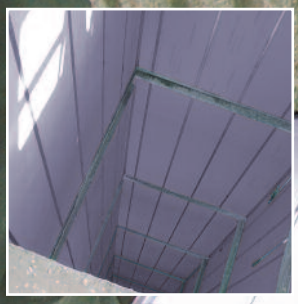
CertainTeed

M2TECH®

MOISTURE&MOLD RESISTANT

Shaftliner Type X for Gypsum Shaftwall Systems

CertainTeed
SAINT-GOBAIN



M2TECH® MOISTURE & MOLD RESISTANT

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 D 3273 and 0 for ASTM G 21
- 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.

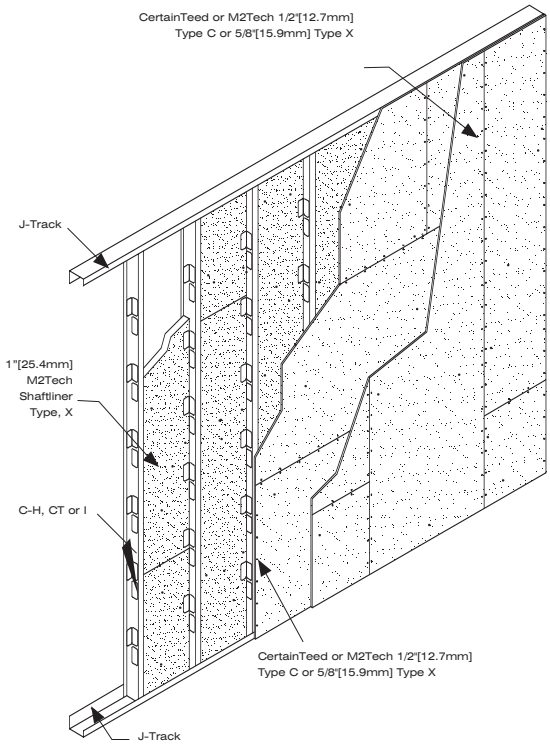
M2Tech Shaftwall Systems provide one, two or three hour fire resistance ratings in non-loadbearing

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® or M2Tech Type C or 5/8" (15.9 mm) CertainTeed or M2Tech Type X and 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.



2-Hour Vertical Shaftwall System

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 or M2Tech Type C , 5/8" (15.9 mm) CertainTeed or M2Tech Type X or 5/8" (15.9 mm) CertainTeed or M2Tech Type C gypsum boards shall be taped and finished with joint compound as described in "Surface Preparation" section.

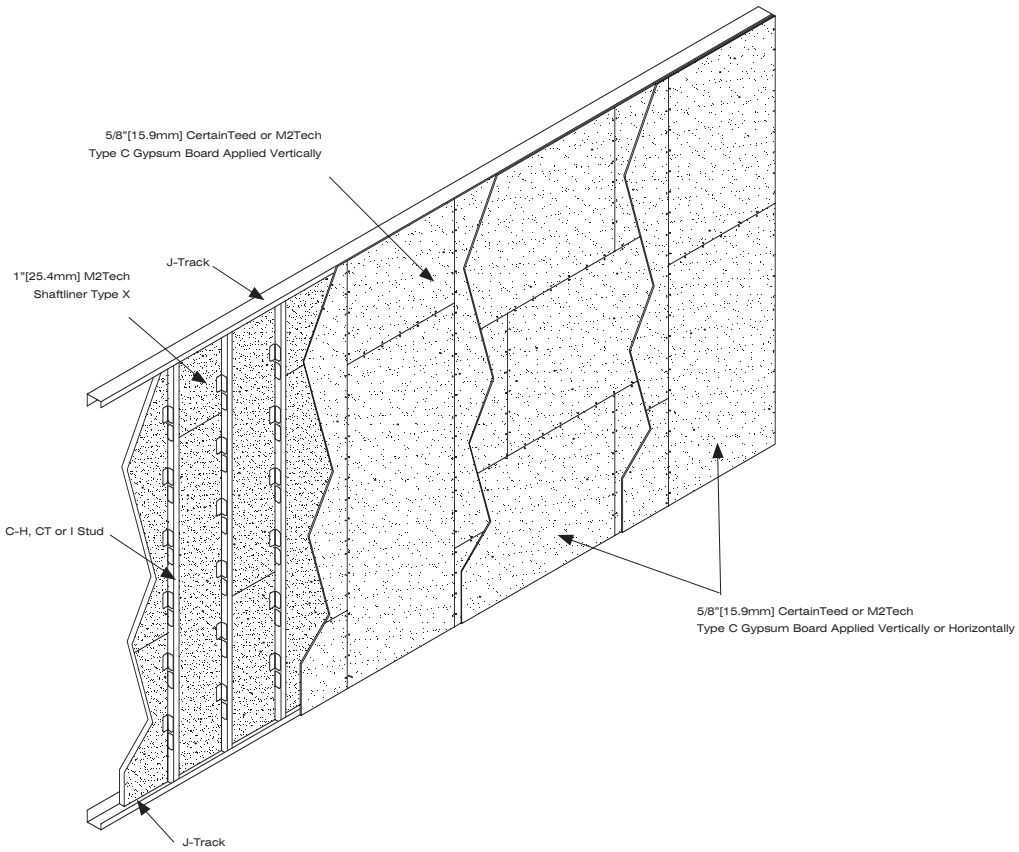
Code Report References
ICC-ES ER-4924

Fire Resistance Rated Designs
UL U417
ULC W446
ITS CTG/WA and CTG/CC Designs
Gypsum Association Fire Resistance Design Manual –GA-600 (GA WP 6850, WP 7056, WP 7057, 7078, WP 7082, WP 7083, WP 7096, WP 7097, WP 7098, WP 7099)

For further technical information regarding sound control and fire resistance for CertainTeed Shaftwall Systems contact Marketing Technical Services at 1-800-233-8990.

Working with the Product

FRAMING AND INSTALLATION



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 Shaftliner 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 Shaftliner 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 24" (600 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 bottoms tracks and slide it snugly against the M2Tech Shaftliner 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 Shaftliner 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 Shaftliner 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, and as required in some building code jurisdictions, butt joints in M2Tech Shaftliner 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

Shaftliner 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-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 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.
2. Apply a face layer of 1/2" (12.7 mm) CertainTeed or M2Tech 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.
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 Shaftliner gypsum board within stud configuration, followed by attachment of 5/8" (15.9 mm) CertainTeed or M2Tech 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 or M2Tech 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 or M2Tech 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 Shaftliner gypsum board, followed by the attachment of 1/2" (12.7 mm) CertainTeed or M2Tech 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 Shaftliner gypsum board, followed by the attachment of 5/8" (15.9 mm) CertainTeed or M2Tech 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 on the double layer side 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 or M2Tech 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) fiberglass or mineral fiber insulation.
2. Install resilient furring channels, 1/2" (12.7 mm) deep minimum No. 25 gauge/0.0188" (0.478 mm) thick, on the face side horizontally to C-H, CT or I Studs at 24" (610 mm) o.c.
3. Secure channels to each stud with 3/8" (10 mm) Type S panhead screws.
4. Apply a double layer of 1/2" (12.7 mm) CertainTeed or M2Tech Type C or 5/8" (15.9 mm) CertainTeed or M2Tech Type X gypsum board. Attach the base layer to the channels using 1" (25 mm) Type S buglehead drywall screws spaced 24" (600 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.
5. Apply caulk under the top and bottom tracks and around the exterior face perimeters of each layer of 1/2" (12.7 mm) CertainTeed or M2Tech Type C or 5/8" (15.9 mm) CertainTeed or M2Tech Type X gypsum board.

1 and 2-Hour-Rated Systems:
Corridor, Ceiling or Stair Soffits

Partition systems that provide fire-resistive protection on corridor ceilings or on the underside of stairs are constructed using C-H, CT or I Stud framing as described in preceding sections for 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.

2-Hour-Rated System:
Horizontal Membrane and Duct Protection

1. Install the J-Track and C-H, CT or I stud system for two hour construction as described in preceding sections in horizontal orientations using 3 layers of 1/2" (12.7 mm) CertainTeed or M2Tech Type C gypsum board. The first layer is installed perpendicular to the C-H, CT or I studs with 1" (25 mm) No. 6 Type S screws at 24" (600 mm) o.c. Second layer is installed parallel to the C-H, CT or I studs with 1-5/8" (41 mm) No. 6 Type S screws at 12" (300 mm) o.c.
2. Face layer is perpendicular to the C-H, CT or I studs with joints off-set from previous layer by 24" (610 mm).
3. 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 C 840, 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 C 475.

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 or M2Tech Type C or 5/8" (15.9 mm) CertainTeed or M2Tech Type X or Type C gypsum board can be finished with paint, texture or wallpaper. High quality primer/sealer must be used prior to any type of

Working with the Product

final decoration. For high gloss paint and severe lighting conditions, a thin skim coat of joint compound or CertainTeed® Level V Wall/Ceiling Primer Surfacer, should be applied across the entire surface (Level 5 Finish). This will help minimize the irregularities and porosity differences between the materials. Refer to GA-214, GA-216, and ASTM C 840 for additional finishing instructions. Finishing is not required on shaft side of wall system.

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.

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 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.

Product Specifications

COMPONENT SPECIFICATIONS

	Type C	Type C	Type X	Shaftliner	Steel Framing		
Standards	ASTM C 1396 / CAN/CSA-A82.27				C 645	C 645	C 645
Thickness	1/2" (12.7 mm)	5/8" (15.9 mm)	5/8" (15.9 mm)	1" (25.4 mm)	25 ga**	20 ga**	18 ga**
Width/Size*	4' (1220 mm)	4' (1220 mm)	4' (1220 mm)	2' (610 mm)	2-1/2", 4"	2-1/2", 4", 6"	6"
Lengths*	8', 9', 10', 12'	8', 12'	8', 9', 10', 12'	8', 10', 12'			
Approx. Weight	1.9 psf (9.3 kg/m²)	2.3 psf (11.2 kg/m²)	2.3 psf (11.2 kg/m²)	4.0 psf (18 kg/m²)			
Edges	Tapered	Tapered	Tapered	Double Beveled			

* 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: 0.0346 = 0.879 mm
18 ga: .0400 = 1.02 mm

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.

SURFACE BURNING

	CertainTeed or M2Tech Type C	CertainTeed or M2Tech Type X	M2Tech Shaftliner Type X
ASTM E 84 Flame Spread/Smoke Developed	0/5 Class A	0/5 Class A	0/5 Class A
CAN/ULC-S102 Flame Spread/Smoke Developed	5/5	5/5	5/5

Technical References

For additional information on application and finishing consult:

- ICC International Codes
- UL U417, ULC W446
- Gypsum Association Publications GA-214, GA-216, and GA-600
- ASTM C 475, C 514, C 645, C 734, C 840, C 1002, C 1047, C 1396, D 3273, E 84, E 119, G 21
- CAN/CSA A82.31, CAN/CSA A82.27, CAN/ULC-S101, CAN/ULC-S102
- ICC-ES ER-4924
- ICC ESR-1338
- NBCC

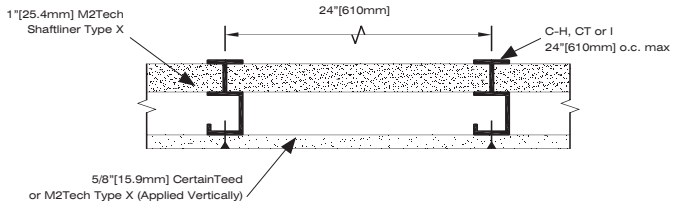
Handling and Storage

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.

Vertical Systems

1, 2, and 3 hour Fire Resistance Rating

FIRE RESISTANCE RATED SYSTEM DESIGNS FINISHED ONE SIDE



1"[25.4mm] M2Tech® Shaftliner gypsum boards are inserted between 2-1/2"[64mm], 4"[102mm] or 6"[152mm] C-H, CT or I Studs. A single layer of 5/8"[15.9mm] CertainTeed® or M2Tech Type X gypsum board is applied vertically or horizontally, on open stud-face side with 1"[25 mm] Type S screws spaced 12"[300 mm] on center at all locations except the vertical board joint joint in horizontal applications where the screws should be 8" (200mm) on center. Exposed joints and screwheads are to be finished with CertainTeed Finishing System unless otherwise specified. (Non-Loadbearing)

1 HR

VERTICAL SHAFTWALL SYSTEM

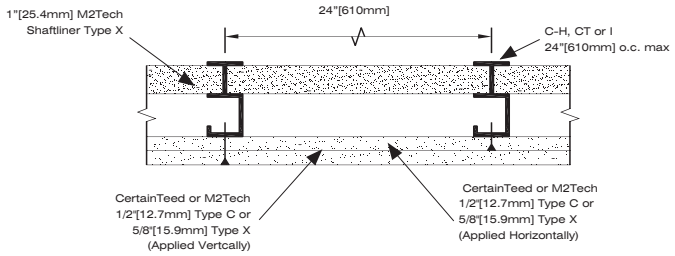
FINISHED ONE SIDE

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
insulation or equivalent

THICKNESS
3-1/8" [80mm]

APPROX. WT.
6.5 psf [32 kg/m^2]



1"[25.4mm] 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 or M2Tech Type C or 5/8"[15.9 mm] CertainTeed or M2Tech Type X gypsum board are applied to one side, with the base layer applied vertically or horizontally to the open-stud-face of framing studs with 1"[25 mm] Type S buglehead screws spaced 24" [600 mm] o.c. The second layer is placed vertically or horizontally (opposite of base layer) over the base layer and fastened using 1-5/8"[41 mm] No. 6 Type S screws spaced 12"[300 mm] on center. Exposed joints and screwheads are to be finished with CertainTeed Finishing system, or equivalent, unless otherwise specified. (Non-Loadbearing)

2 HR

VERTICAL SHAFTWALL SYSTEM

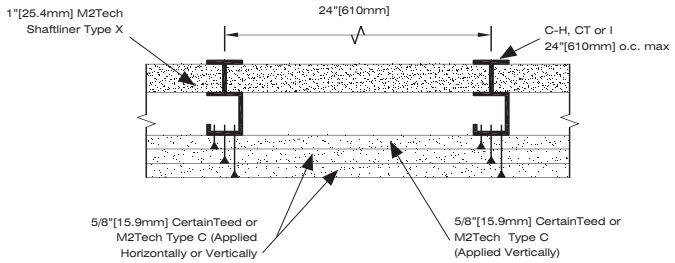
FINISHED ONE SIDE

FIRE TEST
UL U417/ULC W446
GA FILE NO. WP 7056.WP 7078,
WP 7082, WP 7096, WP 7098

SOUND REPORT
Intertek 3123470EEV STC 50
with 5/8" (15.9 mm) CertainTeed
or M2Tech Type X, resilient
channel and CertainTeed
insulation or equivalent

THICKNESS
3-3/4" [95mm]

APPROX. WT.
9 psf [44 kg/m^2]



1"[25.4mm] M2Tech Shaftliner gypsum boards are inserted between 2-1/2"[64mm], 4"[102mm] or 6"[152mm] C-H, CT or I Studs. Three layers of 5/8"[15.9mm] CertainTeed or M2Tech Type C gypsum board are installed on the open stud-face with the base layer installed vertically with 1"[25 mm] Type S screws spaced 24"[600 mm] o.c. Remaining layers applied horizontally or vertically, middle layer with 1-5/8"[41 mm] and face with 2-1/4"[57 mm] Type S screws. Screws offset 6"[150 mm] from layer below. When board is applied horizontally, 1-1/2"[38 mm] Type G screws to be installed at the center of each stud cavity, 1-1/2"[38 mm] from both sides of the horizontal joint. Exposed joints and screwheads are to be finished with CertainTeed Finishing System unless otherwise specified. (Non-Loadbearing)

3 HR

VERTICAL
SHAFTWALL SYSTEM

FINISHED ONE SIDE

FIRE TEST
UL U417/ULC W446

SOUND REPORT
Intertek 3123470EEV
STC 50 with resilient channel
and CertainTeed
insulation or equivalent

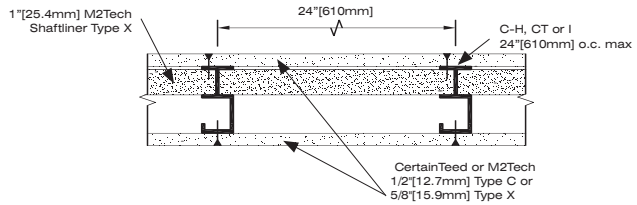
THICKNESS
4-3/8" [111mm]

APPROX. WT.
12 psf [59 kg/m^2]

Vertical Systems

1, 2, and 3 hour Fire Resistance Rating

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® or M2Tech 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

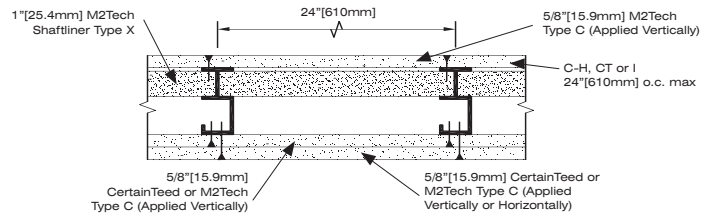
FINISHED BOTH SIDES

FIRE TEST
UL U417/ULC W446
GA FILE NO. WP 7057,
WP 7083, WP 7097, WP 7099

SOUND REPORT
Intertek 3123470EEV
STC 50 with resilient channel
and CertainTeed
insulation or equivalent

THICKNESS
3-3/4" [95mm]

APPROX. WT.
9 psf [44 kg/m^2]



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 C gypsum board is installed on top of M2Tech Shaftliner. Two layers of 5/8"[15.9 mm] CertainTeed or M2Tech Type C gypsum board are installed on the open stud-face. Base layer is installed vertically with 1"[25 mm] Type S screws spaced 24"[600 mm] o.c. Face layer is applied horizontally or vertically with 1-5/8"[41mm] Type S screws. Screws offset 6" [150 mm] from layer below. When board is applied horizontally, 1-1/2" [38 mm] Type G screws to be installed at the center of each stud cavity, 1-1/2"[38 mm] from both sides of the horizontal joint. Exposed joints and screwheads are to be finished with CertainTeed Finishing System unless otherwise specified. (Non-Loadbearing)

3 HR

VERTICAL
SHAFTWALL SYSTEM

FINISHED TWO SIDES

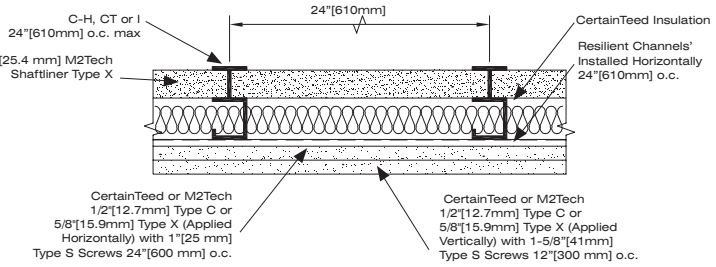
FIRE TEST
UL U417/ULC W446

SOUND REPORT
NGC Testing 2006038
STC 52 with CertainTeed
insulation or equivalent

THICKNESS
4-3/8" [111mm]

APPROX. WT.
12 psf [59 kg/m^2]

SOUND CONTROL SYSTEM FINISHED ONE SIDE



A two-hour rated finished-one-side construction, the base and face layers of 1/2"[12.7mm] CertainTeed or M2Tech Type C or 5/8"[15.9mm] CertainTeed or M2Tech Type X gypsum board are applied over 25 gauge resilient furring channels installed horizontally at 24"[610mm] o.c. fastened with 3/8"[10mm] 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

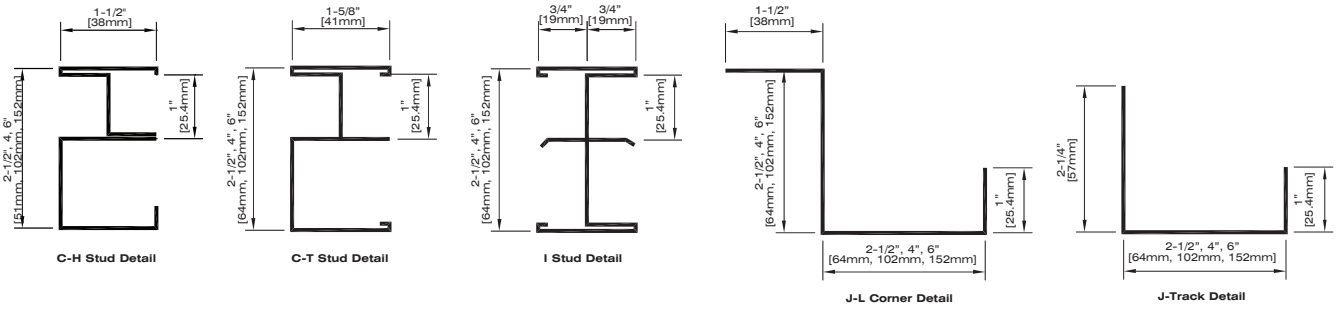
SOUND REPORT
RAL 437362 1976
STC 50 with CertainTeed
insulation or equivalent

THICKNESS
4-1/4" [108mm]

APPROX. WT.
9 psf [44 kg/m^2]

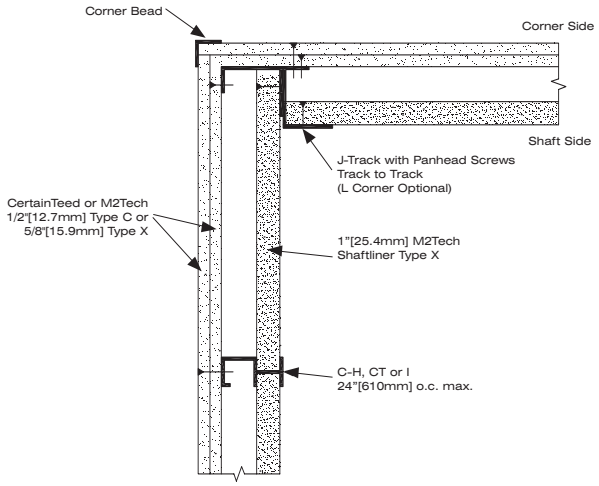
Vertical Assembly Details

SECTION DETAILS

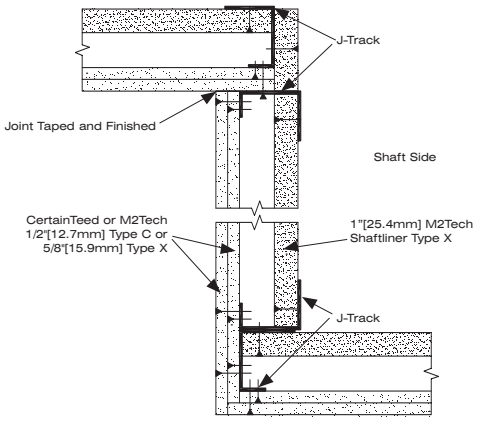


DETAILS - FINISHED ONE SIDE

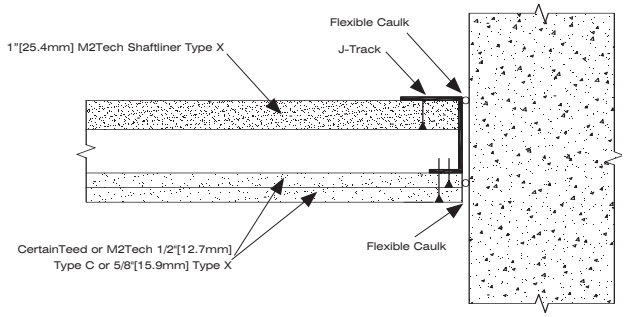
OUTSIDE CORNER



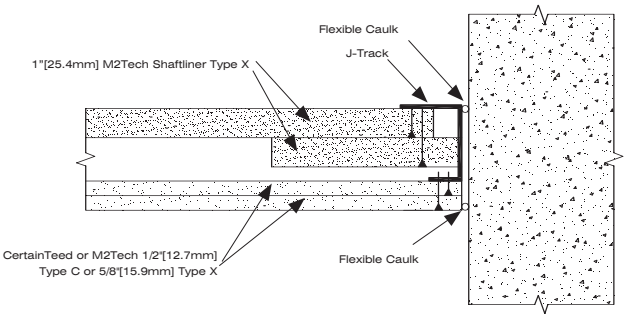
INSIDE AND OUTSIDE CORNER



TYPICAL START/END OF WALL

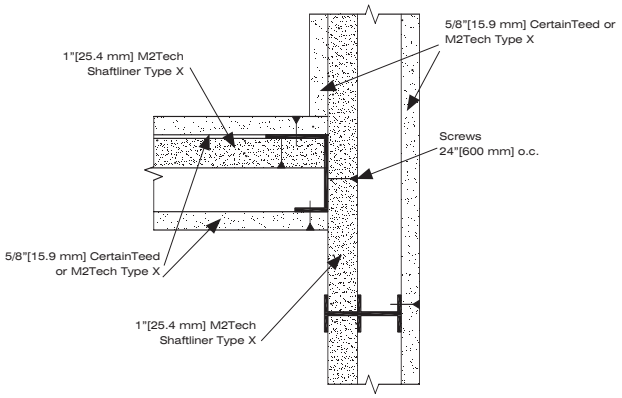


ALTERNATE END OF WALL SECTION

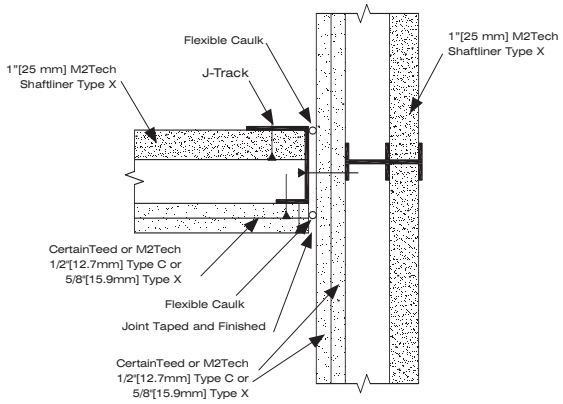


Vertical Assembly Details

WALL INTERSECTION ON SHAFTLINER SIDE

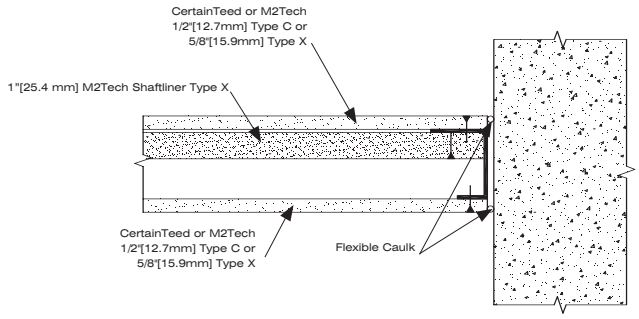


SEPARATION WALL INTERSECTION ON FINISHED SIDE

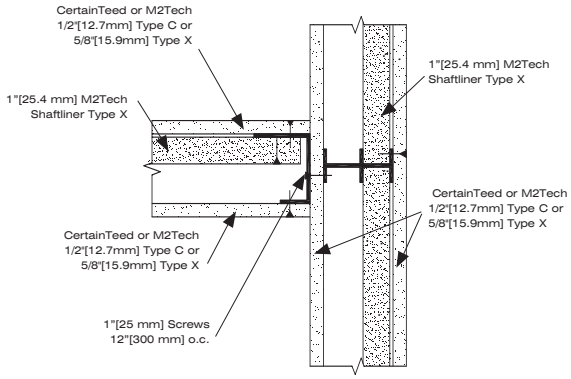


DETAILS - FINISHED BOTH SIDES

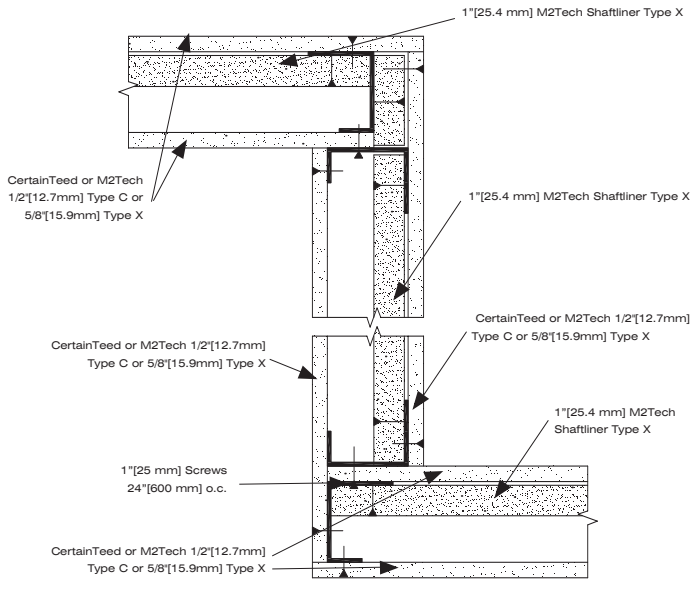
ABUTMENT TO MASONRY



WALL INTERSECTION ON CAVITY SIDE

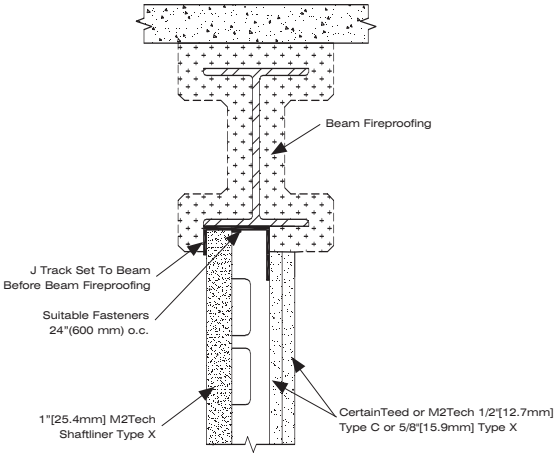


INSIDE AND OUTSIDE CORNER

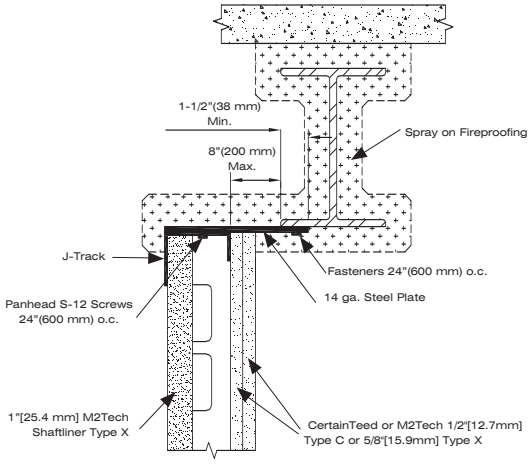


Additional Details

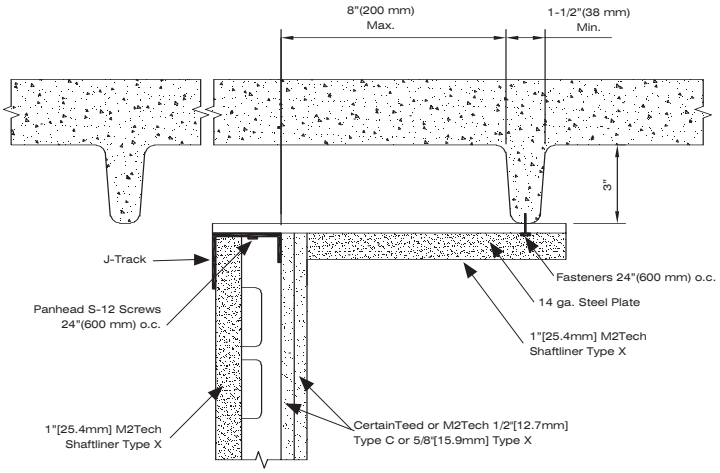
SHAFTWALL TO BEAM



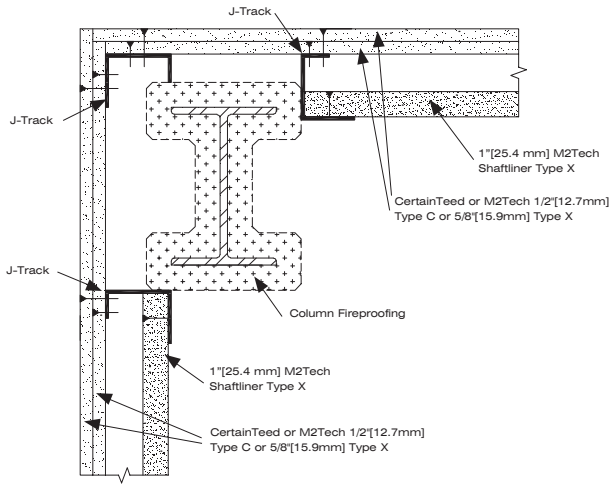
SHAFTWALL OFFSET FROM BEAM



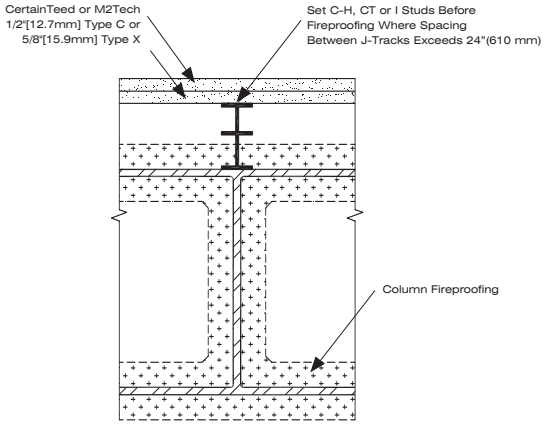
SHAFTWALL OFFSET FROM DECK



CORNER COLUMN BYPASS

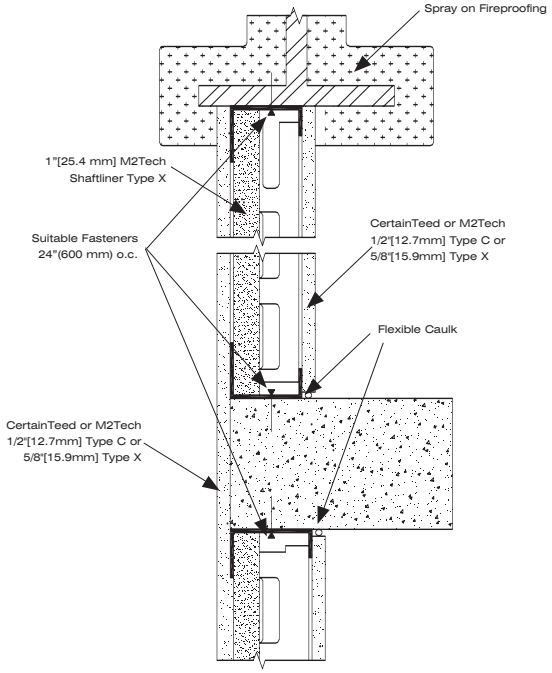


BYPASS OF LARGE COLUMNS

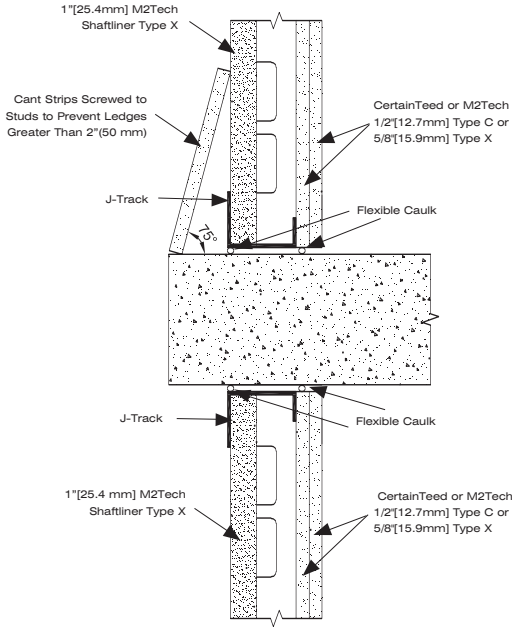


Additional Details

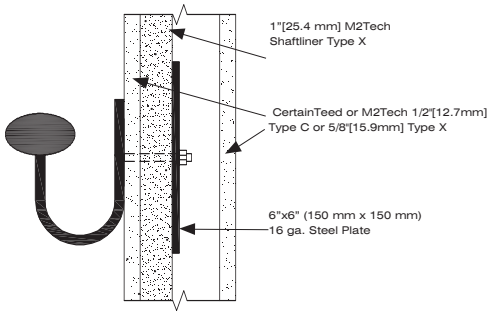
TOP AT BEAM AND FLOOR BYPASS



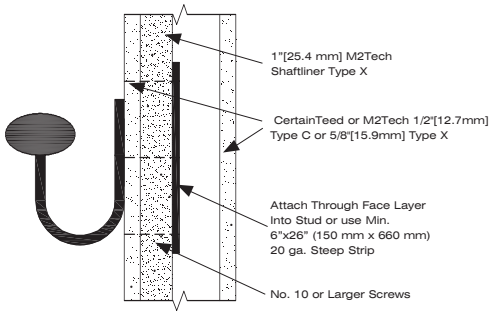
SHAFT CANT



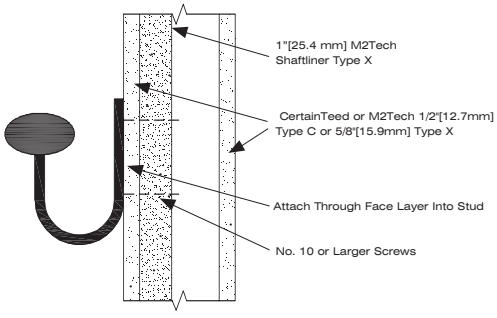
HAND RAIL ATTACHMENT DETAILS



Heavy



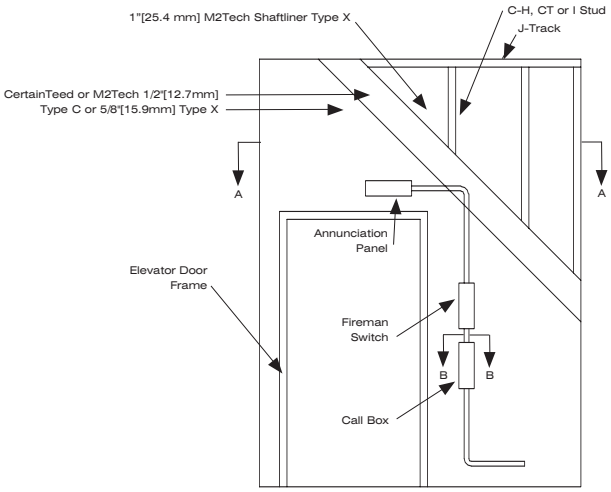
Medium

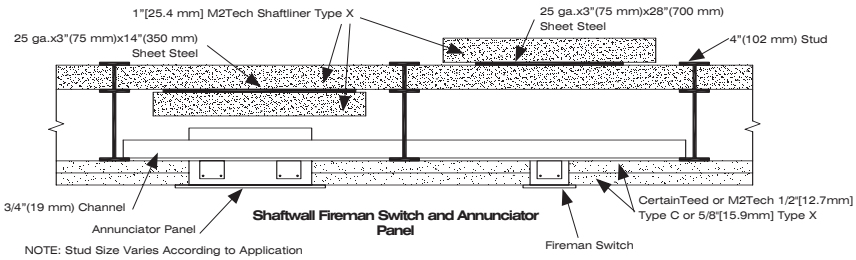


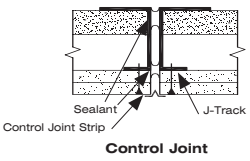
Light

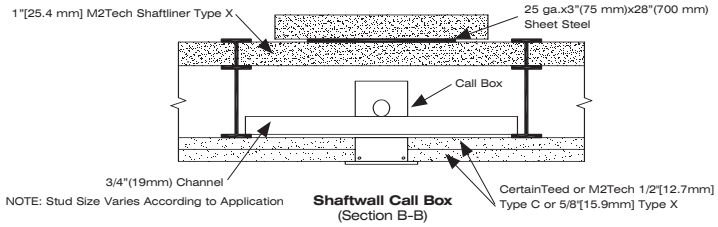
Accessory Details

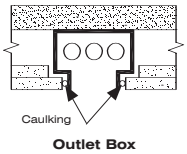
SHAFTWALL ELEVATOR ELECTRICAL CONTROL LAYOUT



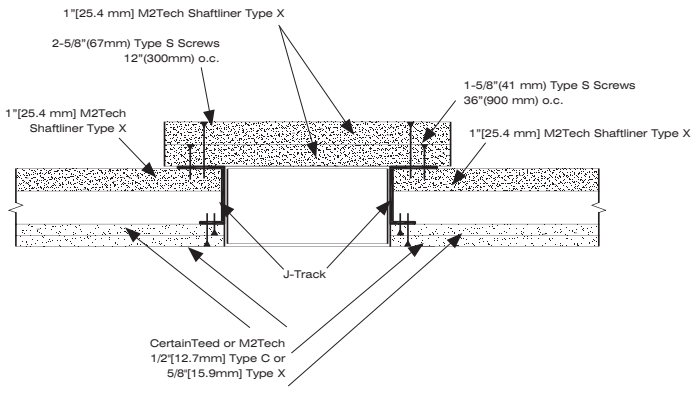




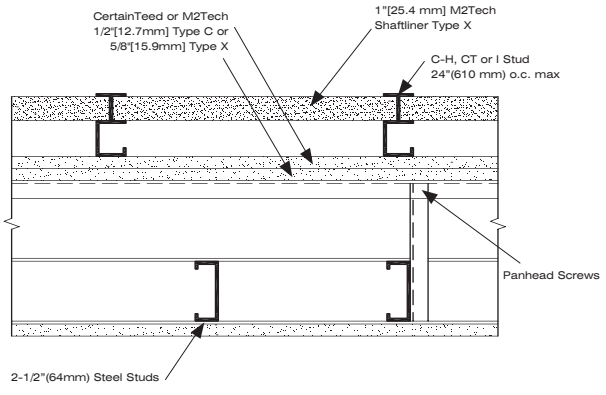




MAIL CHUTE

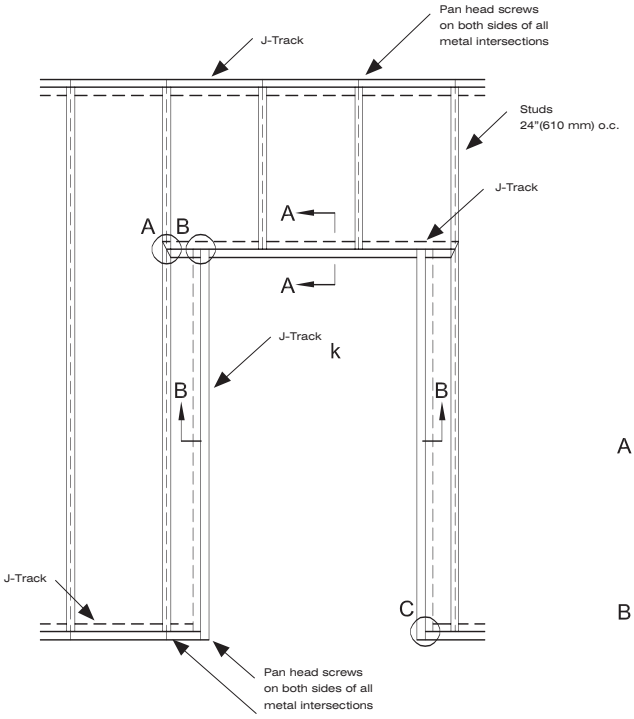


CHASE WALL

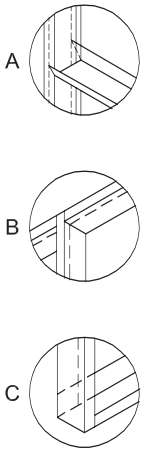


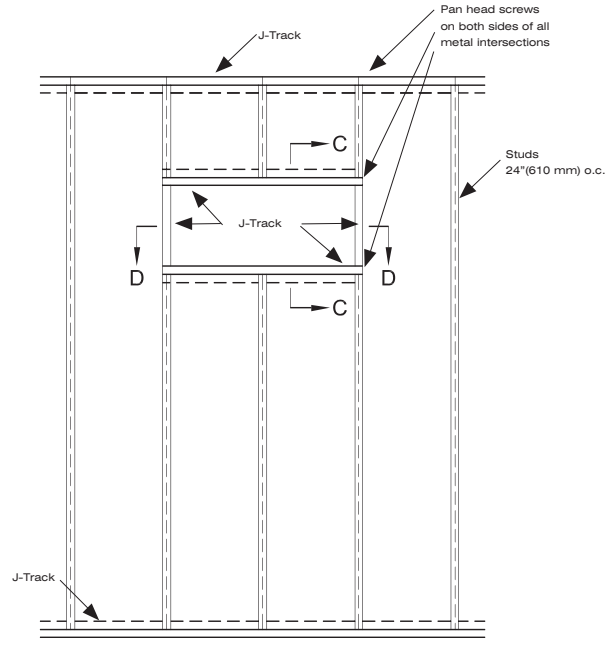
Openings and Elevator Details

ILLUSTRATED WITH 2 HR. RATED ASSEMBLY

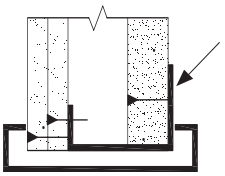


Door Opening Room Side

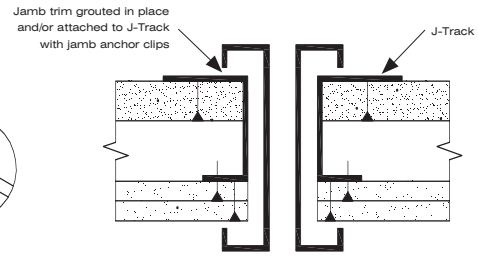




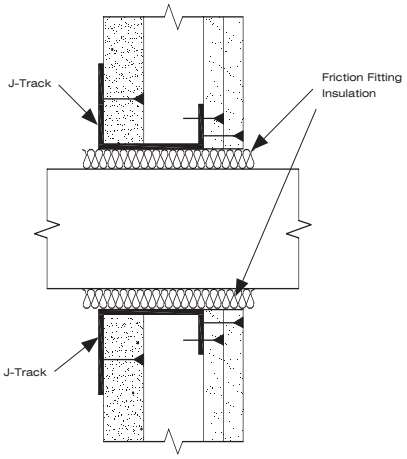
Door Opening Room Side



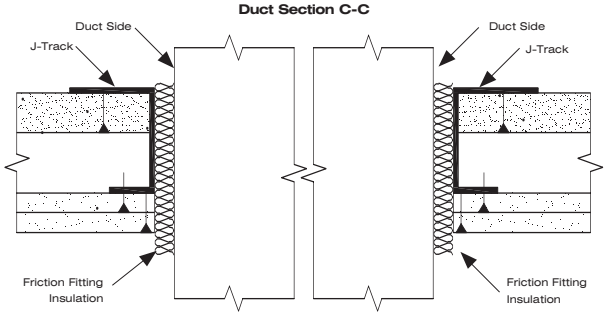
Header Section AA



Cross Section B-B



Duct Section C-C



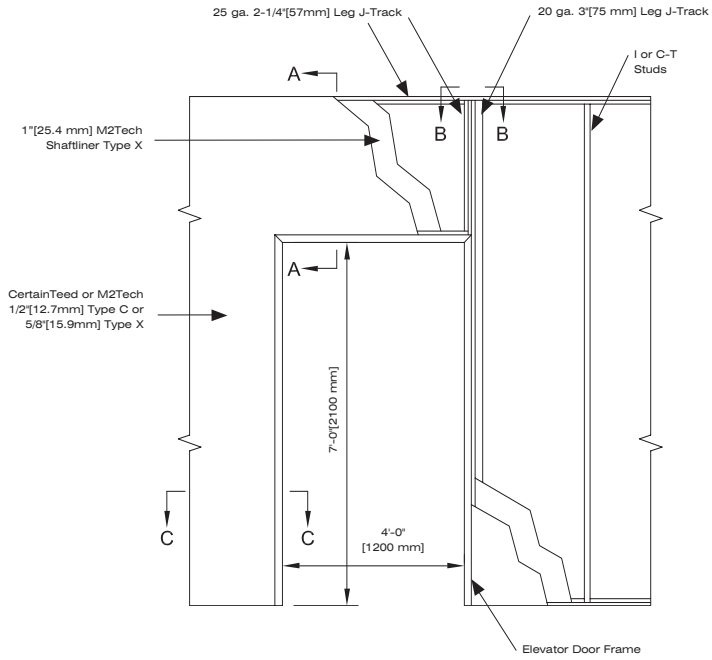
Duct Section D-D

NOTE:
Clearance openings and attachments details should be as per fire damper manufacturer's installation requirements

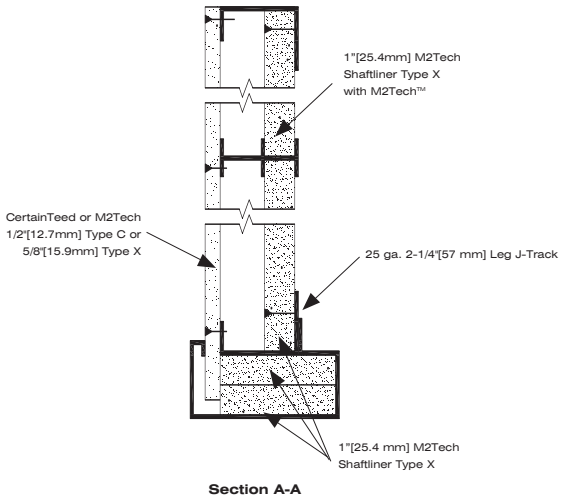
Elevator Door Frames 7'

ONE HOUR DETAILS

ELEVATOR DOOR FRAMING

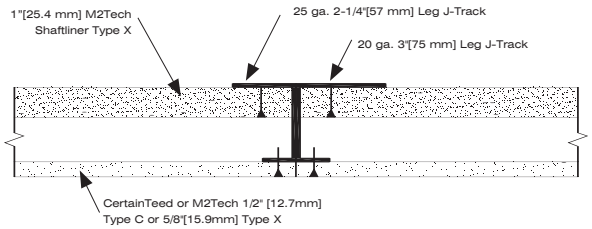


ELEVATOR DOOR HEAD



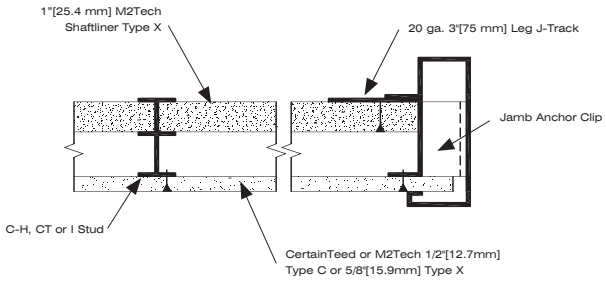
Section A-A

J-TRACK FRAMING ABOVE DOOR



Section B-B

ELEVATOR DOOR JAMB

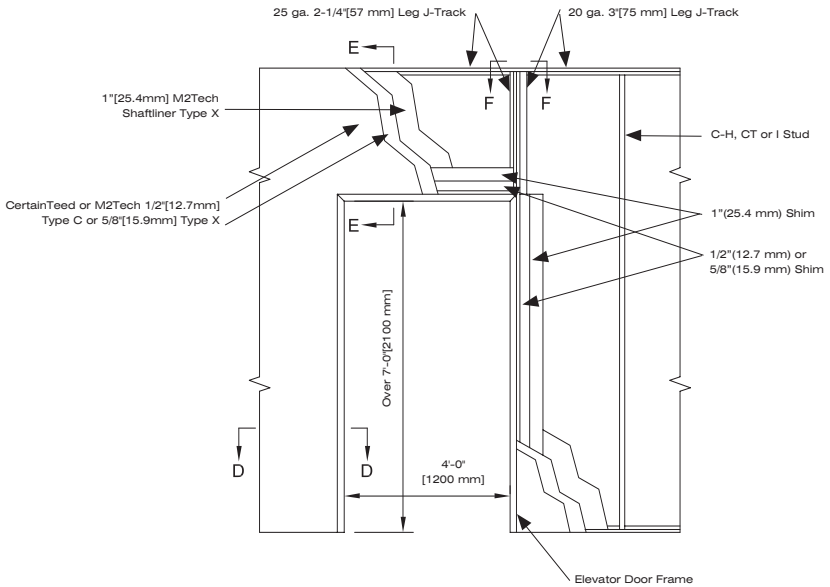


Section C-C

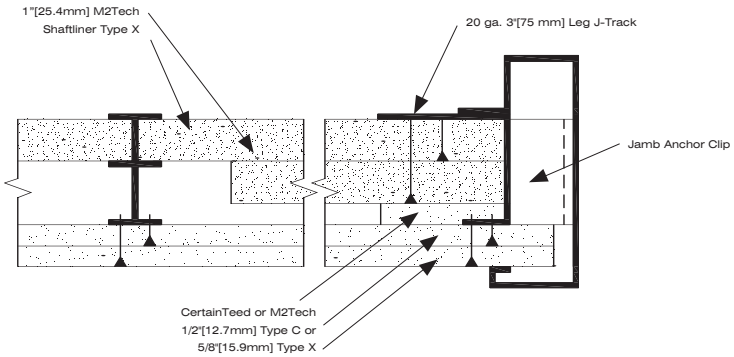
Elevator Door Frames Over 7'

TWO HOUR DETAILS

ELEVATOR DOOR FRAMING

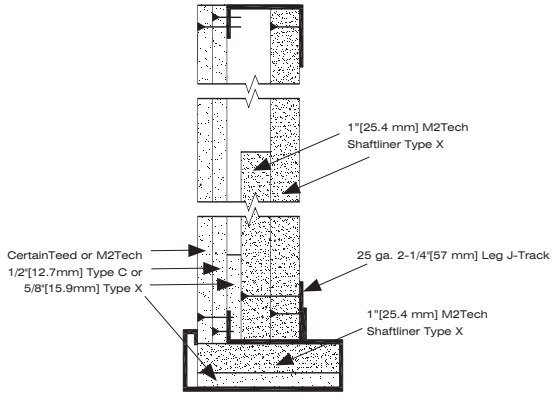


ELEVATOR DOOR JAMB

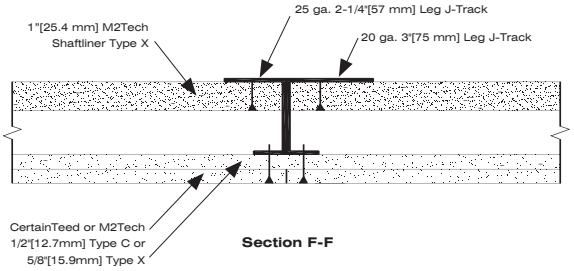


Section D-D

ELEVATOR DOOR HEAD



J-TRACK FRAMING ABOVE ELEVATOR DOOR

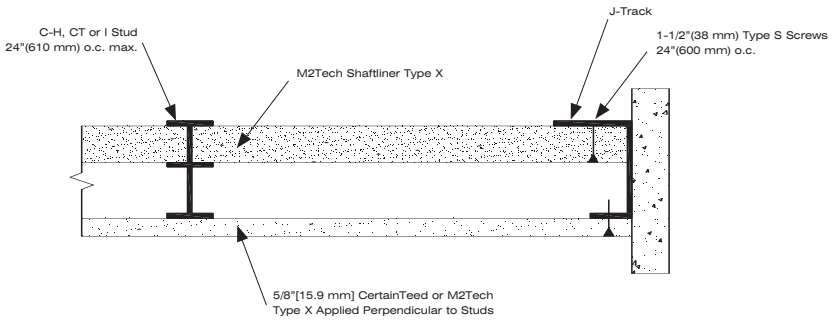


Section F-F

Horizontal Systems

1 and 2 Hour Fire Resistance Rating for Corridors

FIRE RESISTANCE RATED SYSTEM DESIGNS



1 HR

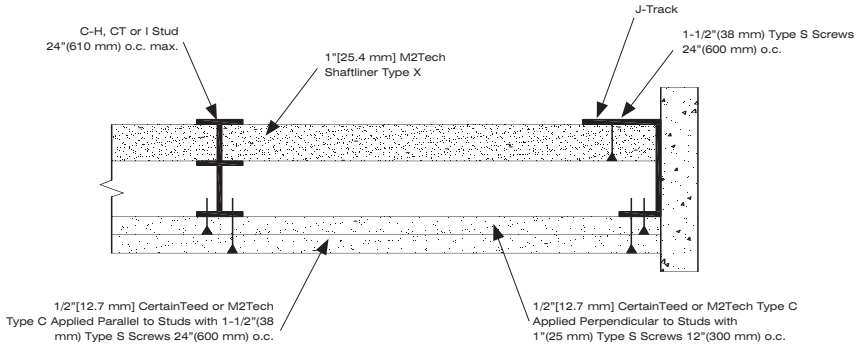
HORIZONTAL
CEILING SYSTEM

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"[300 mm] o.c. (Non-Loadbearing)



2 HR

HORIZONTAL
CEILING SYSTEM

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

THICKNESS
3-1/2" [89mm]

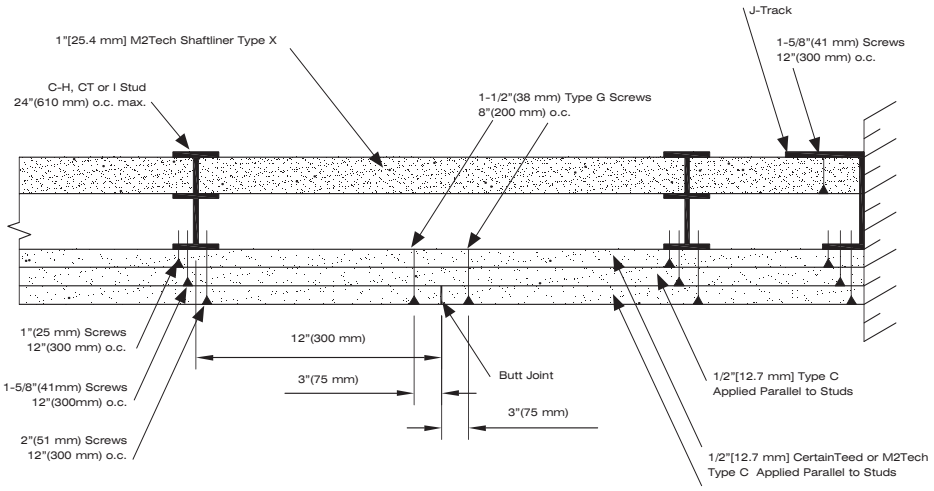
APPROX. WT.
9 psf [39 kg/m²]

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 or M2Tech 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"[25 mm] Type S screws spaced at 12"[300 mm] 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"[600 mm] o.c. (Non-Loadbearing)

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

Horizontal Systems
2 Hour for Corridors, Ducts, Enclosures, etc.

FIRE RESISTANCE RATED SYSTEM DESIGNS



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

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

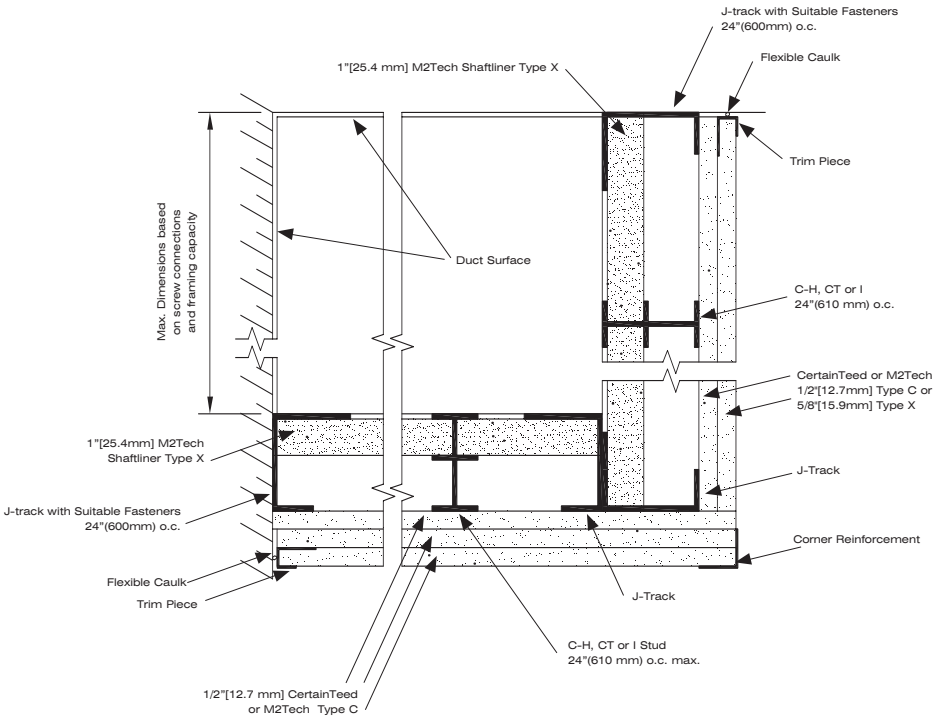
2 HR

HORIZONTAL MEMBRANE
FOR DUCT ENCLOSURE

FIRE TEST
ITS (WHI) CTG/CC 120-03

THICKNESS
4" (102 mm)

APPROX. WT.
11 psf (54 kg/m²)



Horizontal Duct Enclosure

Architectural Specifications

Section 09 21 16.23 or 09265
Gypsum Board Shaftwall Assemblies

PART 1–GENERAL

1.1 PROJECT DESCRIBED

Non-loadbearing 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 spacers 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 C 840, the GA-216, the Fire Resistance Design Manual GA-600, CAN/CSA-A82.31 and CertainTeed Joint Compound manufacturer's instructions. Joint Compound shall comply with ASTM C 475. No finishing is required on the shaft side of partitions.

UL U417, ULC W446, ICC-ES ER-4924, ITS CTG/WA and CTG/CC.

For further technical information regarding sound control and fire resistance refer to the following reports: Gypsum Association Fire Resistance Design Manual – GA-600 (GA WP 6850, WP 7056, WP 7057, WP 7078, WP 7082, WP 7083, WP 7096, WP 7097, WP 7098, WP 7099)

PART 2–PRODUCTS

2.1 MATERIALS

A. Steel Framing

Studs complying with the requirements for ASTM A 653 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 widths 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 0.0188" and 0.0346" (0.478 mm and 0.879 mm).

A-4. Stud Coating

Studs have a G40 or G60 galvanized coating.

B. Fasteners

1-5/8" (41 mm) long No. 6 Type S screws, 1" (25 m) long No. 6 Type S buglehead screws, 3/8" (10 mm), long Type S panhead screws.

C. CertainTeed Gypsum Board

C-1. M2Tech Shaftliner Type X 1" (25.4 m) thick
C-2. CertainTeed or M2Tech Type C 1/2" (12.7 mm) thick
C-3. CertainTeed or M2Tech Type X 5/8" (15.9 mm) thick
C-4. CertainTeed or M2Tech 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 Moisture 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 fiberglass, or equivalent, or mineral fiber insulation.

G. Resilient Channels

PART 3–INSTALLATION

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 specifications) layers of either CertainTeed or M2Tech 1/2" (12.7 mm) Type C , 5/8" (15.9 mm) Type X or 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 lay out metal framing components to ensure that all wall sections are plumb 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 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 24" (600 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 fiberglass, or equivalent, or mineral fiber insulation.
5. Friction fit an C-H, CT 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 plumb.
8. For walls exceeding 12' (3660 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 C-H, CT or I 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 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 1/2" (12.7 mm) Type C vertically to each side of C-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 fiberglass or equivalent or mineral fiber insulation and installation of finish side board onto 25 gauge resilient furring channels.

LIMITED WARRANTY

CERTAINTEED GYPSUM EXPRESSLY WARRANTS TITLE AND THAT THE PRODUCTS SOLD BY IT HEREUNDER ARE FREE FROM DEFECTS IN MATERIALS AT THE TIME OF SHIPMENT. THIS WARRANTY IS LIMITED TO THE ORIGINAL OWNER, AND MAY NOT BE ASSIGNED OR TRANSFERRED. THIS WARRANTY MAY NOT BE AMENDED, RESTATED OR ENLARGED BY ANY CERTAINTEED GYPSUM REPRESENTATIVE, WRITTEN SALES INFORMATION OR DRAWINGS. EXCEPT FOR SUCH EXPRESS WARRANTY, CERTAINTEED GYPSUM MAKES NO WARRANTY OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED AND ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND OTHER WARRANTIES OF ANY KIND ARE HEREBY DISCLAIMED BY CERTAINTEED GYPSUM AND EXCLUDED. PURCHASER AGREES THIS HAS BEEN NEGOTIATED AND CONSENTS HERETO. AS PURCHASER'S SOLE AND EXCLUSIVE REMEDY, CERTAINTEED GYPSUM SHALL, AT CERTAINTEED GYPSUM'S SOLE OPTION, REPLACE OR REPAIR ANY DEFECTIVE PRODUCTS, REFUND THE PURCHASE PRICE PAID FOR DEFECTIVE PRODUCTS, OR GRANT A REASONABLE ALLOWANCE BASED ON THE PURCHASE PRICE OF SUCH DEFECTIVE PRODUCTS. ANY CLAIMS OR EXCEPTIONS BY PURCHASER FOR DEFECTIVE PRODUCTS MUST BE MADE IN WRITING WITHIN 30 DAYS AFTER PURCHASER'S RECEIPT OF SHIPMENT AND IN ALL EVENTS BEFORE INSTALLATION IS COMMENCED, AND PURCHASER SHALL GIVE CERTAINTEED GYPSUM AN OPPORTUNITY TO INVESTIGATE. CERTAINTEED GYPSUM IS FURNISHING BASIC PRODUCTS AT STANDARD PRICES AND IS NOT INSURING PURCHASER AGAINST POSSIBLE CONSEQUENCES OF ERROR, OMISSION OR NEGLECT IN PRODUCTION OR DELIVERY, EXCEPT FOR REPLACEMENT OR REPAIR OF THE PRODUCT, REFUND OF THE PURCHASE PRICE, OR GRANT OF A REASONABLE ALLOWANCE, IN CERTAINTEED GYPSUM'S SOLE DISCRETION, CERTAINTEED GYPSUM SHALL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE ON ACCOUNT OF ANY IMPERFECTION, DEVIATION FROM SPECIFICATIONS OR OTHER DEFECT IMPAIRING THE QUALITY, VALUE OR SUITABILITY FOR ANY PURPOSE OF ANY PRODUCT SOLD HEREUNDER, WHETHER PURSUANT TO THE EXPRESS LIMITED WARRANTY OR OTHERWISE, IN NO EVENT SHALL CERTAINTEED GYPSUM BE LIABLE FOR CONSEQUENTIAL, SPECIAL, INCIDENTAL, INDIRECT, PENAL OR CONTINGENT DAMAGES, WHETHER BASED UPON BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY, TORT, BREACH OF CONTRACT, OR ANY OTHER LEGAL THEORY. PURCHASER ASSUMES ALL RISK OF LOSS, DAMAGE OR DELAY INCIDENT TO THE FURNISHING OF ANY PRODUCT BY CERTAINTEED GYPSUM HEREUNDER, OR THE UTILIZATION THEREOF, EXCEPT TO THE EXTENT EXPRESSLY ABOVE PROVIDED. PURCHASER AGREES THIS HAS BEEN NEGOTIATED AND CONSENTS HERETO.

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Benefits of M2Tech® Shaftliner Type X for Shaftwall Systems

- Resists mold growth per ASTM D 3273 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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