Steel stud gypsum board partitions are comprised of steel floor and ceiling tracks, steel studs and Gold Bond® brand Gypsum Board, which is attached with drywall screws. Metal products are to meet or exceed all applicable ASTM standards.

Apply gypsum board horizontally or vertically in single or multiple layers. For system-specific fire and sound ratings, please refer to Fire and Sound Selector section.

**SINGLE-LAYER CONSTRUCTION**

1. Fasten Jamb Studs to Track Top and Bottom
2. Track – Cut and Bent Down
3. C.R. Channel Stiffeners – Friction Fit (Optional)
4. Steel Door Frame

**CHASE WALL CONSTRUCTION**

1. Steel Track
2. 1/2" Gypsum Board or Stud Track – 2 Screws per Stud (Alternate)
3. 3 Drywall Screws per Stud
4. Gypsum Board
5. Tape and Joint Compound

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*Per ASTM C754*
Non-Loadbearing Steel Stud Partitions

ADVANTAGES
Openings or knockouts throughout the length of the steel studs permit the easy horizontal routing of water, gas and electrical conduit. You may also use these openings to install Cold-Rolled Channel stiffeners where increased rigidity is required. Interruption of the floor and ceiling track allows the vertical installation of larger utilities.

Fire Resistance: These systems have 1-, 2-, 3- and 4-hour fire ratings.

Sound Resistance: Assemblies requiring a Sound Transmission Class (STC) may be achieved through the use of several variations of these systems.

Technical Data

PARTITION HEIGHTS
Use light-gauge steel studs to frame non-loadbearing partitions, which are limited in height by deflection resulting from extraneous horizontal forces. For any given horizontal load, the amount of deflection increases as the height of the partition rises.

Table 1 and Table 2 (on page 313) show maximum partition heights based on specific design criteria. The height limits shown are based on the gypsum board and the steel studs acting as a composite section to provide a maximum deflection of L/120, L/240, L/360 (L = partition height in inches) with a horizontal load of 5 psf, 7.5 psf, and 10 psf of partition surface.

You may increase the rigidity by placing stiffener channels through the steel stud knockouts, by using two layers of gypsum board, or by decreasing the stud spacing.

Use standard 25- and 20-gauge studs for interior partitions. They have height limits as shown in Table 1 and Table 2. Attach gypsum board to full height on both sides of studs with Type S bugle-head drywall screws (Type S-12 for 20-gauge studs) spaced not more than 12 in. (305 mm) o.c. on all studs when framing is 24 in. (610 mm) o.c. and 16 in. (406 mm) o.c. if framing is 16 in. (406 mm) o.c. or less. Screw lengths must be not less than 3/8 in. (9.5 mm) greater than the total thickness of the gypsum board being fastened.

Use 20-gauge steel studs for exterior, non-loadbearing curtain wall systems. Also use them for interior partitions to provide more rigidity or greater heights than can be attained with standard 25-gauge studs.

Limitations
1. Maximum stud spacing for a single-layer application of 1/2 in. (12.7 mm) and 5/8 in. (15.9 mm) gypsum board is 24 in. (610 mm) o.c. When applying 3/8 in. (9.5 mm) gypsum board, maximum stud spacing is 16 in. (406 mm) o.c.
2. Where installing long, continuous runs of gypsum board, provide control joints every 30 ft. (9,144 mm) or less.
3. Where structural movement may impose direct loads on these systems, isolation details are required.
4. To prevent weakening due to calcining, do not expose gypsum board to temperatures over 125°F (52°C) for extended periods of time.
5. Gypsum board joints should not occur within 12 in. (305 mm) of the corners of door frames, unless installing control joints at these locations.
6. Where reference is made to nominal gauges, 25-gauge relates to a minimum base steel of .0179 in. (0.45 mm), and 20-gauge to .0329 in. (0.84 mm).
### Table 1: 25-Gauge Studs/Partition Limiting Heights

<table>
<thead>
<tr>
<th>Stud Depth</th>
<th>Stud Spacing</th>
<th>Deflection Limit</th>
<th>5 psf (240 Pa)</th>
<th>7.5 psf (360 Pa)</th>
<th>10 psf (400 Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/2 in.</td>
<td>L/120 L/240 L/360</td>
<td>11-2 (3400) 8-10 (2690)</td>
<td>9-3 (2970)</td>
<td>8-10 (2690)</td>
<td></td>
</tr>
<tr>
<td>2 in.</td>
<td>L/120 L/240 L/360</td>
<td>10-7 (3230) 8-4 (2540)</td>
<td>8-10 (2690)</td>
<td>8-4 (2540)</td>
<td></td>
</tr>
<tr>
<td>2 in.</td>
<td>L/120 L/240 L/360</td>
<td>9-9 (2970) 7-11 (2410)</td>
<td>8-0 (2440)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-1/2 in.</td>
<td>L/120 L/240 L/360</td>
<td>15-1 (4600) 11-11 (3630) 10-5 (3180)</td>
<td>12-4 (3760) 10-5 (3180) 9-6 (2900)</td>
<td>9-1 (2770)</td>
<td></td>
</tr>
<tr>
<td>3 in.</td>
<td>L/120 L/240 L/360</td>
<td>13-3 (4040) 9-10 (3000) 6-7 (2260)</td>
<td>10-10 (3300) 9-10 (3000) 8-7 (2620)</td>
<td>8-5 (2570) 8-1 (2460)</td>
<td></td>
</tr>
<tr>
<td>3-1/2 in.</td>
<td>L/120 L/240 L/360</td>
<td>17-8 (5380) 15-4 (4670) 13-3 (4040)</td>
<td>14-3 (4340) 12-0 (3660) 11-7 (3530)</td>
<td>10-5 (3180) 9-1 (2770)</td>
<td></td>
</tr>
<tr>
<td>4 in.</td>
<td>L/120 L/240 L/360</td>
<td>15-4 (4670) 13-3 (4040) 11-7 (3530)</td>
<td>12-5 (3780) 10-5 (3180) 9-5 (2870)</td>
<td>8-1 (2460)</td>
<td></td>
</tr>
<tr>
<td>4-1/2 in.</td>
<td>L/120 L/240 L/360</td>
<td>13-9 (4190) 11-0 (3550) 10-1 (3070)</td>
<td>10-5 (3180) 9-5 (2870)</td>
<td>9-1 (2770)</td>
<td></td>
</tr>
<tr>
<td>5 in.</td>
<td>L/120 L/240 L/360</td>
<td>16-5 (5000) 14-4 (4370) 12-0 (3660)</td>
<td>18-0 (5400) 15-5 (4750) 13-2 (4250)</td>
<td>10-1 (3070)</td>
<td></td>
</tr>
<tr>
<td>6 in.</td>
<td>L/120 L/240 L/360</td>
<td>19-6 (5940) 17-5 (5230) 15-7 (4560)</td>
<td>16-5 (5000) 14-4 (4370) 12-0 (3660)</td>
<td>19-5 (5940)</td>
<td></td>
</tr>
<tr>
<td>6-1/2 in.</td>
<td>L/120 L/240 L/360</td>
<td>17-0 (5030) 15-0 (4590) 13-0 (4170)</td>
<td>15-5 (4750) 13-2 (4250) 11-0 (3550)</td>
<td>17-0 (5030)</td>
<td></td>
</tr>
<tr>
<td>7 in.</td>
<td>L/120 L/240 L/360</td>
<td>19-9 (6020) 17-5 (5460) 15-7 (4750)</td>
<td>14-0 (4270) 12-0 (3660) 10-2 (3230)</td>
<td>19-5 (5940)</td>
<td></td>
</tr>
</tbody>
</table>

Note: Limiting height tables adapted with permission from ASTM C 754. Copyright ASTM. Tables based on tests conducted with gypsum board attached with screws 12" o.c. to framing.

*Applicable for 3-5/8" stud depth.

### Table 2: 20-Gauge Studs/Partition Limiting Heights

<table>
<thead>
<tr>
<th>Stud Depth</th>
<th>Stud Spacing</th>
<th>Deflection Limit</th>
<th>5 psf (240 Pa)</th>
<th>7.5 psf (360 Pa)</th>
<th>10 psf (400 Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/2 in.</td>
<td>L/120 L/240 L/360</td>
<td>15-0 (3960) 13-0 (3960) 11-0 (3350)</td>
<td>11-4 (3450)</td>
<td>9-0 (2740)</td>
<td></td>
</tr>
<tr>
<td>2 in.</td>
<td>L/120 L/240 L/360</td>
<td>12-0 (3680) 10-1 (3070) 8-1 (2460)</td>
<td>9-8 (2950) 8-5 (2570)</td>
<td>8-9 (2670)</td>
<td></td>
</tr>
<tr>
<td>2-1/2 in.</td>
<td>L/120 L/240 L/360</td>
<td>13-0 (3960) 11-0 (3350) 9-0 (2740)</td>
<td>10-0 (3300) 9-1 (2770)</td>
<td>9-5 (2870)</td>
<td></td>
</tr>
<tr>
<td>3 in.</td>
<td>L/120 L/240 L/360</td>
<td>18-0 (5400) 15-5 (4750) 13-2 (4250)</td>
<td>14-5 (4390) 12-0 (3660) 10-5 (3180)</td>
<td>11-7 (3530) 9-8 (2950) 8-3 (2460)</td>
<td></td>
</tr>
<tr>
<td>3-1/2 in.</td>
<td>L/120 L/240 L/360</td>
<td>22-0 (6860) 19-5 (5940) 17-0 (5030)</td>
<td>19-5 (5940) 17-0 (5030) 15-0 (4590)</td>
<td>18-2 (5840) 16-2 (5280) 14-1 (4290)</td>
<td></td>
</tr>
<tr>
<td>4 in.</td>
<td>L/120 L/240 L/360</td>
<td>25-0 (7650) 21-1 (6680) 17-0 (5030)</td>
<td>19-5 (5940) 17-0 (5030) 15-0 (4590)</td>
<td>20-9 (6320) 18-1 (5510) 16-5 (5000)</td>
<td></td>
</tr>
<tr>
<td>4-1/2 in.</td>
<td>L/120 L/240 L/360</td>
<td>29-0 (9490) 24-6 (7470) 20-4 (6500)</td>
<td>28-4 (7920) 24-0 (6580) 20-0 (6250)</td>
<td>29-0 (9490) 25-0 (7140) 21-3 (6480)</td>
<td></td>
</tr>
<tr>
<td>5 in.</td>
<td>L/120 L/240 L/360</td>
<td>31-0 (10290) 26-9 (8990) 22-5 (7140)</td>
<td>32-9 (10920) 28-5 (8590) 24-1 (7600)</td>
<td>31-0 (10290) 26-9 (8990) 22-5 (7140)</td>
<td></td>
</tr>
<tr>
<td>5-1/2 in.</td>
<td>L/120 L/240 L/360</td>
<td>36-0 (12940) 32-0 (11590) 28-0 (10240)</td>
<td>37-0 (13690) 33-0 (12220) 29-0 (10870)</td>
<td>36-0 (12940) 32-0 (11590) 28-0 (10240)</td>
<td></td>
</tr>
<tr>
<td>6 in.</td>
<td>L/120 L/240 L/360</td>
<td>39-0 (14890) 35-0 (13540) 31-0 (12190)</td>
<td>41-0 (15640) 37-0 (14240) 33-0 (12790)</td>
<td>40-0 (14440) 36-0 (13090) 32-0 (11640)</td>
<td></td>
</tr>
</tbody>
</table>
Non-Loadbearing Steel Frame Partitions

**GYPSUM BOARD METAL FRAMING**

**25- And 20-Gauge Studs**

“C” shaped metal studs fabricated from galvanized steel. 20-gauge studs are for curtainwall construction or more rigid partitions.

**25- And 20-Gauge Track**

Fastened at floor and ceiling to support the steel studs. Track is channel-shaped and fabricated from galvanized steel.

**Cold-Rolled Channel**

Used in suspended ceilings and as stiffeners in steel stud partitions.

**Furring Channel**

Used as cross-furring members to attach gypsum board or lath on ceilings or furred masonry walls.

**Resilient-Furring Channel**

Used as cross-furring members in sound-rated gypsum board partitions.

**Z-Furring Channel**

Generally used on the inside of exterior masonry walls to support rigid foam insulation and to provide a fastening surface for gypsum board.

**Floor And Ceiling Runner**

Used to anchor studs to floor and ceiling.

**Recommendations**

**FRAMING**

Align floor and ceiling tracks to ensure plumb partition. Secure track with suitable fasteners at a maximum of 24 in. (610 mm) o.c. Position studs in track on 16 in. (406 mm) or 24 in. (610 mm) centers by rotating into place for a friction fit. Install steel studs with all flanges pointed in the same direction. Secure studs located adjacent to door and window frames, partition intersections and corners with 3/8 in. (9.5 mm) pan head Type S screws. Drive screws through both flanges of studs and tracks or by using a stud clincher.

**SINGLE LAYER OR FIRST PLY**

Cut gypsum board to allow for a minimum 1/4 in. (6.4 mm) gap between gypsum board and floor to prevent potential wicking.

Apply gypsum board with the length parallel or at right angles to the studs. Center vertical ends or edges over the stud flanges.

For steel framing, screws should be Type S, of a length to provide not less than 3/8 in. (9.5 mm) penetration into framing.

For non-fire-rated construction, attach with screws no more than 12 in. (305 mm) o.c. when framing is 24 in. (610 mm) o.c. and no more than 16 in. (406 mm) o.c. when framing is 16 in. (406 mm) o.c. or less. For vertical application of fire-rated construction, space screws 12 in. (305 mm) o.c. in the field and 8 in. (203 mm) o.c. along the vertical abutting edges, unless otherwise specified. For vertical gypsum board application with studs 24 in. (610 mm) o.c., erect the gypsum board on one side of the partition, and fasten gypsum board to the open end of stud flange first at vertical gypsum board joints. Complete the gypsum board application of the entire side of the partition in this manner. Vertical gypsum board joints on opposite sides of a partition should be staggered and not occur on the same stud. Secure the gypsum board to the studs so it will fit tight against the steel framing.

**FACE LAYER**

To mechanically attach the face layer for fire- or sound-rated construction, it must meet the specifications of the selected system. When attaching the face ply with mechanical fasteners and no adhesive between plies, the maximum spacing and minimum penetration for screws should be the same as for single-ply applications.
**STUD SPLICE**

1. Studs Butted
2. 4 Pan-Head Screws – Each Side

**CORNER DETAIL**

1. 3-5/8” Steel Stud
   Locate at Abutting Wall and Attach Through Gypsum Board to Stud in Abutting Wall
2. Gypsum Board
3. Cornerbead

**PARTITION INTERSECTION**

1. Steel Stud
2. Tape and Joint Compound
3. Gypsum Board

**PARTITION INTERSECTION (ALTERNATIVE)**

1. Steel Stud
2. Tape and Joint Compound
3. Gypsum Board

**JOINT WHERE WALL FRAMING CHANGES**

1. Gypsum Board
2. Control Joint
3. Joint Compound
4. Steel Stud
5. Caulk
6. Masonry Wall

**ATTACHMENT TO CONCRETE SLAB**

1. Ceiling Track
2. Steel Stud
3. Caulk
4. Casing Bead
Non-Loadbearing Steel Frame Partitions

**ATTACHMENT TO SUSPENDED CEILING**
1. 1-1/2" C.R. Channel
2. Toggle Bolt or Molly
3. Tape and Joint Compound
4. Furring Channel Clip
5. Furring Channel
6. Steel Track
7. Steel Stud

**ATTACHMENT TO FURRED CEILING**
1. Furring Channel
2. Tape and Joint Compound
3. Type S Drywall Screw

**PARTITION END DETAIL**
1. Steel Stud
2. Gypsum Board
3. Drywall Cornerbead

**BASE DETAIL**
1. Gypsum Board
2. Steel Stud
3. Floor Track
4. Wall Base

**DOOR HEAD DETAIL – METAL**
1. Steel Stud
2. Steel Track
3. Metal Door Head

**DOOR JAMB DETAIL – METAL**
1. Steel Stud
2. Gypsum Board
3. Jamb Anchor Clip
4. Metal Door Jamb
1-HOUR FIRE-RATED CONTROL JOINT DETAIL

1. 5/8” Fire-Shield®
2. 2-1/2” Steel Studs
3. 5/8” Gap
4. 5/8” Fire-Shield® Strips
5. 1-5/8” Drywall Screws, 24” o.c.
6. 1/2” Gap Between Board Ends
7. Control Joint

NON-RATED CONTROL JOINT DETAIL

1. Gypsum Board
2. Sealant
3. Steel Stud
4. Control Joint
5. Joint Compound
Steel Frame Ceilings – Furring Channels Or Studs

Description

You may use the following steel furring members to attach gypsum board ceilings:

- Furring Channels
- Steel Studs

Both will fasten to the lower chord of steel joists or cold-rolled channels in suspended ceiling construction, but the methods will vary. Secure Furring Channels with clips or tie wires. Apply Gold Bond® brand Gypsum Board using drywall screws spaced not more than 12 in. (305 mm) o.c.

Recommendations

The use of these furring systems with steel joist construction and gypsum board constitutes non-combustible construction. To achieve specific fire-resistance ratings, refer to Fire and Sound Selector section.

DIRECT ATTACHMENT

1. To space and position furring channels, follow the manufacturer’s recommendations. Tie Wire Furring Channels and Steel Studs as illustrated on page 319.

2. Apply gypsum board with its long dimension at right angles to the channels. Locate gypsum board butt joints over the center of the furring channels. Attach gypsum board with 1 in. (25.4 mm) self-drilling drywall screws 12 in. (305 mm) o.c., located not less than 3/8 in. (9.5 mm) or more than 1/2 in. (12.7 mm) from the edges.

SUSPENDED

1. Install 1-1/2 in. (38.1 mm) cold-rolled channels 4 ft. (1,219 mm) o.c. with 8-gauge hanger wire, spaced a maximum of 4 ft. (1,219 mm) o.c.

2. Installing steel furring channel 2 ft. (610 mm) with clips or wire ties at each joist intersection.

3. Apply gypsum board with its long dimension at right angles to the channels. Locate gypsum board butt joints over the center of the furring channels. Attach gypsum board with 1 in. (25.4 mm) self-drilling drywall screws 12 in. (305 mm) o.c., located not less than 3/8 in. (9.5 mm) or more than 1/2 in. (12.7 mm) from the edges.

Limitations

1. Support lighting and other fixtures by framing. Do not support them from the gypsum board.

2. For large expanses of ceiling with perimeter relief, locate control joints a maximum of 50 ft. (15.2 m) o.c. in either direction. Without perimeter relief, locate control joints a maximum of 30 ft. (9,144 mm) o.c. in each direction.
### Furring Channels
1. Steel Bar Joist
2. Furring Channel
3. Tie Wire

### Furring Channel Details
1. Furring Channel 2’0” o.c. Maximum
2. 1-1/2” Cold-Rolled Channels, 4’0” o.c. Maximum
3. Gypsum Board

### Steel Studs in Ceiling System
1. Steel Stud
2. Bar Joist
4. Short Length of Track
5. Gypsum Board (Fasten with Type S Drywall Screws, 12” o.c. Maximum)

### Saddle Tie
1. Furring Channel
2. Cold-Rolled Channel
3. No. 16-Ga. Galv. Tie Wire

### Control Joint Parallel to Furring Channels
1. Hanger Wire, Furring Channel Clip, or Tie Wire
2. 1-1/2” Channel Piece, 16” Long, Nested (Two Tie Wires Each Side)
3. 1-1/2” Channel
4. Furring Channel
5. Gypsum Board
6. Control Joint

### Control Joint Perpendicular to Furring Channels
1. Hanger Wire
2. Furring Channel Clip or Tie Wire
3. 1-1/2” Channel
4. Tie Wire
5. Short Piece of Furring Channel Inverted for Splice
6. Furring Channel
7. Gypsum Board
8. Control Joint