M2Tech® technology combines moisture and mold resistance and is specially engineered to provide enhanced protection against mold growth and provides:

- Additional zone of protection against moisture and mold
- Achieves the best possible scores of 10 for mold resistance per ASTM D3273 and 0 for ASTM G21
- May be finished, painted, or wallpapered using conventional gypsum board techniques
- Numerous fire-resistance rated assembly designs for safety and performance
- Handles like other CertainTeed® gypsum boards

M2Tech Shaftwall Systems

1, 2 & 3 Hour Fire Resistance Ratings

The walls of elevator shafts and stairwells are a vital life safety link in multi-story buildings. These walls are the main line of defense against fire entering the cavities behind them and spreading rapidly from floor to floor.

Gypsum Shaftwall Systems have replaced traditional masonry for interior vertical enclosures including mechanical enclosures, stairwells, elevator enclosures, and other mechanical chases. Some inherent advantages of Gypsum Shaftwall Systems are: lightweight construction, thinner walls, ease and speed of installation and clean up, and cost-effective construction.

M2Tech Shaftwall Systems provide one, two or three hour fire resistance ratings in non-loadbearing...
configurations. The systems are designed to withstand the intermittent surges of air pressure caused by fast moving elevator cabs. These systems utilize either an C-H, CT or I Stud and J-Track to support layers of 1" (25.4mm) M2Tech® Shaftliner Type X and either 1/2" (12.7 mm) CertainTeed® Type C or 5/8" (15.9 mm) CertainTeed or M2Tech Type X and CertainTeed Type C gypsum boards.

EITHER C-H, CT or I STUDS MAY BE USED IN CONJUNCTION WITH M2Tech Shaftwall Systems. All of the components are noncombustible.

**Shaftwalls can be erected from one side, eliminating the need to build extensive scaffolding.**

From a cost standpoint, Shaftwall assemblies save money in several ways. With less weight per unit area than other shaft enclosures, structural framing requirements are reduced; as is the need for heavily reinforced footings. The 2' (610 mm) wide M2Tech Shaftliner Type X slides quickly into the C-H, CT or I Stud and automatically provides 24" (610 mm) o.c. spacing. Shaftwalls can be erected from one side, eliminating the need to build extensive scaffolding. No finishing is required on the shaft side of the partition.

1. All construction shall comply with local building codes.
2. Only those components specified shall be used when constructing any fire or sound rated system. Substitutions may adversely affect performance capabilities.
3. Unless otherwise specified in the system design, face layer joints of 1/2" (12.7 mm) CertainTeed Type C , 5/8" (15.9 mm) CertainTeed or M2Tech Type X or 5/8" (15.9 mm) CertainTeed Type C gypsum boards shall be taped and finished with joint compound as described in “Surface Preparation” section.

**Code Report References**
UL ER3660-02

**Fire Resistance Rated Designs**
ULcUL U417, U428, U429, U529, V433, W409, W437
ULC W446
ITS CTG/WA and CTG/CC Designs

For further technical information regarding sound control and fire resistance for CertainTeed Shaftwall Systems contact Marketing Technical Services at 1-800-446-5284.
### Working with the Product

#### Cutting
The score and snap method is a fast and efficient way to cut CertainTeed® or M2Tech® gypsum board.

**Steps:**
1. On the face side, position a straight edge along the line of cut.
2. Score sheets with a knife or other suitable tool.
3. With a quick, firm motion, snap back away from the face.
4. The back paper can either be cut with a knife or separated by snapping the piece in the opposite direction.
5. Smooth all cut ends and edges to ensure tight joints.

To make cutouts, score around the perimeter on the face and back and tap out the waste piece from the face side. Cutouts can also be made with a drywall saw.

CertainTeed gypsum boards can also be cut with a saw. For information on avoiding dust inhalation, refer to the Material Safety Data Sheet available on our website, www.certainteed.com. Safety glasses should always be worn when using power tools.

#### Installation
Steel Framing and Installation of M2Tech Shattliner gypsum boards.

1. Lay out per construction drawings.
2. Install J-Track along the floor and ceiling and vertically at columns or abutting partitions, positioning the long legs closest to the shaft. Secure each piece with the appropriate power driven fasteners spaced a minimum 24" (600 mm).
3. Pre plan stud layout 24" (610 mm) o.c. maximum so the terminal stud on either end will fall a minimum of 8" (200 mm) from the opening.
4. Install M2Tech Shattliner gypsum boards vertically. Cut boards a maximum of 1" (25 mm) less than floor to ceiling height. The leading edge of the first board must be attached to the long leg of the vertical J-Track with 1-5/8" (41 mm) Type S screws spaced 12" (305 mm) o.c. or by tabs in the J-Track. Secure the top and bottom edges using the same fasteners and spacing or using the tabs.
5. Friction fit a C-H, CT or I stud into the top and bottom tracks and slide it snugly against the M2Tech Shattliner gypsum boards. Make sure the edge of the board is in full contact with the center web of the stud and covered by all of the tabs.
6. Erect adjacent M2Tech Shattliner gypsum boards by inserting in the top and bottom J-Track and between the tabs and flange on the opposite side of the C-H, CT or I studs to complete framing. Check periodically to ensure they are plumb. Screws are not required for the top and bottom J-Tracks.
7. For doors, ducts or other openings install J-Track as perimeter framing.
8. For walls exceeding 12' (3660 mm) in height, M2Tech Shattliner with gypsum boards may be butted to span the floor-ceiling height. The shorter panel should be at least 24" (600 mm) long or of sufficient length to engage at least two C-H, CT or I stud tabs on each panel edge. End joints should fall alternately in the upper and lower 1/3 of the partition. Subsequent butt joints between adjoining panels should be spaced no closer than 24" (600 mm) in elevation. Joints may be butted together or use a C-H, CT or I stud placed horizontally between boards to secure each joint.
9. As an option, if required in a specific building code jurisdictions, butt joints in M2Tech Shattliner gypsum boards may be back blocked in the cavity by screw attaching a 12" x 24" (300 mm x 600 mm) piece of 5/8" (15.9 mm)
CertainTeed or M2Tech Type X or 1” (25.4 mm) M2Tech Shattliner gypsum board over the joint to the tabs of the C-H, CT or I studs.

10. Frame all cut openings in the shaft side with J-Track, providing adequate structural support for openings over 48” (1220 mm).

11. Elevator door frames must be tied to shaftwall enclosures; however, they must remain independently supported by the building frame. Attach M2Tech® Shaftwall System to elevator door frame jamb and anchor clips with pan head screws. The J-Track 3” (76 mm) leg is used at the intersection of the elevator door frame and shaftwall system.

12. Where required, use an acoustical sealant to caulk around the perimeter of wall sections, door frames, call boxes and any other openings that may allow air passage.

1-1/2-Hour-Rated System: Finished One Side

1. Apply a single layer of 5/8” (15.9 mm) CertainTeed® or M2Tech Type X gypsum board vertically or horizontally with 1” (25 mm) Type S screws.

2. Holding the gypsum board firmly against the framing, begin fastening in the center of each sheet and move outward toward ends and edges.

3. Space screws at 12” (300 mm) o.c. in the field and perimeter of the board except in horizontal applications where the vertical end joints shall be spaced 8” (200 mm) o.c.

4. Set fastener heads slightly below the surface without breaking the face paper or damaging the gypsum core.

2-Hour-Rated System: Finished One Side

1. Install a base layer of 1/2” (12.7 mm) CertainTeed® or M2Tech Type X gypsum board vertically or horizontally with 1” (25 mm) Type S Buglehead screws at 24” (600 mm) o.c.

2. Apply a face layer of 1/2” (12.7 mm) CertainTeed® or M2Tech Type X gypsum board vertically or horizontally (opposite of base layer) over the face layer with 1-5/8” (41 mm) Type S screws spaced at 24” (600 mm) o.c.

3. All joints in the face layer must be staggered with respect to those in the base layer.

3-Hour-Rated System: Finished One Side

1. Follow the preceding framing details using C-H, CT or I Studs and J-Track.

2. Apply M2Tech Shattliner gypsum board within stud configuration, followed by attachment of 5/8” (15.9 mm) CertainTeed Type C with gypsum board on the open-stud-face vertically, parallel to framing, with 1” (25 mm) No. 6 Type S screws at 24” (600 mm) o.c.

3. Apply the middle layer of 5/8” (15.9 mm) CertainTeed Type C gypsum board vertically or horizontally over the base layer with 1-5/8” (41 mm) No. 6 Type S screws spaced at 24” (600 mm) for vertical application and 16” (400 mm) o.c. for horizontal application. Apply the face layer of 5/8” (15.9 mm) CertainTeed Type C gypsum board vertically or horizontally over the middle layer with 2-1/4” (57 mm) No. 6 Type S screws spaced at 16” (400 mm) for vertical application and 12” (300 mm) o.c. for horizontal application. Screws offset 6” (150 mm) from layer below.

2-Hour-Rated System: Finished Two Sides

1. Follow the preceding framing details using C-H, CT or I Studs and J-Track.

2. Apply M2Tech Shattliner gypsum board, followed by the attachment of 1/2” (12.7 mm) CertainTeed Type C or 5/8” (15.9 mm) CertainTeed or M2Tech Type X gypsum board in a single facing layer on each side of the studs vertically, parallel to framing, with 1” (25 mm) No. 6 Type S screws 12” (300 mm) on center.

3-Hour-Rated System: Finished Two Sides

1. Follow the preceding framing details using C-H, CT or I Studs and J-Track.

2. Apply M2Tech Shattliner gypsum board, followed by the attachment of 5/8” (15.9 mm) CertainTeed Type C gypsum board in a single facing layer on each side of the studs vertically, parallel to framing, with 1” (25 mm) No. 6 Type S screws spaced at 24” (600 mm) on center and on the single layer side spaced at 12” (300 mm) on center.

3. Apply an additional layer of 5/8” (15.9 mm) CertainTeed Type C gypsum board vertically or horizontally over the base layer. Secure with 1-5/8” (41 mm) No. 6 Type S screws 24” (600 mm) on center when vertically applied or 16” (400 mm) when horizontally applied.

2-Hour-Rated System: Sound Control (STC) Rating of 50

A two-hour-rated shaftwall partition can be configured to achieve a minimum STC rating of 50 with the following system.

1. Fill wall cavity with 1-1/2” (38 mm) CertainTeed® Type X Gypsumboard or equivalent insulation in accordance with ASTM C475. Bond the Type X insulation to C-H, CT or I Studs at 24” (600 mm) o.c.

2. Install the J-Track and C-H, CT or I Stud system.

3. Apply a base layer of 1/2” (12.7 mm) CertainTeed Type C or 5/8” (15.9 mm) CertainTeed or M2Tech Type X gypsum board vertically or horizontally with 1” (25 mm) Type S Buglehead screws at 24” (600 mm) o.c.

4. Apply a face layer of 1/2” (12.7 mm) CertainTeed Type C or 5/8” (15.9 mm) CertainTeed or M2Tech Type X gypsum board vertically or horizontally (opposite of base layer) over the face layer with 1-5/8” (41 mm) Type S screws spaced at 24” (600 mm) o.c.

5. Secure channels to each stud with 3/8” (10 mm) Type S panhead screws.

6. Apply a double layer of 1/2” (12.7 mm) CertainTeed Type C or 5/8” (15.9 mm) CertainTeed or M2Tech Type X gypsum board vertically or horizontally over the base layer to the channels using 1-5/8” (41 mm) No. 6 Type S Buglehead drywall screws spaced 24” (610 mm) o.c. along the edges and in the field of the board with the first screw 3” (75 mm) from board end. Attach the face layer to the channels using 1-5/8” (41 mm) No. 6 Type S Buglehead screws spaced 12” (300 mm) o.c. along the edges and in the field with the first screw 6” (150 mm) from board end.

7. Spot cover all fastener heads with three coats of joint compound applied in different directions. Apply three coats of compound across the joint and feather to approximately 4” (100 mm) on each side.

8. Fasten using 2” (51 mm) No. 6 Type S screws spaced 12” (300 mm) o.c. starting at 4” (100 mm) from ends of assembly along the perimeter and along all studs.

Surface Preparation of Finished Sides

No finishing is required on the shaft side of partitions. Joints, corners and fastener heads on the opposite face side shall be finished in accordance with ASTM C840, the GA-216, the Fire Resistance Design Manual GA-600 and CertainTeed Finishing systems, or equivalent joint compound manufacturer’s instructions.

Joint compound shall comply with ASTM C475.

1. No surface treatment shall be done until the interior temperature has been maintained at a minimum of 50°F (10°C) for at least 48 hours prior to application of compounds and until all materials have completely dried. Adequate continuous ventilation must also be provided.

2. Embed tape into the wet compound and allow to dry. For inside corners, crease the tape and work it into the joint.

3. Apply a second coat of compound across the joint and feather to approximately 4” (100 mm) on each side.

4. Apply a third coat and feather to approximately 6” (150 mm) on each side.

5. Allow each coat to dry before proceeding.

6. Attach corner bead to outside corners and apply three coats of joint compound. Feather out each coat as described in steps 4-6.

7. Spot cover all fastener heads with three coats of joint compound applied in different directions.

8. Additional coats of compound may be required to achieve higher Levels of Finish.

9. Lightly sand the last coat of all treated areas, taking care not to roughen the surrounding gypsum board paper. Smoothing can also be accomplished with a damp sponge.

Finishing

1/2” (12.7 mm) CertainTeed Type C or 5/8” (15.9 mm) CertainTeed or M2Tech Type X or CertainTeed Type C gypsum board can be finished with paint, texture or wallpaper. High quality primer/sealer must be used prior to any type of finish decoration. For high gloss paint and severe lighting conditions, a thin skim coat of joint

One and two-hour rated systems, installed in a horizontal orientation. C-H, CT or I Studs are supported by J-Tracks that are attached to existing vertical wall framing members using 1” (25 mm) Type S screws spaced a maximum of 24” (600 mm) o.c. C-H, CT or I-Studs are attached at each end to the J-Track using two 1/2” (13 mm) No. 6 Type S-12 panhead screws.
Working with the Product

Product Specifications

<table>
<thead>
<tr>
<th>COMPONENT SPECIFICATIONS</th>
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<tbody>
<tr>
<td><strong>Type C</strong></td>
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<tr>
<td><strong>Standards</strong></td>
</tr>
<tr>
<td><strong>Thickness</strong></td>
</tr>
<tr>
<td><strong>Width/Size</strong>*</td>
</tr>
<tr>
<td><strong>Lengths</strong></td>
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<tr>
<td><strong>Approx. Weight</strong></td>
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<tr>
<td><strong>Edges</strong></td>
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</tbody>
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* 2'-1/2" = 64 mm
* 4" = 102 mm
* 6" = 152 mm
* 8' = 2440 mm
* 9' = 2740 mm
* 10' = 3050 mm
* 12' = 3660 mm

** 25 ga: .0188 = 0.478 mm
** 20 ga: .0346 = 0.879 mm
** 18 ga: .0400 = 1.02 mm

Handling and Storage

CertainTeed gypsum boards should be stacked flat on a smooth, level surface, not directly on the ground. When spacers are used, position them closely enough together to minimize warpage. Care should be taken to prevent damage to edges and corners. Always keep CertainTeed gypsum board dry prior to installation. CertainTeed assumes no responsibility for consequential damages that may result from the presence of standing water or where moisture is in direct contact with M2Tech Shaftwall System components.

Helpful Hints

1. Use a fastening plate to secure the J-Track whenever fasteners are closer than 4" (100 mm) to the edge. Setting the plate at the time of concrete construction will avoid spalling by mechanical fasteners.
2. Pre-cut C-H, CT or I studs 5/8" (16 mm) less than the height of the opening.
3. Pre-cut 1" (25.4 mm) M2Tech Shaftliner boards 1" (25 mm) less than the height of the opening.
4. In structural steel frame construction, install J-Track sections before applying spray-on fireproofing.
5. Items to be anchored to the wall (cabinets, sinks, handrails, etc.) should be fastened to the C-H, CT or I studs or to plates secured behind or between the layers of CertainTeed or M2Tech Type X or CertainTeed Type C.
6. Joint compounds should be applied at ambient temperatures above 50°F (10°C). Provide adequate ventilation to "drive-off" excess moisture.
7. For acoustic sealant and prevention of air leakage, use a bead of flexible caulking, such as Green Glue® Noiseproofing Sealant, at the perimeter of each wall under the face layer and under the 2'-1/2") (64 mm) flange of J-Track for shaftwall finished on one side to minimize whistling and dirt accumulation.
8. Use Type S screws for 25 ga steel framing. Use Type S-12 screws for 20 ga or heavier steel framing.

Limitations

• M2Tech® Shaftwall Systems are for non-loadbearing partitions only.
• CertainTeed gypsum board must not be used in areas that are continuously or repeatedly exposed to excessive moisture or dampness.
• M2Tech Shaftwall Systems shall not be exposed to sustained temperatures exceeding 125°F (52°C).
• CertainTeed gypsum board should not come in direct contact with concrete, masonry or other surfaces that have a high moisture content.
• M2Tech Shaftwall Systems are not designed to serve as an unlined air supply duct. Where gypsum board is used in air handling systems, the board temperature shall be maintained above the air stream dew point temperature but not higher than 125°F (52°C).
• Caulk to seal perimeters and penetrations to minimize air noises and dust associated with air movement.

Technical References

For additional information on application and finishing consult:

• ICC International Codes
• UL/cUL U417, U428, U429, U529, V433, W409, W437
• ULW C446
• ULER3660-02
• Gypsum Association Publications GA-214, GA-216, GA-600
• ASTMC475, C514, C645, C734, C840, C1002, C1047, C1396, D3273, E84, E119, G21
• CAN/CSA A82.31, CAN/CSA A82.27, CAN/ULC-S101, CAN/ULC-S102
• ICC ESR-1338
• NBCC

Surface Burning

<table>
<thead>
<tr>
<th><strong>ASTM E84 Flame Spread/Smoke Developed</strong></th>
<th><strong>CAN/ULC-S102 Flame Spread/Smoke Developed</strong></th>
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</thead>
<tbody>
<tr>
<td>CertainTeed or M2Tech Type C</td>
<td>0/5 Class A</td>
</tr>
<tr>
<td>CertainTeed or M2Tech Type X</td>
<td>0/5 Class A</td>
</tr>
<tr>
<td>M2Tech Shaftliner Type X</td>
<td>0/5 Class A</td>
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</table>

Handling and Storage

CertainTeed gypsum boards should be stacked flat on a smooth, level surface, not directly on the ground. When spacers are used, position them closely enough together to minimize warpage. Care should be taken to prevent damage to edges and corners. Always keep CertainTeed gypsum board dry prior to installation. CertainTeed assumes no responsibility for consequential damages that may result from the presence of standing water or where moisture is in direct contact with M2Tech Shaftwall System components.

Surface Burning

CertainTeed Gypsum certifies that the gypsum board products described herein meet or exceed listed ASTM standard specifications. All products are not available in all geographic areas. Consult local building codes for regulations in your area. For further information, consult a CertainTeed sales representative.
Vertical Systems
1, 2, and 3 hour Fire Resistance Rating

**FIRE RESISTANCE RATED SYSTEM DESIGNS FINISHED ONE SIDE**

**1 HR**

**VERTICAL SHAFTWALL SYSTEM**
FINISHED ONE SIDE

**FIRE TEST**
UL U417/ULC W446
GA FILE NO. WP 6850, WP 7008
WHI-651-0306.1 (Horizontal face layer)

**SOUND REPORT**
Intertek 3123470EEV
STC 42 with CertainTeed Sustainable Insulation® or equivalent

**THICKNESS**
3-1/8" [80mm]

**APPROX. WT.**
6.5 psf [32 kg/m²]

**2 HR**

**VERTICAL SHAFTWALL SYSTEM**
FINISHED ONE SIDE

**FIRE TEST**
UL U417/ULC W446
GA FILE NO. WP 7056, WP 7078, WP 7082, WP 7096

**SOUND REPORT**
Intertek 3123470EEV
STC 50 with CertainTeed or M2Tech Type X, resilient channel and CertainTeed Sustainable Insulation® or equivalent

**THICKNESS**
3-3/4" [95mm]

**APPROX. WT.**
9 psf [44 kg/m²]

**3 HR**

**VERTICAL SHAFTWALL SYSTEM**
FINISHED ONE SIDE

**FIRE TEST**
UL U417/ULC W446

**SOUND REPORT**
Intertek 3123470EEV
STC 50 with M2Tech Shaftliner Type X Gypsum Boars for Gypsum Shaftwall Systems • Call Toll Free 1-800-446-5284 • www.certainteed.com
**FIRE RESISTANCE RATED SYSTEM DESIGNS FINISHED BOTH SIDES**

1" [25.4 mm] M2Tech shaftliner gypsum boards are inserted between 2-1/2" [64 mm], 4" [102 mm] or 6" [152 mm] C-H, CT or I Studs. A single layer of 1/2" [12.7 mm] CertainTeed Type C or 5/8" [15.9 mm] CertainTeed or M2Tech Type X gypsum board is applied vertically on both sides, parallel to framing, with 1" [25 mm] Type S screws spaced 12" [300 mm] o.c. Joints are staggered or offset. Exposed joints and screwheads are to be finished with CertainTeed Finishing System unless otherwise specified. (Non-Loadbearing)

**2 HR VERTICAL SHAFTWALL SYSTEM**

**FIRE TEST**
UL U417/ULC W446
GA FILE NO. WP 7057, WP 7083, WP 7097

**SOUND REPORT**
Intertek 3123470EEV
STC 50 with resilient channel and CertainTeed Sustainable Insulation® or equivalent

**THICKNESS**
3-3/4" [95mm]

**APPROX. WT.**
9 psf [44 kg/m²]

**3 HR VERTICAL SHAFTWALL SYSTEM**

**FINISHED TWO SIDES**

**FIRE TEST**
UL U417/ULC W446

**SOUND REPORT**
NGC Testing 2006038
STC 52 with CertainTeed Sustainable Insulation® or equivalent

**THICKNESS**
4-3/8" [111mm]

**APPROX. WT.**
12 psf [59 kg/m²]

**SOUND CONTROL SYSTEM FINISHED ONE SIDE**

A two-hour rated finished-one-side construction, the base and face layers of 1/2" [12.7 mm] CertainTeed Type C or 5/8" [15.9 mm] CertainTeed or M2Tech Type X gypsum board are applied over 25 gauge resilient furring channels installed horizontally at 24" [610 mm] o.c. fastened with 3/8" [10 mm] Type S panhead screws. The cavity of the partition is filled with fiberglass or mineral fiber insulation. Caulking is applied under top and bottom tracks and around both face perimeters. Exposed joints are to be finished with CertainTeed Finishing System unless otherwise specified. (Non-Loadbearing)

**2 HR VERTICAL SHAFTWALL SYSTEM**

**SOUND CONTROL**

**FINISHED ONE SIDE**

**FIRE TEST**
UL U417/ULC W446

**SOUND REPORT**
RAL 437362 1976
STC 50 with CertainTeed Sustainable Insulation® or equivalent

**THICKNESS**
4-1/4" [108mm]

**APPROX. WT.**
9 psf [44 kg/m²]
**Vertical Assembly Details**

**SECTION DETAILS**

**OUTSIDE CORNER**
- Corner Bead
- J-Track with Panhead Screws
- Track to Track (L Corner Optional)
- 1" [25.4mm] M2Tech Shaftliner Type X
- C-H, Ct or I
- 3/4" [19mm] o.c. max.

**INSIDE AND OUTSIDE CORNER**
- Corner Side
- Shaft Side
- Joint Taped and Finished
- 1" [25.4mm] M2Tech Shaftliner Type X
- 1-1/2" [38mm] 2-1/4" [57mm]

**DETAILS - FINISHED ONE SIDE**

**TYPICAL START/END OF WALL**
- Flexible Caulk
- J-Track
- CertainTeed 1/2" [12.7mm] Type C or CertainTeed or M2Tech S/B [15.9mm] Type X

**ALTERNATE END OF WALL SECTION**
- Flexible Caulk
- J-Track
- CertainTeed 1/2" [12.7mm] Type C or CertainTeed or M2Tech S/B [15.9mm] Type X
Vertical Assembly Details

WALL INTERSECTION ON SHAFTLINER SIDE

SEPARATION WALL INTERSECTION ON FINISHED SIDE

DETAILS - FINISHED BOTH SIDES

ABUTMENT TO MASONRY

WALL INTERSECTION ON CAVITY SIDE

INSIDE AND OUTSIDE CORNER
**Additional Details**

### Shaftwall to Beam

- **Beam Fireproofing**
- **J-Track**
- **Panhead S-12 Screws**
  - 24" (600 mm) o.c.
- **Steel Plate**
  - 14 ga.
- **CertainTeed 1/2" [12.7 mm] Type C**
  or CertainTeed or M2Tech 5/8" [15.9 mm] Type X

### Shaftwall Offset From Beam

- **Spray on Fireproofing**
- **Fasteners**
  - 24" (600 mm) o.c.
- **Steel Plate**
  - 14 ga.
- **CertainTeed 1/2" [12.7 mm] Type C**
  or CertainTeed or M2Tech 5/8" [15.9 mm] Type X

### Shaftwall Offset From Deck

- **J-Track**
- **Panhead S-12 Screws**
  - 24" (600 mm) o.c.
- **Steel Plate**
  - 14 ga.
- **CertainTeed 1/2" [12.7 mm] Type C**
  or CertainTeed or M2Tech 5/8" [15.9 mm] Type X

### Corner Column Bypass

- **J-Track**
- **Column Fireproofing**
- **Certainteed 1/2" [12.7 mm] Type C**
  or CertainTeed or M2Tech 5/8" [15.9 mm] Type X

### Bypass of Large Columns

- **Set C-H, CT or I Studs Before Fireproofing Where Spacing Between J-Tracks Exceeds 24" (610 mm)**
- **Column Fireproofing**
- **Certainteed 1/2" [12.7 mm] Type C**
  or CertainTeed or M2Tech 5/8" [15.9 mm] Type X
**TOP AT BEAM AND FLOOR BYPASS**

- Spray on Fireproofing
- 1" [25.4 mm] M2Tech Shaftliner Type X
- CertainTeed 1/2" [12.7 mm] Type C or CertainTeed or M2Tech 5/8" [15.9 mm] Type X
- Cant Strip Screwed to Studs to Prevent Ledges Greater Than 2" (50 mm)
- J-Track Flexible Caulk
- 1" [25.4 mm] M2Tech Shaftliner Type X
- CertainTeed 1/2" [12.7 mm] Type C or CertainTeed or M2Tech 5/8" [15.9 mm] Type X

**SHAFT CANT**

- Flexible Caulk
- J-Track
- CertainTeed 1/2" [12.7 mm] Type C or CertainTeed or M2Tech 5/8" [15.9 mm] Type X
- 1" [25.4 mm] M2Tech Shaftliner Type X
- No.10 or Larger Screws
- Attach Through Face Layer Into Stud

**HAND RAIL ATTACHMENT DETAILS**

- 6"x6" (150 mm x 150 mm)
- 16 ga. Steel Plate
- Medium

- 8"x6" (200 mm x 150 mm)
- 16 ga. Steel Plate
- Heavy

- 16 ga. Steel Strip
- No. 10 or Larger Screws
- Light

- 20 ga. Steel Strip
- No. 10 or Larger Screws
- Additional Details
Accessory Details

SHAFTWALL ELEVATOR ELECTRICAL CONTROL LAYOUT

**Mail Chute**

- 1" [25.4 mm] M2Tech Shaftliner Type X
- 2-5/8" (67 mm) Type S Screws
- 1-5/8" (41 mm) Type S Screws

**Chase Wall**

- 1" [25.4 mm] M2Tech Shaftliner Type X
- 2-1/2" (64 mm) Steel Studs

**SHAFTWALL FIREMAN SWITCH AND ANNUNCIATOR PANEL**

- 1" [25.4 mm] M2Tech Shaftliner Type X
- 25 ga. x 3' (75 mm) x 14" (350 mm) Sheet Steel

**SHAFTWALL CALL BOX**

- 1" [25.4 mm] M2Tech Shaftliner Type X
- 25 ga. x 3' (75 mm) x 28" (700 mm) Sheet Steel

**NOTE:** Stud Size Varies According to Application

M2Tech Shaftliner Type X Gypsum Boards for Gypsum Shaftwall Systems • Call Toll Free 1-800-446-5284 • www.certainteed.com
Openings and Elevator Details

ILLUSTRATED WITH 2 HR. RATED ASSEMBLY

NOTE:
Clearance openings and attachments
details should be as per fire damper
manufacturer’s installation requirements.
Elevator Door Frames 7’

**ONE HOUR DETAILS**

**ELEVATOR DOOR FRAMING**

- **ELEVATOR DOOR HEAD**
  - 25 ga. 2-1/4” [57mm] Leg J-Track
  - 20 ga. 3” [75 mm] Leg J-Track
  - 1” [25.4 mm] M2Tech Shaftliner Type X
  - C-H, CT or I Stud

**J-TRACK FRAMING ABOVE DOOR**

- **ELEVATOR DOOR JAMB**
  - 25 ga. 2-1/4” [57mm] Leg J-Track
  - 20 ga. 3” [75 mm] Leg J-Track
  - 1” [25.4 mm] M2Tech Shaftliner Type X
  - C-H, CT or I Stud

**Section A-A**

- CertainTeed 1/2” [12.7mm] Type C or CertainTeed or M2Tech 5/8” [15.9mm] Type X

**Section B-B**

- 20ga. 3” [75 mm] Leg J-Track

**Section C-C**

- 25 ga. 2-1/4” [57mm] Leg J-Track

- M2Tech Shaftliner Type X with M2Tech™

- CertainTeed 1/2” [12.7mm] Type C or CertainTeed or M2Tech 5/8” [15.9mm] Type X

- Jamb Anchor Clip

- C-H, CT or I Stud

- 1” [25.4 mm] M2Tech Shaftliner Type X

C-H, CT or I Stud

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Elevator Door Frames Over 7’

TWO HOUR DETAILS

ELEVATOR DOOR FRAMING

ELEVATOR DOOR JAMB

ELEVATOR DOOR HEAD

J-TRACK FRAMING ABOVE ELEVATOR DOOR
**FIRE RESISTANCE RATED SYSTEM DESIGNS**

### 1 HR

**HORIZONTAL CEILING SYSTEM**

**FIRE TEST**
ITS (WHI) CTG/CC 60-01

**THICKNESS**
3-1/8' [80mm]

**APPROX. WT.**
6-1/2 psf [31 kg/m²]

1' [25.4 mm] M2Tech® Shaftliner gypsum boards are inserted between 2-1/2" [64 mm], 4' [102 mm] or 6' [152 mm] C-H, CT or I Studs. A single layer of 5/8" [15.9 mm] CertainTeed® or M2Tech Type X gypsum board is applied at right angles to the C-H, CT or I Studs, with 1" [25mm] Type S screws spaced 12" [300mm] o.c. (Non-Loadbearing)

*Diagrams shown with 2-1/2" [64 mm] stud configurations. System thickness varies according to stud size application.*

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### 2 HR

**HORIZONTAL CEILING SYSTEM**

**FIRE TEST**
ITS (WHI) CTG/CC 120-01

**THICKNESS**
3-1/2' [89mm]

**APPROX. WT.**
9 psf [39 kg/m²]

1' [25.4 mm] M2Tech Shaftliner gypsum boards are inserted between 2-1/2" [64 mm], 4' [102 mm] or 6' [152 mm] C-H, CT or I Studs. Two layers of 1/2" [12.7 mm] CertainTeed Type C gypsum board are installed on the open stud face with the first layer installed at right angles to the C-H, CT or I Studs with 1" [25mm] Type S screws spaced at 12" [300mm] o.c., and the second layer installed parallel to the I or C-H, CT or I Studs with 1-1/2" [38 mm] Type S screws at 24" [600mm] o.c. (Non-Loadbearing)
Horizontal Systems
2 Hour for Corridors, Ducts, Enclosures, etc.

FIRE RESISTANCE RATED SYSTEM DESIGNS

1" [25.4 mm] M2Tech Shaftliner Type X

C-H, CT or I Stud
24" (610 mm) o.c. max.

1" (25 mm) Screws
12" (300 mm) o.c.

1-5/8" [41 mm] Screws
12" (300 mm) o.c.

2" (51 mm) Screws
12" (300 mm) o.c.

Flexible Caulk

Trim Piece

1/2" [12.7 mm] CertainTeed Type C
Applied Parallel to Studs

2" (51 mm) Screws
12" (300 mm) o.c.

C-H, CT or I Stud
24" (610 mm) o.c. max.

1-1/2" [38 mm] Type G Screws
8" (200 mm) o.c.

1-5/8" [41 mm] Screws
12" (300 mm) o.c.

Horizontal Applications
(e.g. Corridors, Duct Enclosures, Etc.)

Spans of horizontal members (ceilings over corridors or stairways) should not exceed spans specified by stud manufacturer.

Horizontal Duct Enclosure

FIRE TEST
ITS (WHi) CTG/CC 120-03
THICKNESS
4" (102 mm)
APPROX. WT.
11 psf (54 kg/m²)

2 HR HORIZONTAL MEMBRANE FOR DUCT ENCLOSURE
M2Tech Shaftliner Type X Gypsum Boards for Gypsum Shaftwall Systems • Call Toll Free 1-800-446-5284 • www.certainteed.com

PART 1–GENERAL
1. PROJECT DESCRIPTION
Non-load bearing one, two or three hour fire resistance rated shaftwall systems, staircase enclosures, or other mechanical enclosures.

1.2 QUALIFICATIONS
All gypsum materials used in the described system installations shall be manufactured by CertainTeed and carry the CertainTeed or M2Tech® brand identity. CertainTeed or its representative will provide verification that the products applicable to the described performance specification meet the applicable ASTM standards for performance described herein. Additional framing materials including J-Track, C-H, CT or I Studs and fasteners must be supplied and installed in accordance with printed installation instructions as instructed by the manufacturer and required by the testing agencies.

1.3 SUBMITTALS
Submit system descriptions and construction guide brochures for each assembly indicating component materials, fasteners, finishes, dimensions and related information showing compliance with stated construction guidelines.

1.4 DELIVERY, STORAGE, HANDLING
CertainTeed gypsum boards are delivered in original, unopened containers or wrapped and stacked flat on a smooth, level surface, but not stored directly on concrete floors. When stacks are used, they are positioned closely enough together to minimize warpage. Care is taken to prevent damage to edges and corners. Always keep CertainTeed gypsum boards dry prior to installation. Do not use shipping bags for outdoor storage of material.

1.5 INSTALLATION ENVIRONMENT
CertainTeed gypsum board must not be used in areas that are continuously or repeatedly exposed to excessive moisture or temperatures above 125°F (52°C). No treatment of joints shall be done until the interior temperature has been maintained at a minimum of 50°F (10°C) for at least 48 hours prior to application of joint treatment materials. Adequate continuous ventilation must also be provided during the finishing of joints. Joints, corners and fastener heads shall be finished in accordance with ASTM C840, the OA-216, the Fire Resistance Design Manual GA-600, CAN/CSA-A123.31 and CertainTeed Joint Compound manufacturer’s instructions. Joint Compound shall comply with ASTM C475. No finishing is required on the shaft side of partitions.

For further technical information regarding sound control and fire resistance refer to the following reports:

UL/ULC U417, U429, U429S, U429T, U434, W409, W437 U162, UL3095, UL60951, UL 702, C704/A and CTG/CC.

Gypsum Association Fire Resistance Design Manual GA-600 (GA WP 6690, WP 7056, WP 7057, WP 7078, WP 7082, WP 7083, WP 7096, WP 7097, WP 7254, WP 7255)

PART 2–PRODUCTS
2.1 MATERIALS
A. Steel Framing
Studs complying with the requirements for ASTM A653 SS Grade 33.

A-1. Stud Form
Studs can be in the form of C-H, CT or I Studs with J-Tracks.

A-2. Stud Width
Galvanized C-H, CT or I Studs are available in depths of 2-1/2, 4, and 6” (64 mm, 102 mm, 152 mm).

A-3. Stud Thickness
Studs are manufactured from steel having minimum design steel thicknesses of 0.0186” and 0.0346” (0.478 mm and 0.879 mm).

A-4. Stud Coating
Studs have a a G40 or G60 galvanized coating.

B. Fasteners
1-5/8” (41 mm) long No. 6 Type S screws, 1” (25 mm) long No. 6 Type S 1-1/4” (32 mm) Type S panhead screws.

C. CertainTeed Gypsum Board
C-1. M2Tech Shaftliner Type X 1” (25.4 mm) thick C-2. CertainTeed Type C 1/2” (12.7 mm) thick C-3. CertainTeed or M2Tech Type X 5/8” (15.9 mm) thick C-4. CertainTeed Type C 5/8” (15.9 mm) thick

D. Joint Finishing
D-1. CertainTeed Brand Joint Compound D-2. CertainTeed Brand Joint Tape D-3. CertainTeed Texture and Mold Resistant Setting Compound D-4. FibaTape® Mold X-10 Mold Resistant Drywall Tape E. Acoustical Sealant such as Green Glue® Noiseproofing Sealant or equivalent F. CertainTeed Sustainable Insulation® or equivalent insulation G. Resilient Channels

3. INSTALLATION BRIEFS
3.1 CONSTRUCTION BRIEFS
General
Construction consists of steel studs and tracks faced on one side with M2Tech Shaftliner and on the opposite side with one, two, or three (depending on the application specification) layers of either CertainTeed 1/2” (12.7 mm) Type C, CertainTeed or M2Tech 5/8” (15.9 mm) Type X or CertainTeed 5/8” (15.9 mm) Type C gypsum board. The following steps pertain to one, two and three hour fire rated installation with one finished side:

1. Plan and layout metal framing components to ensure that all wall sections are plum and properly aligned.
2. Install J-Track along the ceiling line and vertically at columns and abutting partitions, positioning the long legs closest to the shaft. Secure each piece with the appropriate power driven fasteners spaced a maximum of 24” (600 mm) o.c.
3. Attach J-Track to the floor with fasteners spaced at 24” (600 mm) o.c.
4. Install M2Tech Shaftliner gypsum boards vertically. The leading edge of the first panel must be attached to the long leg of the vertical J-Track with 1-5/8” (41 mm) Type S screws spaced 12” (305 mm) o.c. or by using the tabs in the J-Track. Secure the top and bottom edges using the same fasteners and spacing, filling the stud cavity with CertainTeed Sustainable Insulation® or equivalent insulation.
5. Friction fit an O-H, C-H or I Stud into the top and bottom tracks and slide it snugly against the M2Tech Shaftliner gypsum board. Make sure the edge of the board is in full contact with the center web of stud and covered by all of the tabs.
6. Place the next M2Tech Shaftliner gypsum board between the tabs and flange on the opposite side of the C-H, CT or I Stud with no screw attachments required.
7. Install subsequent M2Tech Shaftliner gypsum boards and C-H, CT or I Studs in the same manner. Check periodically to ensure they are plum.
8. For walls exceeding 12’ (3600 mm) in height, M2Tech Shaftliner gypsum board end joints should fall alternately in the upper and lower 1/3 of the partition. Joints may be butted together or use an O-H, C-H or CT Stud placed horizontally between boards to secure each joint.

9. Frame all cut openings in the shaft side with J-Track, providing adequate structural support for openings over 48” (1220 mm).

10. Elevator door frames should be tied to shaftwall enclosures, however, must remain independently supported by the building frame.

Installation of Finished Side
1. Apply a single layer of CertainTeed or M2Tech 5/8” (15.9 mm) Type X or CertainTeed 1/2” (12.7 mm) Type C gypsum board with 1” (25 mm) Type S screws for one hour rated applications. Apply a second layer with 1-5/8” (41 mm) Type S screws for two hour rated applications, and a third layer with 2-1/4” (57 mm) Type S screws for three hour rated applications. Alternate layers between horizontal and vertical attachment so that outside layer is installed vertically.

2. Holding the gypsum board firmly against the framing, begin fastening in the center of each sheet and move outward to ends and edges.

3. Set fastener heads slightly below the surface without breaking the face paper or damaging the gypsum core.

4. Install sheets in a brick pattern with all ends supported by framing members.

For finishing both sides, apply a single layer of CertainTeed or M2Tech 5/8” (15.9 mm) Type X or CertainTeed 1/2” (12.7 mm) Type C vertically to each side of O-H, CT or I studs with 1” (25 mm) Type S screws. For sound rated partitions follow instructions that include filling the stud cavity with CertainTeed Sustainable Insulation® or equivalent insulation and installation of finish side board onto 25 gauge resilient furring channels.
Benefits of M2Tech® Shaftliner Type X for Shaftwall Systems

- Resists mold growth per ASTM D3273 and ASTM G21
- Economical and efficient installation
- One sided construction of Shaftwalls eliminates the need for extensive scaffolding
- Scores and snaps easily with no special handling required
- UL Classified and ULC Listed for Fire Resistance and Surface Burning Characteristics
- Rapid ease of installation reduces overall construction time and provides a cost effective system
- Lightweight construction
- Shaftwall System ratings up to three hours

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CertainTeed Corporation has helped shape the building products industry for more than 100 years. Founded in 1904 as General Roofing Company, the firm made its slogan “Quality Made Certain, Satisfaction Guaranteed,” which quickly inspired the name CertainTeed.

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