Wood Frame Walls And Ceilings
Single- And Double-Layer Construction

Single-Layer Construction
The single-layer construction system consists of a single layer of Gold Bond® brand Gypsum Board applied to wood framing. A variety of specialty products may be used to provide mold resistance, abuse resistance or sound damping.

Installation Notes
1/2 in. (12.7 mm) Gypsum Board

- 24 in. (610 mm) o.c. maximum framing spacing
  - Ceiling application (perpendicular)
  - Wall application (perpendicular or parallel)
- 16 in. (406 mm) o.c. framing spacing
  - Ceiling application (perpendicular or parallel)
  - Wall application (perpendicular or parallel)
- Minimum gypsum board nail length 1-3/8 in. (34.9 mm)

STANDARD APPLICATION WITH NAILS
1. Ceiling Joist Framing
2. Gypsum Board
3. Wall Framing
4. Ceiling: 7 in. (178 mm) o.c.
5. Wall: 8 in. (203 mm) o.c.

STANDARD APPLICATION WITH SCREWS
1. Ceiling Joist Framing
2. Gypsum Board
3. Wall Framing
4. Ceiling: 12 in. (305 mm) o.c.
5. Wall: 16 in. (406 mm) o.c.

- 24 in. (610 mm) o.c. maximum framing spacing
  - Ceiling application (perpendicular)
  - Wall application (perpendicular or parallel)
  - Screw spacing not to exceed 12 in. (305 mm) o.c.
- 16 in. (406 mm) o.c. framing spacing
  - Ceiling application (perpendicular or parallel)
  - Wall application (perpendicular or parallel)
- Minimum gypsum board screw length 1-1/8 in. (28.6 mm)
**NAIL APPLICATION**

Apply Gold Bond® brand Gypsum Board to wood framing members. Apply board at right angles to ceiling framing first, and then apply vertically or horizontally to walls. To minimize joints and strengthen the wall, use the longest possible lengths. Cut boards accurately and abut joints, but do not force together.

Space nails no more than 7 in. (178 mm) o.c. on ceilings and 8 in. (203 mm) o.c. on walls. Locate fasteners not less than 3/8 in. (9.5 mm) from the edges and ends of the gypsum board. Fasten 3/8 in. (9.5 mm) gypsum board with minimum 1-1/4 in. (31.8 mm) nails, 1/2 in. (12.7 mm) gypsum board with minimum 1-3/8 in. (34.9 mm) nails and 5/8 in. gypsum board with minimum 1-1/2 in. (38.1 mm) nails.

**DOUBLE NAILING**

Use the double nailing method of attachment to minimize nail pops. Double nailing requires a second set of field nails, but the total quantity of nails does not double since the maximum nail spacing increases to 12 in. (305 mm) o.c. and conventional nailing is used on the perimeter. Begin by single nailing the field of the board starting at the center and working toward the ends and edges. Next, drive another nail 2 in. (50.8 mm) to 2-1/2 in. (63.6 mm) from the first set of field nails. After adding the second set of nails, strike the first set again to ensure the board is drawn tightly to the framing member.

**SCREW APPLICATION**

Apply Gold Bond® brand Gypsum Board to wood framing members using 1-1/4 in. (31.8 mm) Type W screws with a screw gun equipped with adjustable screw depth control and a #2 Phillips bit. Space screws 12 in. (305 mm) o.c. on ceilings and 16 in. (406 mm) o.c. on walls where the framing members are 16 in. (406 mm) o.c. Space screws 12 in. (305 mm) o.c. on ceilings and walls where the framing members are 24 in. (610 mm) o.c. Minimum screw penetration is 5/8 in. (15.9 mm) for wood studs.

**ADHESIVE APPLICATION**

Apply gypsum board adhesive to the face of studs or joists in continuous beads not less than 3/8 in. (9.5 mm) in diameter. Where end or edge joints occur on a framing member, apply two parallel beads of adhesive not less than 3/8 in. (9.5 mm) in diameter, one near each edge of the framing member.

**FLOATING ANGLE METHOD**

Apply gypsum board using the floating angle method eliminates perimeter nails where ceilings and walls meet. This method reduces the stress and strain on the board from movement of the framing. Refer to the diagrams below for details.

**FLOATING CEILING CORNER – NAIL INSTALLATION**

1. Ceiling Joist Framing
2. Gypsum Board
3. Wall Framing
4. Floating Interior Angles
5. Ceiling: 7 in. (178 mm) o.c.
6. Wall: 8 in. (203 mm) o.c.

**FLOATING CEILING CORNER – SCREW INSTALLATION**

1. Ceiling Joist Framing
2. Gypsum Board
3. Wall Framing
4. Floating Interior Angles
5. Ceiling: 12 in. (305 mm) o.c.
6. Wall: 16 in. (406 mm) o.c.
   - Floating Ceiling: 12 in. (305 mm) o.c.
Double-Layer Construction

The double-layer construction system consists of multiple layers of Gold Bond® brand Gypsum Board applied to wood framing. A variety of specialty products may be used to provide mold resistance, abuse resistance or sound damping. When used as a face layer, acoustically enhanced Gold Bond® brand SoundBreak® XP® Gypsum Board provides optimal acoustical performance and sound reduction.

**BASE LAYER**

The base layer is applied on ceilings first, and then on walls. For mechanical attachment of the face layer, locate nails a maximum of 16 in. (406 mm) o.c. on ceilings and 24 in. (610 mm) o.c. on walls. Locate screws a maximum of 24 in. (610 mm) o.c. for both ceilings and walls. For adhesive application of the face layer, apply the base layer in the same manner as a single-layer application. Drive fasteners flush with the board surface and do not treat joints. Base layer joints offset from face layer joints minimum 16 in. (406 mm). Do not secure the base layer to framing with clips.

**MECHANICAL APPLICATION OF FACE LAYER**

For non-rated construction, use nails of a length to provide 7/8 in. (22.2 mm) minimum penetration into the framing and spaced a maximum of 7 in. (178 mm) o.c. on ceilings and 8 in. (203 mm) o.c. on walls. Type W screws should be of a length to provide 5/8 in. (15.9 mm) minimum penetration into the framing and spaced a maximum of 12 in. (305 mm) on ceilings and 16 in. (406 mm) o.c. on walls when framing is spaced 16 in. (406 mm) o.c. Locate Type W screws 12 in. (305 mm) o.c. on walls and ceilings when framing is spaced 24 in. (610 mm) o.c.
ADHESIVE APPLICATION OF FACE LAYER

Use one of the following adhesives:

A. ProForm® brand All-Purpose Ready Mix Joint Compound or ProForm® brand Quick Set™ Setting Compound applied with a notched spreader with 1/4 in. x 1/4 in. (6.4 mm x 6.4 mm) notches spaced maximum 2 in. (50.8 mm) o.c. to the back side of the finish layer.

B. Drywall adhesive meeting ASTM C557 applied with a caulking gun in 3/8 in. (9.5 mm) diameter beads spaced 16 in. (406 mm) o.c. to base layer or back of face layer. Apply a perimeter bead 1 in. (25.4 mm) from panel edge.

Position the finish layer on the wall or ceiling within 10 minutes. Locate all joints a minimum of 10 in. (254 mm) from parallel joints in the base layer. Hold in place with temporary nails or Type G drywall screws or bracing to ensure adequate contact and alignment of the gypsum boards. When the bond has developed (usually 24 hours), remove the temporary fasteners or bracing. Fill resulting holes flush to the surface with joint compound and finish the joints.

FIRE-RESISTANCE RATINGS

For fire or acoustical ratings, please refer to the Fire And Sound Selector guide on pages 32-62. For complete construction details, consult the specific test report.

Recommendations

- Install gypsum board in accordance with methods described in ASTM C840 and GA-216.
- Examine and inspect framing materials to which gypsum board is to be applied. Remedy all defects prior to installation of the gypsum board.
- Install batt or blanket ceiling insulation BEFORE the gypsum board on ceilings when installing a vapor retarder behind the gypsum board. Install the insulation IMMEDIATELY after the gypsum board when using loose fill insulation. Avoid installation practices that might allow condensation to form behind boards.
- Cut gypsum board to allow for a minimum 1/4 in. (6.4 mm) gap between gypsum board and floor to prevent potential wicking of moisture.
- Locate gypsum board joints at openings so that no joint will occur within 12 in. (305 mm) of the edges of the openings unless installing control joints at these locations.
- Stagger vertical end joints. Joints on opposite sides of a partition should not occur on the same stud.
- Hold gypsum board in firm contact with the framing member while driving fasteners. Fastening should proceed from center portion of the board toward the edges and ends. Set fasteners with heads slightly below the surface of the board. Take care to avoid breaking the face paper of the gypsum board. Remove improperly driven nails or screws.
- Provide minimum 1/4 in. (6.4 mm) clearance between boards and adjacent concrete or masonry to minimize wicking of moisture.
- Maintain a room temperature of not less than 40°F (4°C) during application of gypsum board.
- Maintain a room temperature of not less than 50°F (10°C) when using adhesive to attach the gypsum board and during joint treatment, texturing and decoration beginning 48 hours prior to application and continuously thereafter until completely dry. Maintain adequate ventilation in the working area during installation and curing period.
Limitations

- Apply 1/4 in. (6.4 mm) Gold Bond® brand Gypsum Board to existing surfaces only. Do not apply 1/4 in. (6.4 mm) gypsum board directly to framing members, except when using with other thicknesses in double-layer systems tested for specific purposes. Existing walls and ceilings should be sound, flat, level and without void spaces. Apply 1/4 in. (6.4 mm) gypsum board with a combination of mechanical fasteners and adhesive between framing members to bond the gypsum board to the substrate.

- Do not use 3/8 in. (9.5 mm) Gold Bond® brand Gypsum Board on framing members over 16 in. (406 mm) o.c. Apply gypsum board to ceilings at right angles to the framing members. Do not use 3/8 in. (9.5 mm) gypsum board to support insulation. Do not use 1/2 in. (12.7 mm) or 5/8 in. (15.9 mm) gypsum board on framing over 24 in. (610 mm) o.c.

- All ends and edges of gypsum board should occur over framing members or other solid backing, except where treated joints occur at right angles to framing or furring members.

- Hold the gypsum board firmly against the framing while fastening with nails or screws. Start at the center and work toward each end and edge, spacing the fasteners as recommended for each type of application.

- Support lighting and other fixtures by framing. Do not use gypsum board to support them.

- Apply 1/2 in. (12.7 mm) or 5/8 in. (15.9 mm) gypsum board at right angles to framing on ceilings to be decorated with spray textures. Framing should not exceed 16 in. (406 mm) o.c. for 1/2 in. (12.7 mm) regular gypsum board and 24 in. (610 mm) o.c. for Gold Bond® BRAND 1/2 in. (12.7 mm) High Strength Ceiling Board, 1/2 in. (12.7 mm) Gold Bond BRAND High Strength LITE® Gypsum Board and 5/8 in. (15.9 mm) Gold Bond® BRAND Fire-Shield® Gypsum Board.

- For a spray texture finish, prime gypsum board ceilings with a sealing latex primer and allow it to dry before spraying. This will help minimize gypsum board sagging and discoloration.

Using water-based spray textures may cause unprimed gypsum board to sag when any one or more of the following conditions exist:

- Unventilated buildings
- Use of vapor retarders under certain conditions
- Poor drying conditions
- Inadequate framing support
- Improper type or thickness of gypsum board
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