially or completely filling stud cavity. Any mineral wool or glass fiber batt bearing the UL Classification Marking as to Fire Resistance. See Batts and blankets (BZJZ) Category For Names of Classified Companies. Required for System D - Nom 3 in. thick mineral wool batts, having a min. density of 2.5 lbs/ft<sup>3</sup>, friction fitted between the studs and floor and ceiling runners. See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

6A. **Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 6) — (100% Borate Formulation) — Not for use with System D. 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, and Insulmax for use with wet or dry application. INS765LD and INS773LD are to be used for dry application only.

6B. **Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 6) and Item 6A — Not for use with System D. Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

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

6C. **Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 6) — Not for use with System D. 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

**\* 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 2022-12-05