

# Canadian Gypsum and Insulation Systems Manual

Fire Resistance and  
Sound Control Design  
Division 09



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## GENERAL

This manual is intended to provide architects, engineers and builders with reference data on Gypsum Panel Systems incorporating CertainTeed Canada gypsum panel products. It contains sections on Partitions, Exterior Walls, Floors and Ceilings, Shaftwalls, Firewalls, and Column and Beam Protection. Each section lists the systems in ascending order of fire rating, and includes sound ratings and basic construction details.

The Gypsum Panel Systems Manual is available on our web site at [www.certainteed.ca](http://www.certainteed.ca). Please visit the website regularly to check for the latest revisions and version of this manual. Further assistance regarding the application of CertainTeed Canada products in Gypsum Panel Systems can be obtained by calling the CertainTeed Canada office nearest you.

Check with your authority having jurisdiction regarding Codes and consult the building designer for details and site installation instructions.

Any product information, data or specifications contained in this Manual have been prepared with information available to CertainTeed Canada at the time of posting. Anyone making use of, or relying on, any information, data or specifications contained in this Manual, for any purpose whatsoever, expressly assumes any and all liability that may arise from such use or reliance. CertainTeed Canada does not assume any responsibility for any errors or omissions that may be contained in this Manual. Any information, data or specifications contained in this Manual supersede any and all previous information, data or specifications prior to this manual and are subject to change without notice.

## BIM/CAD INFORMATION

CertainTeed's Design Studio provides BIM and CAD details to many fire rated and sound rated assemblies in an easy to view experience at [bimlibrary.saint-gobain.com](http://bimlibrary.saint-gobain.com). Details are available for download in multiple file formats.

## SUSTAINABILITY

Sustainable documentation, including recycled content, Environmental Product Declarations (EPD), Health Product Declarations (HPD) and low VOC Certifications, can be found at [saintgobain.ecomedes.com](http://saintgobain.ecomedes.com).

## DEFINITIONS

**Fire Resistance Rating:** The degree to which construction assemblies resist the passage of heat and flame is indicated by ratings determined by full scale fire resistance tests conducted in accordance with CAN/ULC-S101 or ASTM E119.

**STC: Sound Transmission Class:** a single number rating of how well a building assembly attenuates airborne sound. As per ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements and ASTM E 413 Classification for Rating Sound Insulation. The higher the STC value, the more efficient the assembly is, at reducing sound transmission.

**ASTC: Apparent Sound Transmission Class:** a single number rating of how well a building assembly attenuates airborne sound and flanking noise. Flanking noise is the sound that travels through wall, ceiling and floor junctions as well as through the structure. ASTC is a more realistic measure of the acoustic performance in a building..

## TESTING AUTHORITIES

Abbreviations for the testing authorities cited in this manual are as follows:

### Fire Resistance Ratings

NBCC	National Building Code of Canada
ULC	Underwriters Laboratories of Canada Inc.
ITS	Intertek Testing Services (Formerly Warnock Hersey International)
UL	Underwriters Laboratories
cUL	Underwriters Laboratories
NRC	National Research Council, Canada

### Sound Ratings

NBCC	National Building Code of Canada
NRC	National Research Council, Canada
ITS	Intertek Testing Services (Formerly Warnock Hersey International)
RAL	Riverbank Acoustical Laboratories
OL	Orfield Laboratories, Inc.
NGC	NGC Testing Services
NOAL	North Orbit Acoustic Laboratories

## FIRE RESISTANCE

Gypsum panel is the most commonly used fire resistive material and is equally well known as a reliable and economic surfacing material. When used in combination with other products, excellent fire resistive and sound control properties can be achieved.

Gypsum is a naturally occurring mineral mined or quarried in many locations throughout North America and in other parts of the world. When processed into gypsum panel products the chemically combined water (about 21 percent by weight) contributes to its effectiveness as a fire barrier. As gypsum protected structural members are exposed to fire, the water is slowly released as steam, effectively retarding heat transmission and acting as a fire barrier until most of the chemically combined water is eliminated, a process known as calcination. The temperature directly behind the plane of calcination is only slightly higher than that of boiling water at 100°C (212°F), and that is considerably below the temperature at which steel begins to lose its strength or lumber ignites. Once the gypsum is completely calcined, the residue acts as an insulating barrier to the flames.

DSG, or desulphogypsum, is high purity gypsum that is produced instead of mined. Traditionally, the gypsum raw material in the core of drywall has been mined from natural deposits. There are numerous underground and surface mines producing this gypsum for drywall manufacturing plants across North America. DSG is fundamentally the same raw material as mined gypsum, with a higher degree of purity. As a result, its properties are virtually the same as mined gypsum.

### Type X and Type C Gypsum Panel

There are two basic classifications of gypsum panel core formulations giving different degrees of fire resistance. These are Standard and Type X gypsum panel. Type X panel by definition is a gypsum panel that provides: a 1 hour fire endurance rating for a 15.9 mm (5/8") thickness when applied in a single layer and properly fastened to each side of of 38mm x 92mm (nominal 2"x4") wood framing members.

OR

A 2 hour fire resistant rating for a 12.7 mm (1/2") thick Type C panel when applied in a double layer and properly fastened to each side of 64 mm (2-1/2") steel framing members, when tested in accordance with CAN/ULC-S101.

Type X gypsum panels manufactured by CertainTeed Canada are described as either GlasRoc®, Shaftliner LGFCSL or Type X and these products are classified/listed by Underwriters Laboratories and Underwriters Laboratories of Canada.

CertainTeed Type C products are proprietary products which meet the requirements of Type X and have further enhanced fire resistive properties. These products are often referred to as "Type C" gypsum panel, although there is no industry definition for "Type C" gypsum panel.

All CertainTeed Type X, CertainTeed Type C, M2Tech® Moisture and Mold Resistant Type X, CertainTeed Veneer Plaster Base Type X, Extreme Abuse M2Tech® Type X, M2Tech® Shaftliner Type X, GlasRoc® Sheathing Type X, GlasRoc® Shaftliner Type X, GlasRoc® Tile Backer Type X, Easi-Lite® 30, SilentFX® QuickCut™ Type X, Abuse Resistant Type C, Extreme Abuse M2Tech® Type X, and Extreme Impact M2Tech® Type X products meet both the CSA and ASTM definitions of Type X gypsum panel.

### Fire Resistance Tests

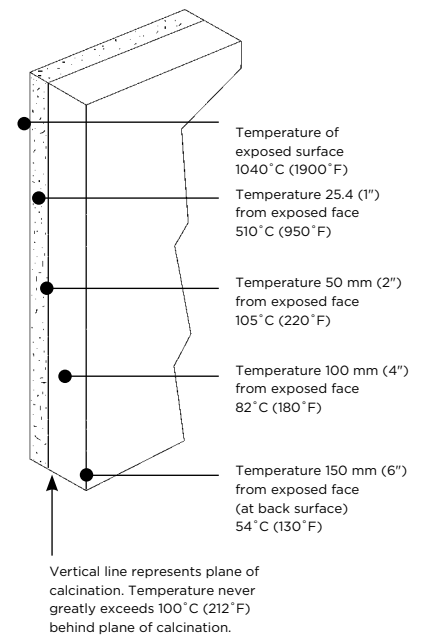
There are a number of independent testing authorities capable of conducting fire tests to establish fire resistance classifications according to procedures outlined in:

CAN/ULC-S101 "Fire Endurance Tests of Building Construction and Materials."

The conditions for tests are thoroughly detailed and the time of failure is the time at which there is excessive heat transmission, passage of flame or structural failure. In addition, failure may result because of penetration by a pressurized hose stream required in the fire test procedure for wall assemblies.

### How Gypsum Retards Heat Transmission

After two hour exposure to heat following CAN/ULC-S101 time-temperature curve:



The CAN/ULC-S101 standard, prescribes how various wall, floor, roof, column and beam assemblies are tested. These assemblies are one-sided exposed to a furnace that follows a standard time-temperature curve.

All of the assemblies tested and classified must be at least 9.3 m<sup>2</sup> (100 ft<sup>2</sup>) with no side dimension less than 2.75 m (9 feet). Temperatures are measured at a minimum of nine points on the unexposed surface of the assembly. When testing loadbearing assemblies, the working stress load is applied during the fire test.

The assembly must also stop flame or hot gasses capable of igniting cotton waste. The average temperature of the unexposed surface cannot increase more than 139°C (250°F) above ambient nor shall the temperature rise at any individual point exceed 181°C (325°F). It is also required that a duplicate of the assembly be fire tested for half the specified resistance period, after which it must withstand the impact, erosion and cooling effect of water under high pressure from a fire hose.

Floor and roof assemblies tested and classified have to be a minimum of 16.8 m<sup>2</sup> (180 ft<sup>2</sup>) with neither dimension less than 3.66 m (12 feet). The assemblies must sustain the design load throughout the test and not allow either flame or hot gasses, capable of igniting cotton waste, to pass through. The unexposed surface temperature may not rise more than an average of 139°C (250°F) above the initial temperature nor shall the temperature rise at any individual point exceed 181°C (325°F).

### Surface Burning Characteristics

Flame spread ratings are intended as a guide in the selection and use of finishing materials and are obtained by measuring the extent and rapidity with which flames spread over their surfaces under test conditions.

Under certain circumstances some building codes may require the use of interior finish materials with a flame spread rating of not more than 25. The laboratory test generally used to establish a material's flame spread characteristic is referred to as the Steiner Tunnel test.

CAN/ULC-S102 "Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies."

This test measures relative flame spread, fuel contribution and the amount of smoke developed from the material being tested.

A method of numerical classification to permit comparison of a given material's flame spread performance with that of another has been established.

### Flame Spread Rating

Asbestos cement board 0 (control classification)

**Gypsum plaster** 0

**Gypsum lath** 10

**Gypsum panel** 0-15

**Gypsum sheathing** 0-15

Red oak 100 (control classification)

## SOUND CONTROL

### Sound Transmission Class (STC)

Drywall construction systems are tested to establish their sound insulation characteristics and airborne sound insulation is reported as the Sound Transmission Class (STC).

ASTM Standard E90, "Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions", outlines a procedure for measuring sound transmission loss which is the difference between the sound energy in a source room and a receiving room when the two rooms are separated by the assembly being tested. The sound transmission loss is measured at different test frequencies and this data is used to obtain a single number known as the STC rating calculated in accordance with ASTM E413: Classification for Rating Sound Insulation.

### Apparent Sound Transmission Class (ASTC).

ASTC includes the contributions from airborne and flanking transmission of sound and therefore is a better descriptor of the acoustic performance of the building. The ASTC rating between dwelling units must be 47 or greater for compliance with the NBCC.

### Sound Insulation

STC values stated are based on laboratory tests. The actual STC ratings of assemblies as constructed may be significantly less due to deviations from the design or specified materials, flanking paths or poor workmanship. It is essential to the attenuation of airborne sound transmission that air leaks and flanking paths must be closed off or sound will go around an assembly. Hairline cracks or small holes will increase the sound transmission at the higher frequencies. This can have a detrimental effect on the overall acoustical performance and the STC particularly for higher rated assemblies.

Assemblies should be airtight. Recessed wall fixtures such as medicine cabinets, or electrical, telephone and television outlets, which perforate the gypsum panel surface, should not be located back-to-back or in the same cavity. In addition, any opening for such fixtures and for piping outlets should be carefully cut to proper size and caulked. The entire perimeter of a sound insulating assembly must be made airtight to prevent sound flanking. An acoustical caulking compound or acoustical gasket should be used to seal between the assembly and all dissimilar surfaces. Taping gypsum panel wall and wall-ceiling intersections provides an adequate air seal at these locations. Details of some typical problem areas and their recommended treatments are shown in the accompanying illustrations.

Visit [www.certainteed.ca](http://www.certainteed.ca) for the latest version of this manual.

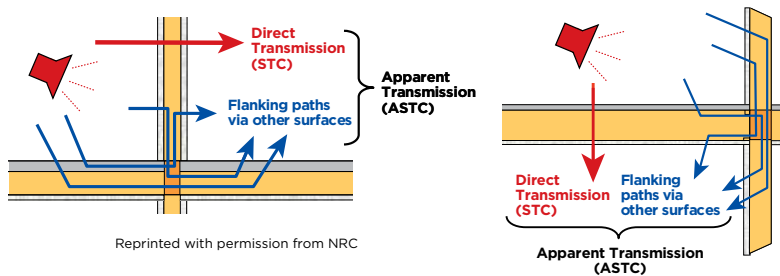
### APPARENT SOUND TRANSMISSION CLASS (ASTC)

In previous editions of the National Building Code of Canada (NBCC), sound insulation requirements between dwelling units were presented in terms of Sound Transmission Class (STC).

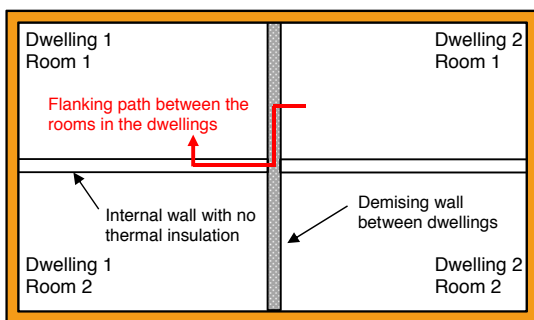
In the NBCC, sound insulation requirements are now also presented in terms of Apparent Sound Transmission Class (ASTC). ASTC includes the contributions from flanking transmission of sound and therefore is a better descriptor of the acoustic performance of the building. The ASTC rating between dwelling units must be 47 or greater for compliance with the NBCC.

CertainTeed Canada contracted with the National Research Council Canada (NRC-CNRC) to conduct extensive testing and calculation programs for **SilentFX® QuickCut™** Gypsum Panel on wood and steel stud wall assemblies with example assemblies provided on the following page. For complete details of the ASTC programs, please refer to NRC-CNRC Reports A1-007750.3 (Wood Stud Walls) and A1-010179.1 (Steel Stud Walls) on the NRC-CNRC website or contact CertainTeed Marketing Technical Services at 1-800-446-5284.

#### TYPICAL SOUND FLANKING PATHS FOR WOOD FRAME CONSTRUCTION



#### TYPICAL SOUND FLANKING PATHS FOR STEEL FRAME CONSTRUCTION



### CALCULATED STC RATINGS

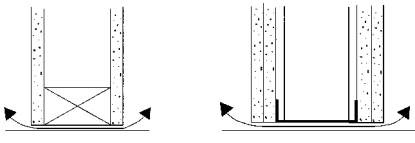
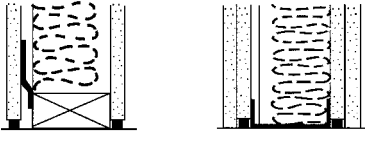
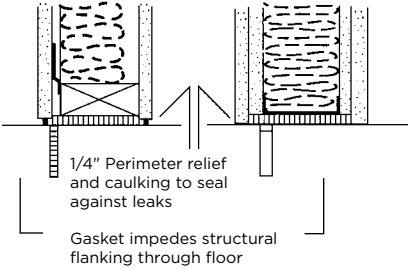
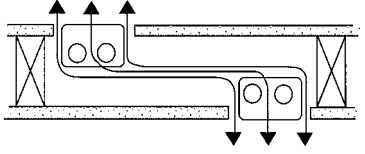
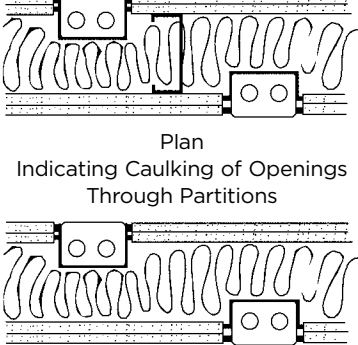
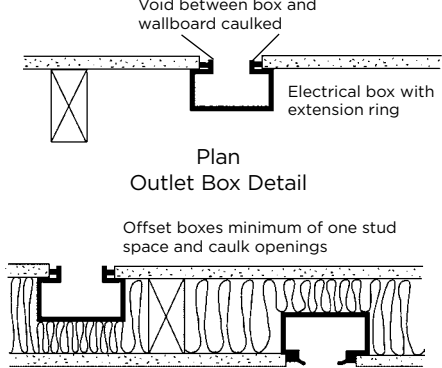
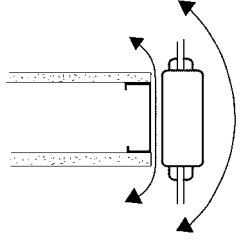
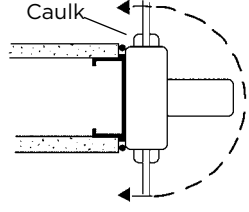
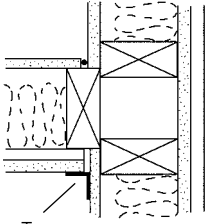
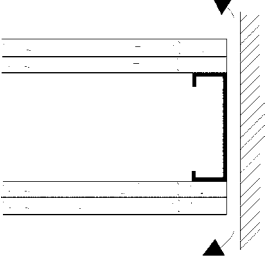
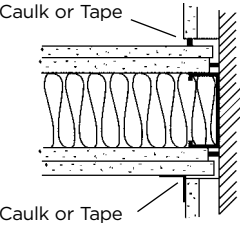
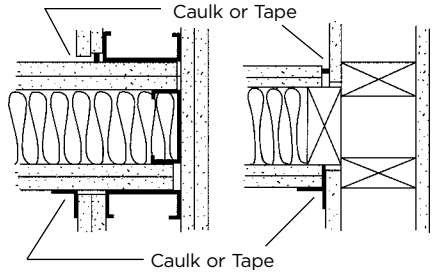
Not all of the assemblies in this catalogue have been individually tested. Where no specific test data is available, a rating, calculated in accordance with the requirements of ASTM E413, is provided for guidance only. CertainTeed Canada makes no claim that these calculated ratings comply with, or are acceptable under, any building code.

An estimated STC rating, based on results of a similar assembly tested in accordance with recognized standards, will be clearly indicated. This is a judgement of how the particular assembly might react, however, actual performance may differ.

If specific compliance is required, tests should be conducted.



## Sound Isolation Construction

<p><b>“NORMAL CONSTRUCTION”</b> Not suitable for good sound control. Arrows show flanking paths</p>	<p><b>“SELECT CONSTRUCTION”</b> Caulking of relief detail at perimeter of partition to prevent sound leakage</p>	<p><b>“PRE-DESIGN” CONSTRUCTION</b> Simulating laboratory conditions</p>
 <p>Wood Stud System      Steel Stud System</p> <p>Elevation Under and Over Partitions</p>	 <p>Caulk      Caulk</p> <p>Wood Stud      Metal Stud</p> <p>Elevation</p>	 <p>1/4" Perimeter relief and caulking to seal against leaks</p> <p>Gasket impedes structural flanking through floor</p> <p>Elevation Typical Floor-Ceiling or Roof Detail</p>
 <p>Plan Through Partitions, Openings, Outlet Boxes</p>	 <p>Plan Indicating Caulking of Openings Through Partitions</p>	 <p>Void between box and wallboard caulked</p> <p>Electrical box with extension ring</p> <p>Plan Outlet Box Detail</p> <p>Offset boxes minimum of one stud space and caulk openings</p>
<p>Window Mullion</p>  <p>Plan Around Flanking Partition Ends</p>	 <p>Caulk</p> <p>Plan Typical Partition Mullion Intersection</p>	 <p>Caulk or Tape</p> <p>Plan Intersection With Exterior Wall</p>
 <p>Plan Metal Stud Around Flanking Partition Ends</p>	 <p>Caulk or Tape</p> <p>Plan Intersection With Interior Wall</p>	 <p>Caulk or Tape</p> <p>Plan Typical Partition Intersections</p>

## BUILDING CODES

Within Canada, Building Codes govern among other items, the type, use and application of construction materials. It is therefore important that the user, when determining the suitability of products and assemblies outlined in this manual, ensure that the requirements of the applicable Building Code(s) have been met.

## MATERIAL AND APPLICATION STANDARDS

Gypsum panel products and many of the accessories that are utilized in the construction and/or finishing of gypsum panel are covered by standards. These standards set forth minimum requirements for their physical and/or performance characteristics, limits of use and methods of application.

The following major Standards Writing Authorities are cited in this manual.

ASTM	American Society for Testing and Materials
CSA	Canadian Standards Association
GA	Gypsum Association

### CertainTeed Canada Materials

CertainTeed Canada gypsum panel products are manufactured to meet or exceed the following standards.

#### CertainTeed Canada

Gypsum Panel Product	Standard(s)
CertainTeed Regular + 54"	ASTM C1396
CertainTeed Type X + Type C	ASTM C1396
Easi-Lite® Interior Ceiling	ASTM C1396
Easi-Lite® Veneer Plaster Base	ASTM C1396
M2Tech® Regular, Type X, Shaftliner	ASTM C1396
GlasRoc® Shaftliner	ASTM C1658
GlasRoc® Sheathing + Type X	ASTM C1177
GlasRoc® Interior	ASTM C1658
GlasRoc® Tile Backer + Type X	ASTM C1178
SilentFX® QuickCut™ + Type X	ASTM C1766

#### Accessory Materials

The materials used in conjunction with CertainTeed Canada gypsum panel products should be manufactured to meet or exceed the following standards.

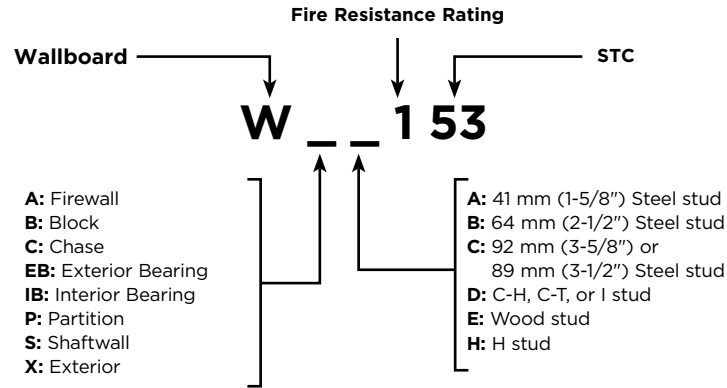
Material	Standard(s)
Mineral Fibre Insulation	CAN/ULC S702.1
Steel Stud	ASTM C645, ASTM C955, CSA S136
Steel Track	ASTM C645, ASTM C955
Steel Furring Channel	ASTM C645
Wood Framing Members	CAN/CSA O141
Drywall Screws	ASTM C1002, ASTM C954
Drywall Nails	CSA B111, ASTM C514
Adhesives	ASTM C557
Joint Compounds	ASTM C475
Joint Tape	ASTM C475
Gypsum Plaster	ASTM C28
Accessories	ASTM C1047

#### Application Standards

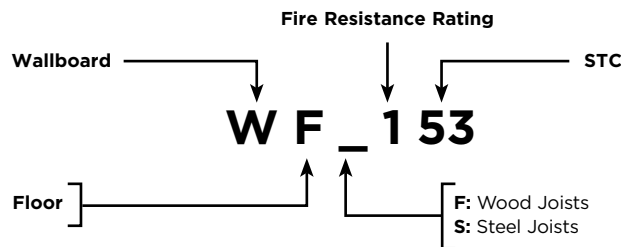
NBCC National Building Code of Canada  
ASTM C840 Application and Finishing of Gypsum Panel  
ASTM C844 Application of Gypsum Base to Receive Gypsum Veneer Plaster  
ASTM C1280 Application of Exterior Gypsum Panel Products for Use as Sheathing  
Gypsum Association, GA-216, GA-253, and GA-214

### ASSEMBLY CODES

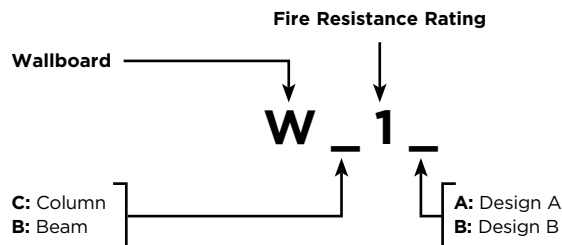
#### Walls



#### Floor-Ceilings

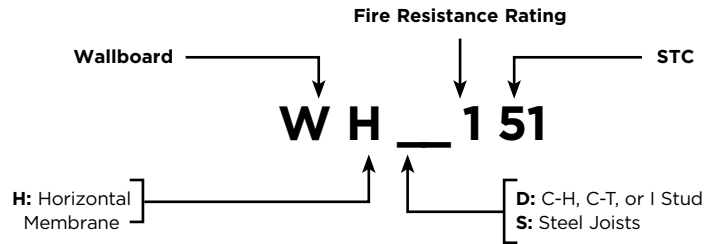


#### Columns and Beams



### ASSEMBLY CODES

#### Horizontal Membranes



# ASTC STEEL STUD ASSEMBLIES

ASTC  
(APPARENT SOUND  
TRANSMISSION  
CLASS)

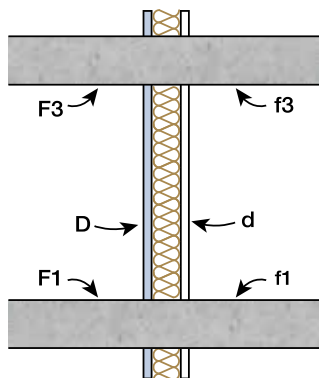
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 1h**

ASTC  
**47**



### System WPC147

- 92 mm (3-5/8") .46 mm (.018") steel studs 406 mm (16") o.c.

#### ONE SIDE

- 15.9 mm (5/8") **SilentFX® QuickCut™** Type X applied with 25 mm (1") type S screws 200 mm (8") o.c. along edges of panel and 300 mm (12") o.c. in the field.

#### OPPOSITE SIDE

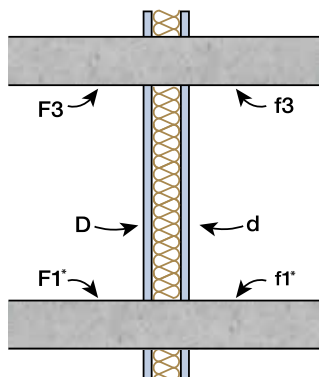
- 15.9 mm (5/8") CertainTeed Type X applied with 25 mm (1") type S screws 200 mm (8") o.c. along edges of panel and 300 mm (12") o.c. in the field. All joints staggered.
- 89 mm (3-1/2") CertainTeed Glass Fibre Insulation or equivalent.

For additional information, please see the full NRC report at:  
<http://doi.org/10.4224/23002223>

FIRE:  
1 hr.  
cUL U465,  
V450, V486

SOUND:  
NRC Report  
A1-010179.1  
Example 2

ASTC  
**48**



### System WPC148

- 92 mm (3-5/8") .46 mm (.018") steel studs 406 mm (16") o.c.

#### ONE SIDE

- 15.9 mm (5/8") **SilentFX® QuickCut™** Type X applied with 25 mm (1") type S screws 200 mm (8") o.c. along edges of panel and 300 mm (12") o.c. in the field.

#### OPPOSITE SIDE

- 15.9 mm (5/8") **SilentFX® QuickCut™** Type X applied with 25 mm (1") type S screws 200 mm (8") o.c. along edges of panel and 300 mm (12") o.c. in the field. All joints staggered.
- 89 mm (3-1/2") CertainTeed Glass Fibre Insulation or equivalent.

For additional information, please see the full NRC report at:  
<http://doi.org/10.4224/23002223>

FIRE:  
1 hr.  
cUL U465,  
V450, V486

SOUND:  
NRC Report  
A1-010179.1  
Example 1

\*Refer to NRC report for flanking paths

# ASTC WOOD STUD ASSEMBLIES

ASTC  
(APPARENT SOUND  
TRANSMISSION  
CLASS)

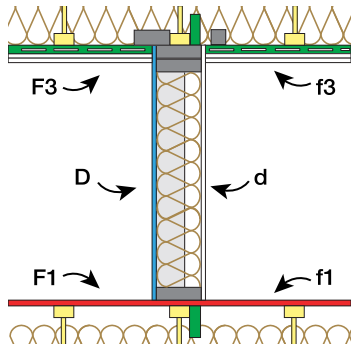
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 1h**

ASTC  
**50**



### System WPE150

- 38 x 89 mm (2" x 4") wood studs 406 mm (16") o.c. staggered 200 mm (8") o.c. on 150 mm (6") plates.

#### ONE SIDE

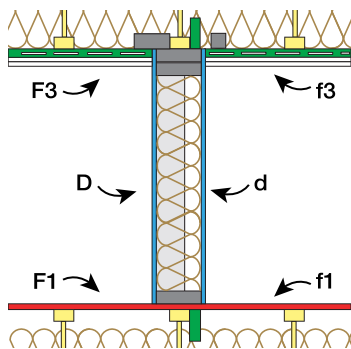
- 15.9 mm (5/8") **SilentFX® QuickCut™** Type X applied with 32 mm (1-1/4") type W screws 200 mm (8") o.c.
- 89 mm (3-1/2") CertainTeed NoiseReducer™ Sustainable Insulation or equivalent opposite side
- 15.9 mm (5/8") CertainTeed Type X applied with 32 mm (1-1/4") type W screws 200 mm (8") o.c. All joints staggered

FIRE:  
1 hr.  
cUL U340  
ULC W313

SOUND:  
NRC  
A1-007750.3  
Example 2

A1-007750.3  
Example 2  
tested with  
300 mm (12")  
screw spacing

ASTC  
**54**



### System WPE154

- Common single staggered wood stud wall.
- All other walls are triple staggered wood stud walls.
- One layer of 15.9 mm (5/8") CertainTeed **SilentFX® QuickCut™** Type X gypsum panel directly fixed to the wood studs of all walls.
- One layer of 15 mm OSB on the floors.

For additional information, please see the full NRC report at:  
<http://doi.org/10.4224/23002826>

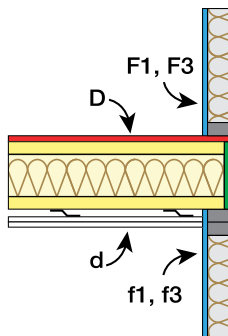
FIRE:  
1 hr.  
cUL U340  
ULC W313

Sound:  
NRC  
A1-007750.3  
Example 1

# ASTC FLOOR/CEILING ASSEMBLIES

**FIRE RESISTANCE RATING: 1h**

ASTC  
**50**



### System WFF150

- Fire rated floor BXUV.M5351 with a bare 15 mm (19/32") OSB subfloor. Wall framing includes single and triple staggered wood studs.
- One layer of 15.9 mm (5/8") CertainTeed **SilentFX® QuickCut™** Type X gypsum panel directly attached to the wood studs in both the upper and the lower rooms.

FIRE:  
cUL U465  
V450, V486

SOUND:  
NRC  
A1-007750.3  
Example 52

# STEEL STUD PARTITIONS

## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)

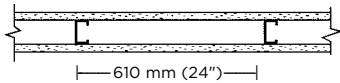
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 3/4h

STC  
**35**



Thickness: 95 mm (3-3/4")  
Weight: 25 kg/m<sup>2</sup> (5.0 lb/ft<sup>2</sup>)

#### System WPB035

15.9 mm (5/8") CertainTeed Type X products, 1 layer, each side of 64 mm (2-1/2") steel studs.

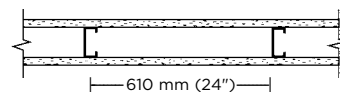
Fasten panels vertically using 32 mm (1-1/4") screws spaced 200 mm (8") o.c. along floor and ceiling tracks, and 300 mm (12") o.c. along edge joints and in the field. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: ULC W409

SOUND:  
NBCC (2015)  
Table  
A-9.10.3.1A  
Wall 51c

### FIRE RESISTANCE RATING: 1h

STC  
**39**



Thickness: 124 mm (4-7/8")  
Weight: 25 kg/m<sup>2</sup> (5.1 lb/ft<sup>2</sup>)

#### System WPC139

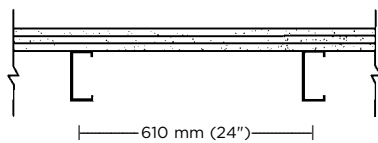
15.9 mm (5/8") CertainTeed Type X products, 1 layer, each side of 92 mm (3-5/8") steel studs.

Fasten panels vertically or horizontally using 25 mm (1") Type S screws spaced 200 mm (8") o.c. along edge joints, floor and ceiling tracks, and 300 mm (12") o.c. in the field. Joints must be offset. If panels are applied horizontally, horizontal edge joints and horizontal butt joints need not be staggered or backed by steel framing. Fasten panels horizontally using 25 mm (1") screws spaced 200 mm (8") o.c. Tape and finish joints with CertainTeed products.

FIRE: ULC U411,  
cUL U465

SOUND:  
RAL TL07-361

STC  
**41**



Thickness: 138 mm (5-1/2")  
Weight: 31 kg/m<sup>2</sup> (6.3 lb/ft<sup>2</sup>)

#### System WPS141

Description: 15.9mm (5/8") CertainTeed Type X products, 3 layers, one side of 92mm (3 5/8") steel studs.

Fasten base layer using 25 mm (1") screws spaced 610 mm (24") o.c. Fasten second layer using 41 mm (1-5/8") screws spaced 610 mm (24") o.c. Third layer is applied using 57 mm (2-1/4") screws spaced 300 mm (12") o.c.

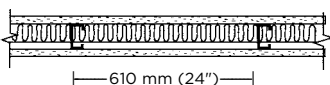
Fasten panels vertically or horizontally. For horizontal applications, edge joints and horizontal butt joints in adjacent layers need to be offset a minimum 406 mm (16"). For vertical applications, the second and third layers must be applied with joints centred over studs and offset by one framing member from previous layer.

Tape and finish outer layer with CertainTeed products.

FIRE: cULW443

SOUND:  
NGC 2017065\_R1

STC  
**44**



Thickness: 89 mm (3-1/2")  
Weight: 24.39 kg/m<sup>2</sup> (4.99 lb/ft<sup>2</sup>)

#### System WPB144

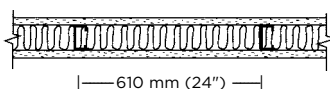
12.7 mm (1/2") CertainTeed Type C products, 1 layer, each side of 64 mm (2-1/2") steel studs. Mineral wool insulation 38 mm (1-1/2") within cavity.

Fasten panels vertically using 25 mm (1") screws spaced 200 mm (8") o.c. along edge joints, floor and ceiling tracks, and 300 mm (12") o.c. in the field. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: ULC U411

SOUND:  
NOAL 18-0644

STC  
**45**



Thickness: 95 mm (3-3/4")  
Weight: 24.02 kg/m<sup>2</sup> (4.92 lb/ft<sup>2</sup>)

#### System WPB145

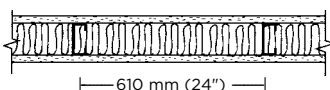
15.9 mm (5/8") CertainTeed Type X products, 1 layer, each side of 64 mm (2-1/2") steel studs. CertainTeed's Glass Fibre Insulation 65 mm (2-1/2") within cavity.

Fasten panels vertically using 25 mm (1") screws spaced 200 mm (8") o.c. along floor and ceiling tracks, and 300 mm (12") o.c. along edge joints and in the field. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: ULC U411

SOUND:  
NOAL 18-0649

STC  
**50**



Thickness: 121 mm (4-7/8")  
Weight: 24.6 kg/m<sup>2</sup> (5.04 lb/ft<sup>2</sup>)

#### System WPC150

15.9 mm (5/8") CertainTeed Type X products, 1 layer, each side of 92 mm (3-5/8") steel studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten panels vertically using 25 mm (1") screws spaced 200 mm (8") o.c. along edge joints, floor and ceiling tracks, and 300 mm (12") o.c. in the field. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: ULC U411,  
cUL U465

SOUND:  
NOAL 18-0652

# STEEL STUD PARTITIONS

## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)

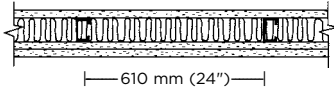
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 1h (continued)

STC  
50



Thickness: 102 mm (4")  
Weight: 31 kg/m<sup>2</sup> (6.3 lb/ft<sup>2</sup>)

#### System WPB150

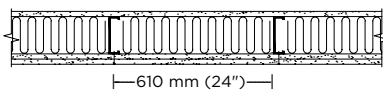
12.7 mm (1/2") CertainTeed Type C products, 1 layer on one side, 2 layers other side of 63.5 mm (2-1/2") steel studs. CertainTeed's Glass Fibre Insulation 65 mm (2-1/2") within cavity.

Fasten one side vertically using 25 mm (1") screws spaced 200 mm (8") o.c. at the perimeter and 300 mm (12") in the field. Opposite side applied vertically. Base layer installed with 25 mm (1") screws spaced 406 mm (16") and face layer installed with 41 mm (1-5/8") screws spaced 406 mm (16") o.c. offset 200 mm (8") from base layer screws. Joints staggered. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC W498

SOUND:  
OL 18-1013

STC  
52



Thickness: 130 mm (5-1/8")  
Weight: 31.08 kg/m<sup>2</sup> (6.37 lb/ft<sup>2</sup>)

#### System WPC152

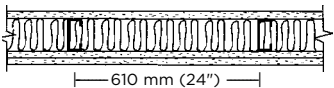
12.7 mm (1/2") CertainTeed Type C products, 2 layers one side, 1 layer other side of 92 mm (3-5/8") steel studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten one side vertically using 25 mm (1") screws spaced 200 mm (8") o.c. at the perimeter and 300 mm (12") in the field. Opposite side applied vertically. Base layer installed with 25 mm (1") screws spaced 406 mm (16") and face layer installed with 41 mm (1-5/8") screws spaced 406 mm (16") o.c. offset 200 mm (8") from base layer screws. Joints staggered. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC W498

SOUND:  
NOAL 18-0654

STC  
53



Thickness: 140 mm (5-1/2")  
Weight: 35.57 kg/m<sup>2</sup> (7.29 lb/ft<sup>2</sup>)

#### System WPC153

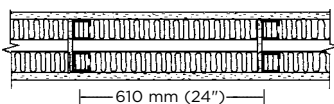
15.9 mm (5/8") CertainTeed Type X products, 1 layer on one side, 2 layers other side of 92 mm (3-5/8") 0.46 mm (18 mils) steel studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten base layers vertically using 25 mm (1") screws spaced 200 mm (8") o.c. along edge joints, and 300 mm (12") o.c. in the field. Fasten second layer vertically or horizontally on one side using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC U411,  
CUL U465

SOUND:  
NOAL 18-0653

STC  
55



Thickness: 127 mm (5")  
Weight: 29 kg/m<sup>2</sup> (6.0 lb/ft<sup>2</sup>)

#### System WCA155

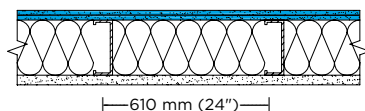
15.9 mm (5/8") CertainTeed Type X products, 1 layer, each side of paired 64 mm (2-1/2") 0.46 mm (18 mils) steel studs. CertainTeed's Glass Fibre Insulation 64 mm (2-1/2") each side within cavity.

Attach 15.9 mm x 241 mm x 300 mm (5/8" x 9-1/2" x 12") CertainTeed Type X products bridging 1220 mm (48") o.c. to steel studs using screws (3 per stud). Fasten panels vertically using 25 mm (1") Type S screws spaced 200 mm (8") o.c. along edge joints, floor and ceiling tracks, and 300 mm (12") o.c. in the field. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: CUL U420,

SOUND:  
OL 18-1005

STC  
56



Thickness: 124 mm (4-7/8")  
Weight: 27.58 kg/m<sup>2</sup> (5.65 lb/ft<sup>2</sup>)

#### System WPC156

92 mm (3-5/8") 0.46 mm (18 mils) steel studs 610 mm (24") o.c. One side, 15.9 mm (5/8") SilentFX® QuickCut™ Type X applied horizontally with 25 mm (1") type S screws 300 mm (12") o.c. Opposite side, 15.9 mm (5/8") CertainTeed Type X applied horizontally with 25 mm (1") type S screws 300 mm (12") o.c. All joints staggered. 89 mm (3-1/2") CertainTeed glass fibre insulation in the stud cavities. Tape and finish joints with CertainTeed products.

FIRE: CUL U465

SOUND:  
OL 17-0221



# STEEL STUD PARTITIONS

## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)

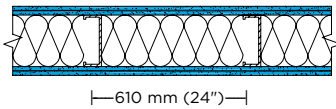
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 1h (continued)

STC  
58



Thickness: 124 mm (4-7/8")  
Weight: 30.77 kg/m<sup>2</sup> (6.30 lb/ft<sup>2</sup>)

#### System WPC158

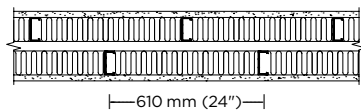
15.9 mm (5/8") CertainTeed **SilentFX® QuickCut™** Type X. 1 layer, each side of 92 mm (3-5/8"), 0.84 mm (33 mils) thick studs, 610 mm (24" o.c.) spaced steel studs. CertainTeed Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten panels vertically using 25 mm (1") screws spaced 300 mm (12") o.c. in the field, and 200 mm (8") along the top and bottom edges of the wall. Joints centered over studs. Joints on opposite sides of studs, staggered by at least one stud spacing. Acoustical sealant applied in perimeter gap. Tape and finish joints with CertainTeed products.

FIRE: cUL U465

SOUND:  
OL 17-0228

STC  
58



Thickness: 184 mm (7-1/3")  
Weight: 26.85 kg/m<sup>2</sup> (5.5 lb/ft<sup>2</sup>)

#### System WCB158

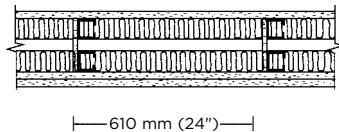
15.9 mm (5/8") CertainTeed Type X products or GlasRoc® Tile Backer Type X, 1 layer either sides of double row 64 mm (2-1/2") wide 0.46 mm (18 mils) studs separated by 25 mm (1") air space. 22 mm x 22 mm (7/8" x 7/8"), 0.84 mm (33 mils) channels as horizontal bracing a minimum of every 1524 mm (60"). CertainTeed's Glass Fibre Insulation 64 mm (2-1/2") within both cavities.

Vertical application: Panels installed with 25 mm (1") Type S-12 screws 200 mm (8") o.c. on each side of the assembly. Joints staggered.  
Horizontal application: Panels installed with 25 mm (1") Type S-12 screws 200 mm (8") o.c. on each side of the assembly. Joints need not be staggered. Tape and finish joints with CertainTeed products.

FIRE: cUL V469

SOUND:  
NOAL 18-0651

STC  
60



Thickness: 143 mm (5-5/8")  
Weight: 41 kg/m<sup>2</sup> (8.4 lb/ft<sup>2</sup>)

#### System WCA160

15.9 mm (5/8") CertainTeed Type X products, 1 layer on one side, 2 layers other side of paired 41 mm (1-5/8") steel studs. CertainTeed's Glass Fibre Insulation 38 mm (1-1/2") each side within cavity.

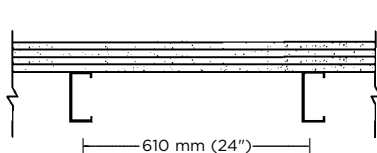
Attach 241 mm x 300 mm (9-1/2" x 12") CertainTeed Type X products bridging 1220 mm (48") o.c. to steel studs using screws (3 per stud). Fasten base layers vertically using 25 mm (1") screws spaced 200 mm (8") o.c. along edge joints, and 300 mm (12") o.c. in the field. Fasten second layer vertically or horizontally on one side using 41 mm (1-5/8") screws spaced 200 mm (8") o.c. at the joints and 300 mm (12") o.c. in the field. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: cUL U420,

SOUND:  
OL 18-1006

### FIRE RESISTANCE RATING: 2h

STC  
43



Thickness: 154mm (6-1/8")  
Weight: 39.13 kg/m<sup>2</sup> (8.01 lb/ft<sup>2</sup>)

#### System WPS243

Description: 15.9 mm (5/8") CertainTeed Type X products, 4 layers, one side of 92 mm (3 5/8") steel studs.

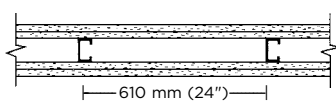
Fasten base layer using 25 mm (1") screws spaced 610 mm (24") o.c. Fasten second layer using 41 mm (1-5/8") screws spaced 610 mm (24") o.c. Third layer is applied using 57 mm (2-1/4") screws spaced 300 mm (12") o.c. Fourth layer is applied using 76 mm (3") screws spaced 300mm (12") o.c.

Fasten panels vertically or horizontally. For horizontal applications, edge joints and horizontal butt joints in adjacent layers need to be offset a minimum 406 mm (16"). For vertical applications, the second, third and fourth layers must be applied with joints centred over studs and offset by one framing member from previous layer. Tape and finish outer layer with CertainTeed products.

FIRE: cULW443

SOUND:  
NOAL 18-0819

STC  
46



Thickness: 114 mm (4-1/2")  
Weight: 39.13 kg/m<sup>2</sup> (8.01 lb/ft<sup>2</sup>)

#### System WPB246

12.7 mm (1/2") CertainTeed Type C products, 2 layers, each side of 64 mm (2-1/2") steel studs.

Fasten base layers vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten face layers vertically using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC U411

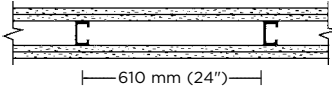
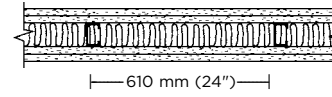
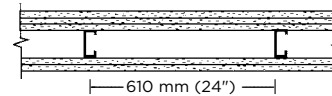
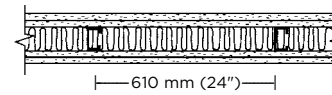
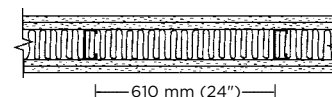
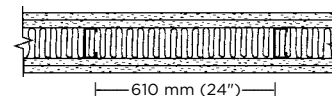
SOUND:  
NOAL 18-0648

# STEEL STUD PARTITIONS

## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)	CONSTRUCTION	DESCRIPTION	DESIGN NUMBER/ TEST REPORTS
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### FIRE RESISTANCE RATING: **2h** (continued)

<p><b>STC 49</b></p>  <p>Thickness: 127 mm (5") Weight: 44.87 kg/m<sup>2</sup> (9.19 lb/ft<sup>2</sup>)</p>	<p><b>System WPB249</b> 15.9 mm (5/8") CertainTeed Type X products, 2 layers, each side of 64 mm (2-1/2") steel studs.</p> <p>Fasten base layers vertically using 25 mm (1") screws spaced 406 mm (16") o.c. Fasten face layers vertically using 41 mm (1-5/8") screws spaced 406 mm (16") o.c. in the field and along the vertical edges and 300 mm (12") o.c. to the floor and ceiling runners. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: cUL U411 SOUND: NOAL 18-0642</p>
<p><b>STC 51</b></p>  <p>Thickness: 114 mm (4-1/2") Weight: 39.82 kg/m<sup>2</sup> (8.16 lb/ft<sup>2</sup>)</p>	<p><b>System WPB251</b> 12.7 mm (1/2") CertainTeed Type C products, 2 layers, each side of 64 mm (2-1/2") 0.46 mm (18 mils) steel studs. CertainTeed's Glass Fibre Insulation 64 mm (2-1/2") within cavity.</p> <p>Fasten base layers vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten face layers vertically using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: ULC U411 SOUND: NOAL 18-0647</p>
<p><b>STC 53</b></p>  <p>Thickness: 171 mm (6-3/4") Weight: 56.39 kg/m<sup>2</sup> (11.59 lb/ft<sup>2</sup>)</p>	<p><b>System WPC253</b> 15.9 mm (5/8") CertainTeed Type X products, 3 layers on one side, 2 layers other side of 92 mm (3-5/8") steel studs. No insulation.</p> <p>Fasten base layers vertically using 25 mm (1") screws spaced 406 mm (16") o.c. Fasten second layers vertically using 41 mm (1-5/8") screws spaced 406 mm (16") to the studs and 300 mm (12") o.c. to the floor and ceiling runners. o.c. Fasten third layer vertically with 57 mm (2-1/4") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: cUL U411 SOUND: NOAL 18-0660</p>
<p><b>STC 55</b></p>  <p>Thickness: 127 mm (5") Weight: 49 kg/m<sup>2</sup> (10 lb/ft<sup>2</sup>)</p>	<p><b>System WPB255</b> 15.9 mm (5/8") CertainTeed Type X products, 2 layers, each side of 64 mm (2-1/2") 0.46 mm (18 mils) steel studs. CertainTeed's Glass Fibre Insulation 64 mm (2-1/2") within cavity.</p> <p>Fasten base layers vertically using 25 mm (1") screws spaced 406 mm (16") o.c. Fasten face layers vertically using 41 mm (1-5/8") screws spaced 406 mm (16") o.c. on studs and 300 mm (12") o.c. on floor and ceiling runners. o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: cUL U411 SOUND: NOAL 18-0641</p>
<p><b>STC 57</b></p>  <p>Thickness: 156 mm (6-1/8") Weight: 46.57 kg/m<sup>2</sup> (9.54 lb/ft<sup>2</sup>)</p>	<p><b>System WPC257a</b> 15.9 mm (5/8") CertainTeed Type X products, 2 layers, each side of 92 mm (3-5/8") steel studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.</p> <p>Fasten base layers vertically using 25 mm (1") screws spaced 406 mm (16") o.c. Fasten face layers vertically using 41 mm (1-5/8") screws spaced 406 mm (16") o.c. on studs and 300 mm (12") o.c. on floor and ceiling runners. o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: cUL U411 SOUND: NOAL 18-0658</p>
<p><b>STC 57</b></p>  <p>Thickness: 143 mm (5-5/8") Weight: 41 kg/m<sup>2</sup> (8.5 lb/ft<sup>2</sup>)</p>	<p><b>System WPC257b</b> 12.7 mm (1/2") CertainTeed Type C products, 2 layers, each side of 92 mm (3-5/8") steel studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.</p> <p>Fasten base layers vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten face layers vertically using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: ULC U411 SOUND: NGC 2006049</p>

# STEEL STUD PARTITIONS

## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)

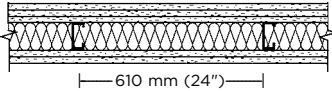
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 2h (continued)

STC  
58



Thickness: 171 mm (6-3/4")  
Weight: 57.58 kg/m<sup>2</sup> (11.79 lb/ft<sup>2</sup>)

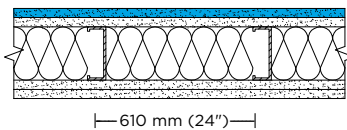
#### System WPC258

15.9 mm (5/8") CertainTeed Type X products, 3 layers on one side, 2 layers other side of 92 mm (3-5/8") steel studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten base layers vertically using 25 mm (1") screws spaced 406 mm (16") o.c. Fasten second layers vertically using 41 mm (1-5/8") screws spaced 406 mm (16") o.c. on studs and 300 mm (12") o.c. on floor and ceiling runners. o.c. Fasten third layer vertically with 57 mm (2-1/4") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: cUL U411  
SOUND:  
NOAL 18-0659

STC  
60



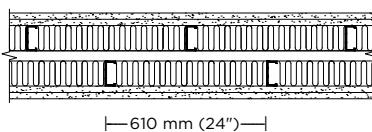
Thickness: 156 mm (6-1/8")  
Weight: 49.68 kg/m<sup>2</sup> (10.18 lb/ft<sup>2</sup>)

#### System WPC260

92 mm (3-5/8"), .46 mm (.018") steel studs 610 mm (24") o.c.  
One side, Face layer 15.9 mm (5/8") **SilentFX® QuickCut™** Type X applied with 41 mm (1-5/8") type S screws 406 mm (16") o.c. in the field and along the vertical edges and 300 mm (12") o.c. to the floor and ceiling runners. Base layer 15.9 mm (5/8") CertainTeed Type X applied with 25 mm (1") type S screws 300 mm (12") o.c. Opposite side, Base layer 15.9 mm (5/8") CertainTeed Type X applied with 25 mm (1") type S screws 300 mm (12") o.c. Face layer 15.9 mm (5/8") CertainTeed Type X applied with 41 mm (1-5/8") type S screws 406 mm (16") o.c. in the field and along the vertical edges and 300 mm (12") o.c. to the floor and ceiling runners. All joints staggered. 89 mm (3-1/2") CertainTeed Glass Fibre Insulation in the stud cavities. Tape and finish joints with CertainTeed products.

FIRE: cUL U411  
SOUND:  
OL 17-0203

STC  
65



Thickness: 216 mm (8-1/2")  
Weight: 47.78 kg/m<sup>2</sup> (9.79 lb/ft<sup>2</sup>)

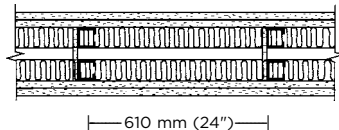
#### System WCB265

15.9 mm (5/8") CertainTeed Type X products or GlasRoc® Tile Backer Type X, 2 layers both sides of double row 64 mm (2-1/2") wide 0.46 mm (18 mils) studs separated by 25 mm (1") air space. 22 mm x 22 mm (7/8" x 7/8") 0.84 mm (33 mils) channels as horizontal bracing a minimum of every 1524 mm (60"). CertainTeed's Glass Fibre Insulation 64 mm (2-1/2") within both cavities.

Vertical application: Base layer installed with 25 mm (1") Type S-12 screws 406 mm (16") o.c. and face layer installed with 41 mm (1-5/8") Type S-12 screws 200 mm (8") o.c. on each side of the assembly. Joints staggered.  
Horizontal application: Base layer installed with 25 mm (1") Type S-12 screws 406 mm (16") o.c. and face layer installed with 41 mm (1-5/8") Type S-12 screws 406 mm (16") o.c. on each side of the assembly. Face and base layer joints to be staggered a minimum of 300 mm (12"). Tape and finish joints with CertainTeed products.

FIRE: cUL V469  
SOUND:  
NOAL 18-0643

STC  
65



Thickness: 172 mm (6-3/4")  
Weight: 49 kg/m<sup>2</sup> (10 lb/ft<sup>2</sup>)

#### System WCA265

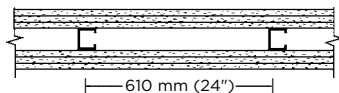
15.9 mm (5/8") CertainTeed, M2Tech® or GlasRoc® Tile Backer Type X, 2 layers, each side of paired 41 mm (1-5/8") steel studs. CertainTeed's Glass Fibre Insulation 38 mm (1-1/2") each side within cavity.

Attach 241 mm x 300 mm (9-1/2" x 12") CertainTeed or M2Tech® Type X bridging 1220 mm (48") o.c. to steel studs using screws (3 per stud). Fasten base layers vertically using 25 mm (1") screws spaced 200 mm (8") o.c. along edge joints, floor and ceiling tracks, and 300 mm (12") o.c. in the field. Fasten face layers vertically using 41 mm (1-5/8") screws spaced 200 mm (8") o.c. along edge joints, floor and ceiling tracks, and 300 mm (12") o.c. in the field. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: cUL U420  
SOUND:  
NRC-93-321

### FIRE RESISTANCE RATING: 3h

STC  
48



Thickness: 118 mm (4-5/8")  
Weight: 58 kg/m<sup>2</sup> (12 lb/ft<sup>2</sup>)

#### System WPA348

12.7 mm (1/2") CertainTeed Type C products, 3 layers, each side of 41 mm (1-5/8") steel studs.

Fasten base layers vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten second layers vertically using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Fasten third layers vertically or horizontally with 57 mm (2-1/4") screws spaced 300 mm (12") o.c. Note, for horizontal applications use 38 mm (1-1/2") Type G screws along the horizontal edge and in the field between studs. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC U411  
SOUND:  
NOAL 18-0701

# STEEL STUD PARTITIONS

## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)

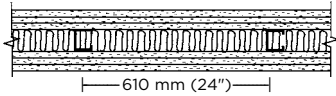
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/TEST REPORTS

### FIRE RESISTANCE RATING: 3h (continued)

STC 53



Thickness: 118 mm (4-5/8")  
Weight: 60 kg/m<sup>2</sup> (12 lb/ft<sup>2</sup>)

#### System WPA353

12.7 mm (1/2") CertainTeed Type C products, 3 layers, each side of 41 mm (1-5/8") steel studs. Mineral wool insulation 38 mm (1-1/2") within cavity.

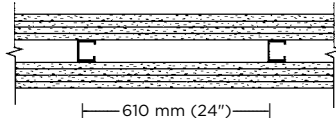
Fasten base layers vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten second layers vertically using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Fasten third layers vertically or horizontally with 57 mm (2-1/4") screws spaced 300 mm (12") o.c. Note, for horizontal applications use 38 mm (1-1/2") Type G screws along the horizontal edge and in the field between studs. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC U411

SOUND:  
NOAL 18-0704

### FIRE RESISTANCE RATING: 4h

STC 51



Thickness: 143 mm (5-5/8")  
Weight: 77 kg/m<sup>2</sup> (16 lb/ft<sup>2</sup>)

#### System WPA451

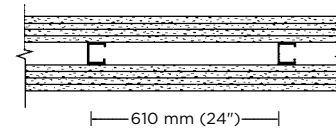
12.7 mm (1/2") CertainTeed Type C products, 4 layers, each side of 41 mm (1-5/8") steel studs.

Fasten base layers vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten second layers vertically using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Fasten third layers vertically with 57 mm (2-1/4") screws spaced 300 mm (12") o.c. Fasten fourth layers vertically or horizontally with 67 mm (2-5/8") screws spaced 300 mm (12") o.c. Note, for horizontal applications use 38 mm (1-1/2") Type G screws along the horizontal edge and in the field between studs. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC U411

SOUND:  
NOAL 18-0702

STC 52



Thickness: 168 mm (6-5/8")  
Weight: 88.49 kg/m<sup>2</sup> (18.12 lb/ft<sup>2</sup>)

#### System WPA452

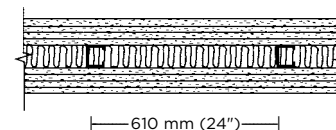
15.9 mm (5/8") CertainTeed Type X products, 4 layers, each side of 41 mm (1-5/8") steel studs.

Fasten base layers vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten second layers vertically using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Fasten third layers vertically with 57 mm (2-1/4") screws spaced 300 mm (12") o.c. Fasten fourth layers vertically or horizontally with 67 mm (2-5/8") screws spaced 300 mm (12") o.c. Note, for horizontal applications use 38 mm (1-1/2") Type G screws along the horizontal edge and in the field between studs. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC U411

SOUND:  
NOAL 18-0705

STC 55



Thickness: 143 mm (5-5/8")  
Weight: 79 kg/m<sup>2</sup> (16 lb/ft<sup>2</sup>)

#### System WPA455

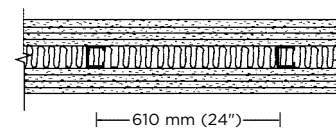
12.7 mm (1/2") CertainTeed Type C products, 4 layers, each side of 41 mm (1-5/8") steel studs. CertainTeed's Glass Fibre Insulation 38 mm (1-1/2") within cavity.

Fasten base layers vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten second layers vertically using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Fasten third layers vertically with 57 mm (2-1/4") screws spaced 300 mm (12") o.c. Fasten fourth layers vertically or horizontally with 67 mm (2-5/8") screws spaced 300 mm (12") o.c. Note, for horizontal applications use 38 mm (1-1/2") Type G screws along the horizontal edge and in the field between studs. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC U411

SOUND:  
NOAL 18-0703

STC 57



Thickness: 168 mm (6-5/8")  
Weight: 89.04 kg/m<sup>2</sup> (18.24 lb/ft<sup>2</sup>)

#### System WPA457

15.9 mm (5/8") CertainTeed Type X products, 4 layers, each side of 41 mm (1-5/8") steel studs. CertainTeed's Glass Fibre Insulation 38 mm (1-1/2") within cavity.

Fasten base layers vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten second layers vertically using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Fasten third layers vertically with 57 mm (2-1/4") screws spaced 300 mm (12") o.c. Fasten fourth layers vertically or horizontally with 67 mm (2-5/8") screws spaced 300 mm (12") o.c. Note, for horizontal applications use 38 mm (1-1/2") Type G screws along the horizontal edge and in the field between studs. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC U411

SOUND:  
NOAL 18-0706

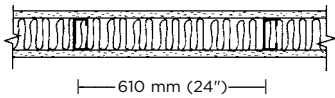
# STEEL STUD PARTITIONS

## Interior - Loadbearing

STC (SOUND TRANSMISSION CLASS)	CONSTRUCTION	DESCRIPTION	DESIGN NUMBER/ TEST REPORTS
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### FIRE RESISTANCE RATING: 1h

STC  
**48**



Thickness: 121 mm (4-3/4")  
Weight: 27 kg/m<sup>2</sup> (5.6 lb/ft<sup>2</sup>)

#### System WIBC148

15.9 mm (5/8") CertainTeed Type X products, 1 layer, each side of 92 mm (3-5/8"), 0.84 mm (33 mils) loadbearing steel studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

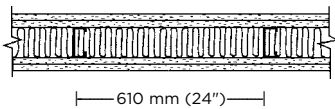
Fasten panels vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: cUL U425

SOUND:  
OL 12-0922

### FIRE RESISTANCE RATING: 2h

STC  
**54**



Thickness: 153 mm (6")  
Weight: 50 kg/m<sup>2</sup> (10 lb/ft<sup>2</sup>)

#### System WIBC254

15.9 mm (5/8") CertainTeed Type X products, 2 layers, each side 92 mm (3-5/8"), 0.84 mm (33 mils) loadbearing steel studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten base layers vertically using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten face layers vertically using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: cUL U425

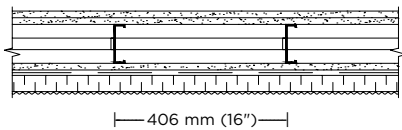
SOUND:  
OL 12-0924

# STEEL STUD PARTITIONS

## Exterior - Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)	CONSTRUCTION	DESCRIPTION	DESIGN NUMBER/ TEST REPORTS
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### FIRE RESISTANCE RATING: 2h



Thickness: 296 mm (11-5/8")

#### System WPC2XX

Assembly rated for fire exposure from interior side only. 15.9 mm (5/8") CertainTeed Type X products, 2 layers on interior side of 92 mm (3-5/8") wide steel studs with steel channel bracing inserted through the stud cutouts at 1220 mm (48") o.c. and attached to studs with clip angles and screws. 15.9 mm (5/8") GlasRoc® Sheathing Type X, 1 layer on exterior side of steel studs. Exterior finished with expanded polystyrene insulation and Durabond Products Ltd's EIFS system. Interior finished with CertainTeed products.

Interior side: Fasten base layer vertically using 32 mm (1-1/4") screws 150 mm (6") o.c. on the perimeter and 200 mm (8") o.c. in the field. Fasten face layer vertically using 41 mm (1-5/8") screws 150 mm (6") o.c. on the perimeter and 200 mm (8") o.c. in the field. Joints must be offset 610 mm (24").

Exterior side: Fasten sheathing using 41 mm (1-5/8") screws 200 mm (8") o.c. on the perimeter and 300 mm (12") o.c. in the field. Joints between sheathing to be covered with 120 mm (5") fiberglass seam tape and with a proprietary EIFS System.

FIRE: ULC W456

# STEEL STUD PARTITIONS

## Exterior - Loadbearing

STC (SOUND TRANSMISSION CLASS)

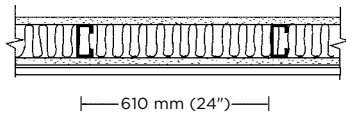
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 3/4h

STC  
49



Thickness: 118 mm (4-5/8") plus exterior finish

Weight: 25 kg/m<sup>2</sup> (5.1 lb/ft<sup>2</sup>) plus exterior finish

#### System WEBC049

15.9 mm (5/8") CertainTeed Type X products, 1 layer, interior side, 1 layer, exterior side of 92 mm (3-5/8"), 0.84 mm (33 mils) loadbearing steel studs. 89 mm (3-1/2") CertainTeed's Glass Fibre Insulation in the cavity, exterior finish.

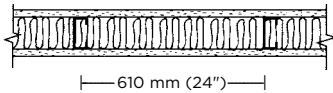
Fasten CertainTeed GlasRoc® Sheathing vertically to the exterior side using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten CertainTeed Type X products vertically to the interior side using 25 mm (1") screws spaced 300 mm (12") o.c. Second layer to be fastened using Type S-12 41 mm long (1-5/8") screws. Joints must be offset. Tape and finish interior joints with CertainTeed products.

FIRE: cUL U425

SOUND:  
OL 12-0926

### FIRE RESISTANCE RATING: 1h

STC  
45



Thickness: 121 mm (4-3/4")

#### System WEBC145

Install CertainTeed's Glass Fibre Insulation between 92 mm (3-5/8"), 0.84 mm (33 mils) steel studs space 610 mm (24") o.c. Apply one layer of 15.9 mm (5/8") CertainTeed Type X gypsum panel vertically to interior side with 25 mm (1") Type S-12 steel screws spaced 300 mm (12") o.c. along edges and in the field. Joints must be offset from joints on the opposite side. Tape and finish joints.

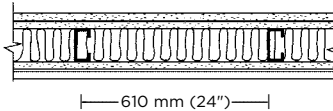
Apply one layer of 15.9 mm (5/8") GlasRoc® Sheathing Type X vertically to exterior side with 25 mm (1") screws spaced 300 mm (12") o.c. along edges and in the field. Joints must be offset from joints on the opposite side. Exterior finish.

FIRE: cUL U425

SOUND:  
OL 19-0710

### FIRE RESISTANCE RATING: 1-1/2h

STC  
53



Thickness: 137 mm (5-3/8") plus exterior finish

Weight: 33.61 kg/m<sup>2</sup> (6.88 lb/ft<sup>2</sup>) plus exterior finish

#### System WEBC153

15.9 mm (5/8") CertainTeed Type X products, 2 layers, interior side, 12.7 mm (1/2") CertainTeed GlasRoc® Sheathing, 1 layer, exterior side of 92 mm (3-5/8"), 0.84 mm (33 mils) loadbearing steel studs. CertainTeed's Glass Fibre Insulation, exterior finish.

Fasten CertainTeed or GlasRoc® Sheathing vertically to the exterior side using 25 mm (1") screws spaced 300 mm (12") o.c. Fasten base layer vertically to the interior side using 32 mm (1-1/4") screws spaced 300 mm (12") o.c. Fasten face layer vertically to the using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish interior joints with CertainTeed products.

FIRE: cUL U425

SOUND:  
OL 12-0925 Sound rating achieved using 0.48 mm (19 mil) studs.

# WOOD STUD PARTITIONS

## Interior - Loadbearing

STC (SOUND TRANSMISSION CLASS)

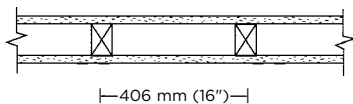
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 3/4h

STC  
**32**  
(with insulation  
STC 34)



Thickness: 114 mm (4-1/2")  
Weight: 27 kg/m<sup>2</sup> (5.4 lb/ft<sup>2</sup>)

#### System WPE032

12.7 mm (1/2") CertainTeed Type C products, 1 layer, each side of 38 mm x 89 mm (2" x 4") wood studs.

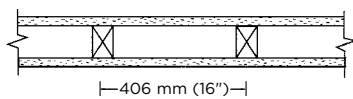
Fasten panels vertically using 44 mm (1-3/4") nails spaced 175 mm (7") o.c. Joints must be offset. Tape and finish joints with CertainTeed products. Widths other than 1200 mm (48") must be installed horizontally.

FIRE: ULC W302

SOUND: NBCC (2015) Table A-9.10.3.1.A - Wall W1e & W1b

### FIRE RESISTANCE RATING: 1h

STC  
**32**



Thickness: 121 mm (4-3/4")  
Weight: 31 kg/m<sup>2</sup> (6.3 lb/ft<sup>2</sup>)

#### System WPE132

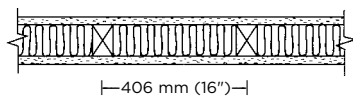
15.9 mm (5/8") CertainTeed Type X products, 1 layer, each side of 38 mm x 89 mm (2" x 4") wood studs.

Fasten panels vertically using 51 mm (2") nails spaced 175 mm (7") o.c. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: ULC W301, cUL U305

SOUND: NBCC (2015) Table A-9.10.3.1.A Wall W1d

STC  
**35**



Thickness: 114 mm (4-1/2")  
Weight: 30 kg/m<sup>2</sup> (6.2 lb/ft<sup>2</sup>)

#### System WPE135

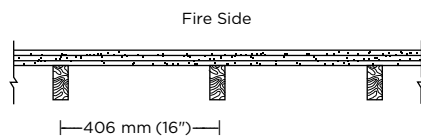
15.9 mm (5/8") CertainTeed Type C products, 1 layer, each side of 38 mm x 89 mm (2" x 4") wood studs. Mineral wool insulation 89 mm (3-1/2") within cavity.

Fasten panels vertically using 32 mm (1-1/4") screws spaced 300 mm (12") o.c.; or 32 mm (1-1/4") nails spaced 200 mm (8") o.c. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: cUL U305

SOUND: OL 18-1232

STC  
**41**



Thickness: 135 mm (5-3/8")  
Weight: 33 kg/m<sup>2</sup> (6.8 lb/ft<sup>2</sup>)

#### System WPE141

Description: 15.9 mm (5/8") CertainTeed Type X products, 3 layers, one side of 38 mm x 89 mm (2" x 4") wood stud.

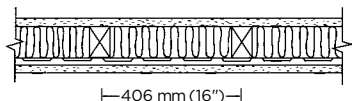
Fasten base layer using 32 mm (1-1/4") screws spaced 300 mm (12") o.c. Fasten second layer using 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Third layer is applied using 64 mm (2-1/2") screws spaced 300 mm (12") o.c. For horizontal applications, edge joints and horizontal butt joints in adjacent layers need to be offset a minimum 406 mm (16"). For vertical applications, the second and third layers must be applied with joints centred over studs and offset by one framing member from previous layer. Tape and finish outer layer with CertainTeed products.

FIRE: cUL W306

Exposed to fire on one side only

SOUND: OL 19-0715

STC  
**47**



Thickness: 133 mm (5-1/4")  
Weight: 33 kg/m<sup>2</sup> (6.8 lb/ft<sup>2</sup>)

#### System WPE147

15.9 mm (5/8") CertainTeed Type X products, 1 layer on 38 mm x 89 mm (2" x 4") wood studs, one side on resilient channels. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten panel vertically or horizontally to one side with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Attach resilient channels with tabs downwards, horizontally at 406 mm (16") or 610 mm (24") o.c. to studs on opposite side with 32 mm (1-1/4") screws. Upper channel 150 mm (6") from top, lower channel 406 mm (16") up from bottom and at the bottom of the partition, install an inverted channel. Fasten panel vertically to the resilient channels with 25 mm (1") screws spaced 200 mm (8") o.c. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: cUL U305

SOUND: OL 18-0818

# WOOD STUD PARTITIONS

## Interior – Loadbearing

STC (SOUND TRANSMISSION CLASS)

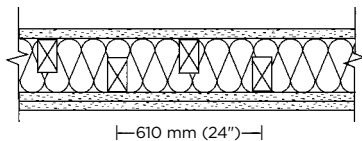
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 1h (continued)

STC  
51



Thickness: 200 mm (7-7/8")  
Weight: 47 kg/m<sup>2</sup> (9.7 lb/ft<sup>2</sup>)

#### System WPE151

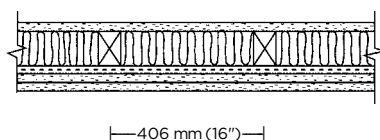
15.9 mm (5/8") CertainTeed Type X products, 1 layer, 1 side of staggered 38 mm x 89 mm (2" x 4") wood studs on common 38 mm x 150 mm (2" x 6") plate. 2 layers on the other side. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten 1 layer vertically or horizontally to both sides with 32 mm (1-1/4") type W screws spaced 200 mm (8") o.c. Fasten face layer using 60 mm (2-3/8") long nails spaced 200 mm (8") o.c. Vertical joints located over studs. All joints in face layer staggered with joints in base layer. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC W313

SOUND:  
OL 18-0825

STC  
52



Thickness: 149 mm (5-7/8")  
Weight: 41.25 kg/m<sup>2</sup> (8.45 lb/ft<sup>2</sup>)

#### System WPE152

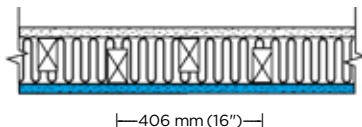
15.9 mm (5/8") CertainTeed Type X products, 1 layer, 1 side of 38 mm x 89 mm (2" x 4") wood studs. Other side, 2 layers on resilient channels. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten panel vertically or horizontally to one side with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Attach resilient channels with tabs downwards, horizontally at 406 mm (16") or 610 mm (24") o.c. to studs on opposite side with 32 mm (1-1/4") screws. Upper channel 150 mm (6") from top, lower channel 406 mm (16") up from bottom and at the bottom of the partition, install an inverted channel. Fasten base layer vertically to the resilient channels with 25 mm (1") screws spaced 200 mm (8") o.c. Fasten face layer vertically or horizontally with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: cUL U305

SOUND:  
NOAL 18-0711

STC  
55



Thickness: 171.5 mm (9-1/4")  
Weight: 37.9 kg/m<sup>2</sup> (7.8 lb/ft<sup>2</sup>)

#### System WPE155

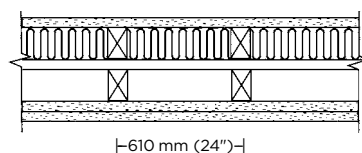
15.9 mm (5/8") CertainTeed Type X product, 1 layer, one side of staggered 38 mm x 89 mm (2" x 4") wood studs. Other side, 1 layer 15.9 mm (5/8") CertainTeed **SilentFX® QuickCut™** Type X and CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten panels vertically using 42 mm (1-5/8") screws spaced 300 mm (12") o.c. in the field and 200 mm (8") along the top and bottom edges of the wall. Joints centered over studs. Joints on opposite sides of studs, staggered by at least one stud spacing. Acoustical sealant applied in perimeter gap. Tape and finish joints with CertainTeed products.

FIRE: ULC W313

SOUND:  
OL 15-1112

STC  
57



Thickness: 251 mm (9-7/8")  
Weight: 53 kg/m<sup>2</sup> (10.9 lb/ft<sup>2</sup>)

#### System WPE157

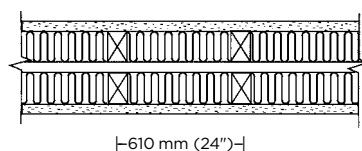
15.9 mm (5/8") CertainTeed Type X products, 1 layer, 1 side of double row of 38 mm x 89 mm (2" x 4") wood studs. Other side, 2 layers. 89 mm (3-1/2") CertainTeed's Glass Fibre Insulation in one cavity.

Set plates 25.4 mm (1") apart. Fasten base layers vertically or horizontally using 41 mm (1-5/8") screws spaced 300 mm (12") o.c.; or 38 mm (1-1/2") nails spaced 200 mm (8") o.c. Fasten face layer to one side vertically or horizontally using 51 mm (2") screws spaced 300 mm (12") o.c.; or 51 mm (2") nails spaced 200 mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC W313

SOUND:  
NBCC (2015)  
Table A-9.10.3.1.A  
Wall W14c

STC  
58



Thickness: 235 mm (9-1/4")  
Weight: 33.61 kg/m<sup>2</sup> (6.88 lb/ft<sup>2</sup>)

#### System WPE158

15.9 mm (5/8") CertainTeed Type X products, 1 layer, each side of double row of 38 mm x 89 mm (2" x 4") wood studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity, 2 sides.

Set plates 25.4 mm (1") apart. Fasten panels vertically or horizontally using 32 mm (1-1/4") screws spaced 200 mm (8") o.c.; or 47 mm (1-7/8") nails spaced 178 mm (7") o.c. Tape and finish joints with CertainTeed products.

FIRE: ULC W313

SOUND:  
NOAL 18-0714

24 Note: For other high STC assemblies see 2 hour fire ratings.



# WOOD STUD PARTITIONS

## Interior - Loadbearing

STC (SOUND TRANSMISSION CLASS)

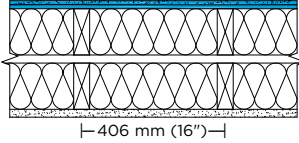
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 1h (continued)

STC  
61



Thickness 241 mm (9-1/4")  
Weight: 38.56 kg/m<sup>2</sup> (7.9 lb/ft<sup>2</sup>)

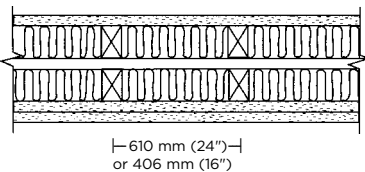
#### System WPE161a

Double row 38 x 89 mm (2" x 4") wood studs on separate plates, 406 mm (16") o.c. with 25.4 mm (1") gap. One side, 15.9 mm (5/8") **SilentFX**<sup>®</sup> **QuickCut**<sup>™</sup> Type X applied with 32 mm (1-1/4") type W screws 200 mm (8") o.c. Opposite side, 15.9 mm (5/8") CertainTeed Type X applied with 32 mm (1-1/4") type W screws 200 mm (8") o.c. All joints staggered. 89 mm (3-1/2") 89 mm (3-1/2") CertainTeed Glass Fibre Insulation in the stud cavities. Tape and finish joints with CertainTeed Products.

FIRE: ULC W313

SOUND:  
OL 17-0214

STC  
61



Thickness: 251 mm (9-7/8")  
Weight: 56 kg/m<sup>2</sup> (11.4 lb/ft<sup>2</sup>)

#### System WPE161b

15.9 mm (5/8") CertainTeed Type X products, 1 layer, 1 side of double row 38 mm x 89 mm (2" x 4") wood studs. Other side, 2 layers. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity, both sides.

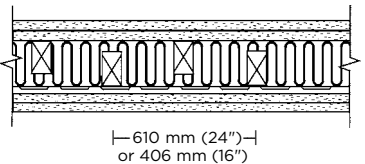
Set plates 25.4 mm (1") apart. Fasten base layers vertically or horizontally using 32 mm (1-1/4") Type W screws spaced 200 mm (8") o.c.; or 48 mm (1-7/8") nails spaced 178 mm (7") o.c. Fasten face layer to one side vertically or horizontally using 60 mm (2-3/8") nails spaced 200 mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC W313

SOUND:  
NBCC (2015)  
Table A-9.10.3.1.A  
Wall W14a

### FIRE RESISTANCE RATING: 1-1/2h

STC  
62



Thickness: 216 mm (8-1/2")  
Weight: 59 kg/m<sup>2</sup> (12 lb/ft<sup>2</sup>)

#### System WPE162

15.9 mm (5/8") CertainTeed Type X products, 2 layers, 1 side of staggered 38 mm x 89 mm (2" x 4") wood studs. Other side, 2 layers on resilient channels. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

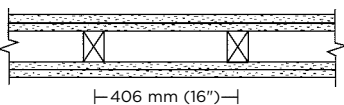
Fasten base layer vertically or horizontally to one side with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Fasten face layer vertically or horizontally with 51 mm (2") screws spaced 300 mm (12") o.c. Attach resilient channels with tabs down, horizontally at 406 mm (16") o.c. or 610 mm (24") o.c. to studs on opposite side with 32 mm (1-1/4") screws. Upper channel 150 mm (6") from top, lower channel 406 mm (16") up from bottom and at the bottom of the partition, install an inverted channel. Fasten base layer vertically to the resilient channels with 25 mm (1") screws spaced 300 mm (12") o.c. Fasten face layer vertically or horizontally with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: NBCC (2015)  
Table A-9.10.3.1.A  
Wall W10a

SOUND:  
NBCC (2015)  
Table A-9.10.3.1.A  
Wall W10a

### FIRE RESISTANCE RATING: 2h

STC  
36  
(with  
insulation  
STC 38)



Thickness: 152 mm (6")  
Weight: 54 kg/m<sup>2</sup> (11 lb/ft<sup>2</sup>)

#### System WPE236

15.9 mm (5/8") CertainTeed Type X products, 2 layers, each side of 38 mm x 89 mm (2" x 4") wood studs.

Fasten base layers vertically or horizontally using 47 mm (1-7/8") nails spaced 150 mm (6") o.c. Fasten face layers vertically or horizontally using 60 mm (2-3/8") nails spaced 200 mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: cUL U301

SOUND:  
NBCC (2015)  
Table A-9.10.3.1.A  
Wall W2d, W2a

# WOOD STUD PARTITIONS

## Interior - Loadbearing

STC (SOUND TRANSMISSION CLASS)

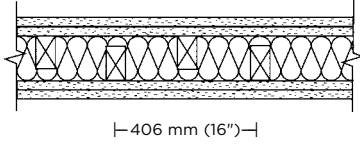
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 2h (continued)

STC  
56



Thickness: 200 mm (8")  
Weight: 59 kg/m<sup>2</sup> (12 lb/ft<sup>2</sup>)

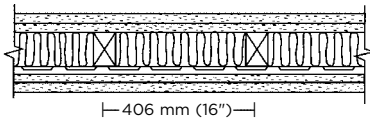
#### System WPE256a

15.9 mm (5/8") CertainTeed Type X products, 2 layers, each side of staggered 38 mm x 89 mm (2" x 4") wood studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten base layers vertically or horizontally using 47 mm (1-7/8") nails spaced 150 mm (6") o.c. Fasten face layers vertically or horizontally using 60 mm (2-3/8") nails spaced 200 mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC W313  
SOUND: NBCC (2015)  
Table A-9.10.3.1.A  
Wall W9a

STC  
56



Thickness: 165 mm (6-1/2")  
Weight: 52.13 kg/m<sup>2</sup> (10.68 lb/ft<sup>2</sup>)

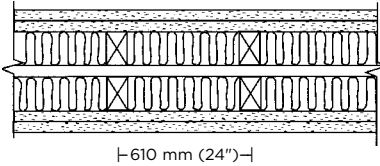
#### System WPE256b

15.9 mm (5/8") CertainTeed Type X products, 2 layers, 1 side 38 mm x 89 mm (2" x 4") wood studs. Other side, 2 layers on resilient channels. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Fasten base layer vertically or horizontally to one side with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Fasten face layer vertically or horizontally with 51 mm (2") screws spaced 300 mm (12") o.c. Attach resilient channels with tabs down, horizontally at 610 mm (24") o.c. to studs on opposite side with 32 mm (1-1/4") screws. Upper channel 150 mm (6") from top, lower channel 610 mm (24") up from bottom and at the bottom of the partition, install an inverted channel. Fasten base layer vertically to the resilient channels with 25 mm (1") screws spaced 610 mm (24") o.c. Fasten face layer vertically or horizontally with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: cUL U301  
SOUND:  
NOAL 18-0713

STC  
67



Thickness: 267 mm (10-1/2")  
Weight: 55.42 kg/m<sup>2</sup> (11.35 lb/ft<sup>2</sup>)

#### System WPE267

15.9 mm (5/8") CertainTeed Type X products, 2 layers, each side of double row of 38 mm x 89 mm (2" x 4") wood studs. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity, both sides.

Set plates 25.4 mm (1") apart. Fasten base layers vertically or horizontally using 47 mm (1-7/8") nails spaced 150 mm (6") o.c. Fasten face layers vertically or horizontally using 60 mm (2-3/8") nails spaced 200 mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.

FIRE: ULC W313  
SOUND:  
NOAL 18-0716

# WOOD STUD PARTITIONS

## Exterior - Loadbearing

STC (SOUND TRANSMISSION CLASS)

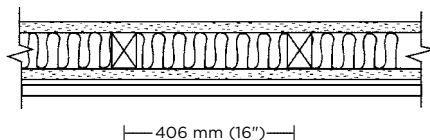
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 1h

STC  
**37**



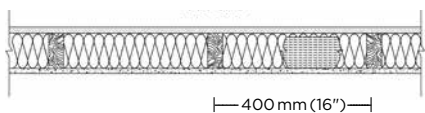
Thickness: 121 mm (4-3/4") (plus cladding)  
Weight: 31 kg/m<sup>2</sup> (6.3 lb/ft<sup>2</sup>) (plus cladding)

#### System WXE137

Fasten 1 layer of 15.9 mm (5/8") CertainTeed Type X products vertically to interior side of 38 mm x 89 mm (2" x 4") wood studs. Fasten 1 layer of 15.9 mm (5/8") CertainTeed GlasRoc® Sheathing Type X vertically to exterior side. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity. All panels fastened using 51 mm (2") nails spaced 175 mm (7") o.c. Joints must be offset. Tape and finish interior joints with CertainTeed products. Exterior cladding system applied.

FIRE: ULC W301  
cUL W307

SOUND:  
NGC 2021006  
(with fibre  
cement siding)



Thickness: 117 mm (4-5/8") (plus cladding)  
Weight: 33 kg/m<sup>2</sup> (6.7 lb/ft<sup>2</sup>) (plus cladding)

#### System WXE1XX

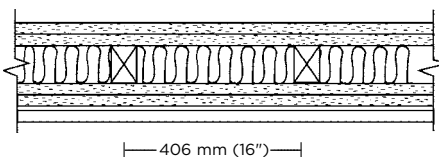
Fasten 1 layer of 15.9 mm (5/8") CertainTeed Type X products to interior side of 38 mm x 89 mm (2"x4") wood studs using 32 mm (1-1/4") screws spaced 200 mm (8") o.c. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity. Paper tape and 2 coats of joint compound. Apply 2 coats of joint compound to screw heads.

Fasten one layer of 12.7 mm (1/2") GlasRoc® Sheathing to exterior side using 32 mm (1-1/4") screws spaced 200 mm (8") o.c.

FIRE: cUL W308

### FIRE RESISTANCE RATING: 2h

STC  
**38**



Thickness: 150 mm (6") (plus cladding)  
Weight: 54 kg/m<sup>2</sup> (11 lb/ft<sup>2</sup>) (plus cladding)

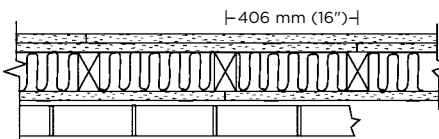
#### System WXE238

Fasten base layer of 15.9 mm (5/8") CertainTeed Type X products vertically or horizontally to interior side of 38 mm x 89 mm (2" x 4") wood studs with 47 mm (1-7/8") nails spaced 150 mm (6") o.c. Fasten face layer of 15.9 mm (5/8") CertainTeed or M2Tech® Type X vertically or horizontally with 60 mm (2-3/8") nails spaced 200 mm (8") o.c. Fasten base layer of 15.9 mm (5/8") CertainTeed GlasRoc® Sheathing Type X vertically or horizontally to exterior side 47 mm (1-7/8") nails spaced 150 mm (6") o.c. Fasten face layer of 15.9 mm (5/8") CertainTeed Sheathing Type X or GlasRoc® Sheathing Type X vertically or horizontally with 60 mm (2-3/8") nails spaced 200 mm (8") o.c. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity. Joints must be offset. Tape and finish interior joints with CertainTeed products. Exterior cladding system applied.

FIRE: cUL U301

SOUND: NBCC  
(2015)  
Table A-9.10.3.1.A  
Wall W2a

STC  
**42**



Thickness: 255 mm (10")

#### System WXE242

Fasten base layer of 15.9 mm (5/8") CertainTeed Type X products vertically or horizontally to interior side of 38 mm x 89 mm (2" x 4") wood studs with 51 mm (2") cement-coated nails spaced 200 mm (8") o.c. Fasten face layer of 15.9 mm (5/8") CertainTeed or M2Tech® Type X vertically or horizontally with 63 mm (2-1/2") cement-coated nails spaced 200 mm (8") o.c. Fasten 1 layer of 12.7 mm (1/2") CertainTeed GlasRoc® Sheathing horizontally to exterior side with 45 mm (1-3/4") roofing nails spaced 150 mm (6") o.c. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity. Joints must be offset. Tape and finish interior joints with CertainTeed products. Exterior brick veneer system applied.

FIRE: ULC U302

SOUND:  
Calculated  
to ASTM E413

Note: Any wall as listed in "Wood Stud Partitions" may also be used as an exterior wall, provided it is covered with a sheathing membrane, exterior cladding and meets the structural requirements.

# HORIZONTAL MEMBRANE SYSTEMS

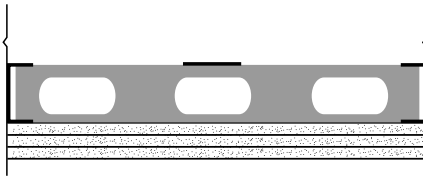
## Non-Loadbearing

CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 1h**



### System WHS1XX

Perimeter channels/C Channels minimum 152 mm (6") wide, 0.84 mm/0.33" (No. 20 MSG) galv. steel, with a 51 mm (2") leg, attached to the wall structure maximum 610 mm (24") o.c. Min. 152 mm (6") wide with min. 41 mm (1-5/8") legs containing folded back flanges and formed from min. 0.84 mm/.033" (No. 20 MSG) galv. steel. Studs to be cut 9.5 mm (3/8") to 15.9 mm (5/8") less than the span between the vertical legs of the perimeter channels. Studs spaced a max. 406 mm (16") o.c. At each end of the stud, the un-faced side shall be secured to the perimeter channel with one 11.5 mm (7/16") long pan-head steel screw. Studs are used at each end of the horizontal barrier to terminate the assembly at the adjoining wall. These end studs shall be secured to the adjoining wall in the same manner as the perimeter channels. Maximum unsupported length of studs shall not exceed 2460 mm (8'-1"). If necessary, min. 3.261 mm/0.129" (8 gauge) steel wire, hung from holes punched in C Channels and fastened to suitable point of attachment (HSS 3 x 3 x 1/4 in. or steel member having equal or greater stiffness). Hanger wire spaced maximum 610 mm (24") o.c.

FIRE: cUL I507

Minimum 102 mm (4") wide 0.84mm/0.33" (No. 20 MSG) galv. steel strapping applied perpendicular to the studs at the centerline of the span and fastened using two 12.7 mm (1/2") pane-head steel screws. Steel strapping to overlap one full stud bay at splice locations.

Three layers of 15.9 mm (5/8") CertainTeed Type X gypsum panel installed with the long dimension perpendicular to the steel studs. Base layer installed with end joints in adjacent rows staggered a min. 813 mm (32"). Panels fastened to studs and perimeter channels with 32 mm (1-1/4") Type S steel screws, spaced a maximum 406 mm (16") o.c. Middle layer installed with end joints in adjacent rows staggered min. 813 mm (32"). Panels fastened to studs and perimeter channels with 41 mm (1-5/8") Type S steel screws spaced a maximum 406 mm (16") o.c. Face layer installed with end joints in adjacent rows staggered a min. 813 mm (32"). Panels fastened to the studs and perimeter channels with 57 mm (2-1/4") Type S steel screws spaced a maximum 300 mm (12") o.c. Face layers joints staggered a min. 406 mm (16") from middle layer joints. Tape and finish outer layer joints with CertainTeed products.

# HORIZONTAL MEMBRANE SYSTEMS

## Non-Loadbearing

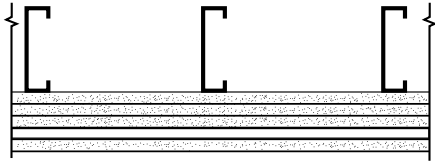
STC (SOUND TRANSMISSION CLASS)

CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 2h**



### System WHS2XX

Min. 152 mm (6") wide with min. 41 mm (1-5/8") legs containing folded back ws and formed from min. 0.84 mm/.033" (No. 20 MSG) galv. steel. Studs to be cut 12.7 mm (1/2") to 19 mm (3/4") less than the span between the vertical legs of the perimeter channels. Studs spaced a max. 24 in. o.c. At each end of the stud, the un-faced side shall be secured to the perimeter channel with one 12.7 mm (1/2") long pan-head steel screw. Studs are used at each end of the horizontal barrier to terminate the assembly at the adjoining wall. These end studs shall be secured to the adjoining wall in the same manner as the perimeter channels.

FIRE: cUL I514

Four layers of 15.9 mm (5/8") CertainTeed Type C gypsum panel. First three layers installed with long dimension perpendicular to bottom flange of steel studs. Adjacent butt joints staggered approximately 1220 mm (48") o.c. Overlapping layers installed so that the tapered edges are offset min 300 mm (12") from previous layer. Base layer fastened to bottom flange of steel studs with 32 mm (1-1/4") Type S-12 steel screws spaced 300 mm (12") o.c. Second layer secured to bottom flange of steel studs with 51 mm (2") long Type S-12 steel screws spaced 300 mm (12") o.c. Third layer secured to bottom flange of steel studs with 63mm (2-1/2") Type S-12 steel screws spaced 300 mm (12") o.c. Fourth layer secured to resilient or furring channels with 38 mm (1-1/2") long Type S steel screws spaced 300 mm (12") o.c. Screws to be spaced 76 mm (3") from butted end joints and 25 mm (1") from tapered end joints.

Finish with CertainTeed premixed joint compound, applied in two coats to joints and screw-heads. Nom 51 mm (2") wide paper tape embedded in first layer of compound over all joints.

## M2Tech® or GlasRoc® Shaftliner, “J” Track, “C-H, C-T or I” Studs and Shaftliner Framing Installation

Lay out per construction drawings.  
Secure “J” track as perimeter framing on all sides, top and bottom, with suitable fasteners spaced 610 mm (24”) o.c. maximum.

Pre-plan stud layout 610 mm (24”) o.c. maximum so the terminal stud on either end will fall 200 mm (8”) minimum from the end of the opening.

Erect the first 25.4 mm (1”) M2Tech® or GlasRoc® Shaftliner panel by inserting between the flanges of the “J” track at the top and bottom at one end of the opening. Plumb the panel flush against the web of “J” track sections at the end of the opening.

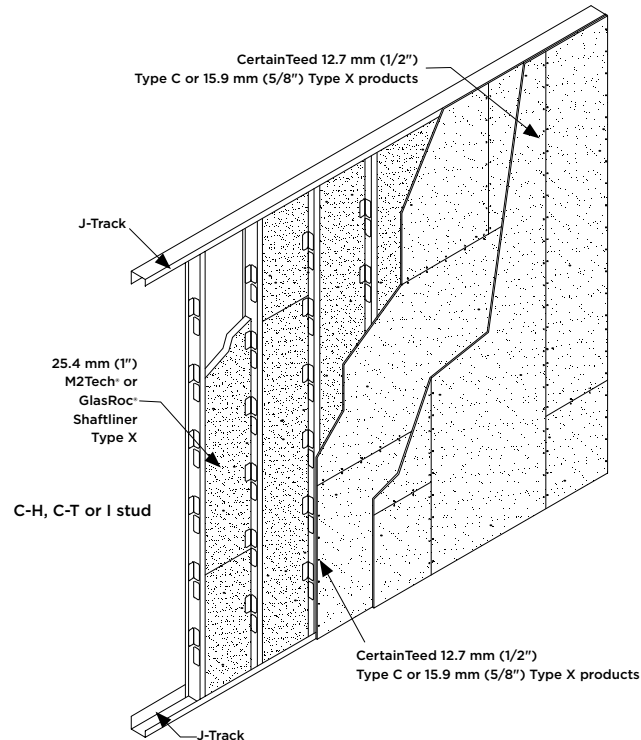
Secure with 41 mm (1-5/8”) type S screws 300 mm (12”) o.c. to the flange at the end of the opening, starting 150 mm (6”) from the top or bottom. No screws are required at the top or bottom “J” tracks.

Fit a C-H, C-T or I stud to the Shaftliner making sure it’s engaged in the “J” track at the top and bottom.

Erect the adjacent Shaftliner panel by inserting in the top and bottom “J” track and the previously installed stud. Install succeeding studs and Shaftliner panels in this manner to complete the framing. Screws are not required for the top and bottom “J” tracks except at the ends of the opening, as described.

For doors, ducts or other openings install “J” track as perimeter framing.

When required for higher STC ratings, insulation should be friction fitted in the cavity before finishing on the cavity side with 15.9 mm (5/8”) CertainTeed Type X products. Resilient channels may be attached horizontally 610 mm (24”) o.c. to the studs with 10 mm (3/8”) pan head screws at each stud.



**2-Hour Vertical Shaftwall System**

### Helpful Hints

1. Use a fastening plate to secure the “J” track whenever fasteners are closer than 100 mm (4”) to the edge. Setting the plate at the time of concrete construction will avoid spalling by mechanical fasteners.
2. Pre-cut studs 12.7 mm (1/2”) less than the height of the opening.
3. Pre-cut M2Tech® or GlasRoc® Shaftliner panels 25.4 mm (1”) 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, C-T or I studs or to plates secured behind or between the layers of 15.9 mm (5/8”) CertainTeed Type X products.
6. Joint compounds should be applied at ambient temperatures above 10°C (50°F). Provide adequate ventilation to “drive-off” excess moisture.
7. For acoustic sealant and prevention of air leakage, use a bead of flexible caulking at the perimeter of each wall under the face layer of 15.9 mm (5/8”) CertainTeed Type X products and under the 54 mm (2-1/8”) flange of “J” track for shaftwall finished on one side.
8. Use type S screws for 0.46 mm (18 mils.) steel framing. Use type S-12 screws for 0.84 mm (33 mils.) or heavier steel framing.

**Note:** The sketches in this manual are intended for use by architects, engineers, contractors, consultants and designers for planning purposes only. These sketches may not be used for construction.

### Recommended procedure for location of Gypsum Panel Joints

M2Tech® or GlasRoc® Shaftliner panels may be abutted (spliced) to span the floor-ceiling height. The shorter panel should be at least 610 mm (24") long or of sufficient length to engage at least two "I" stud tabs on each panel edge, if I studs are used. Succeeding butt joints between adjoining panels should be spaced no closer than 610 mm (24") in elevation.

As an option, and as required in some building code jurisdictions, butt joints in Shaftliner panels may be back blocked in the cavity by screw-attaching a 300 mm x 600 mm (12" x 24") piece of M2Tech® or GlasRoc® Shaftliner or 15.9 mm (5/8") CertainTeed Type X products over the joint to the tabs of the studs.

#### First Layer

The first layer of 15.9 mm (5/8") CertainTeed Type X products should be installed with horizontal joints offset a minimum of 300 mm (12") from any butt joint in the M2Tech® or GlasRoc® Shaftliner. Any vertical butt joints in the first layer should be staggered in 1200 mm (48") increments between succeeding courses.

In addition, joints must be offset from joints on opposite side.

#### Second Layer

The second layer of 15.9 mm (5/8") CertainTeed Type X products should be installed with vertical joints offset 610 mm (24") from any vertical butt joints in the first layer. Any horizontal butt joints in the second layer should be offset a minimum of 300 mm (12") from any horizontal joints in the first layer and from any butt joints in the M2Tech® or GlasRoc® Shaftliner. Succeeding butt joints in the second layer between adjoining panels should be spaced no closer than 610 mm (24") in elevation.

#### Third Layer, when needed for a 3-Hour Vertical Shaftwall System

The third layer of 15.9 mm (5/8") CertainTeed Type C products should be installed with vertical joints offset 610 mm (24") from any vertical joints in the second layer. Any horizontal butt joints in the third layer should be offset a minimum of 150 mm (6") from any horizontal joint in the

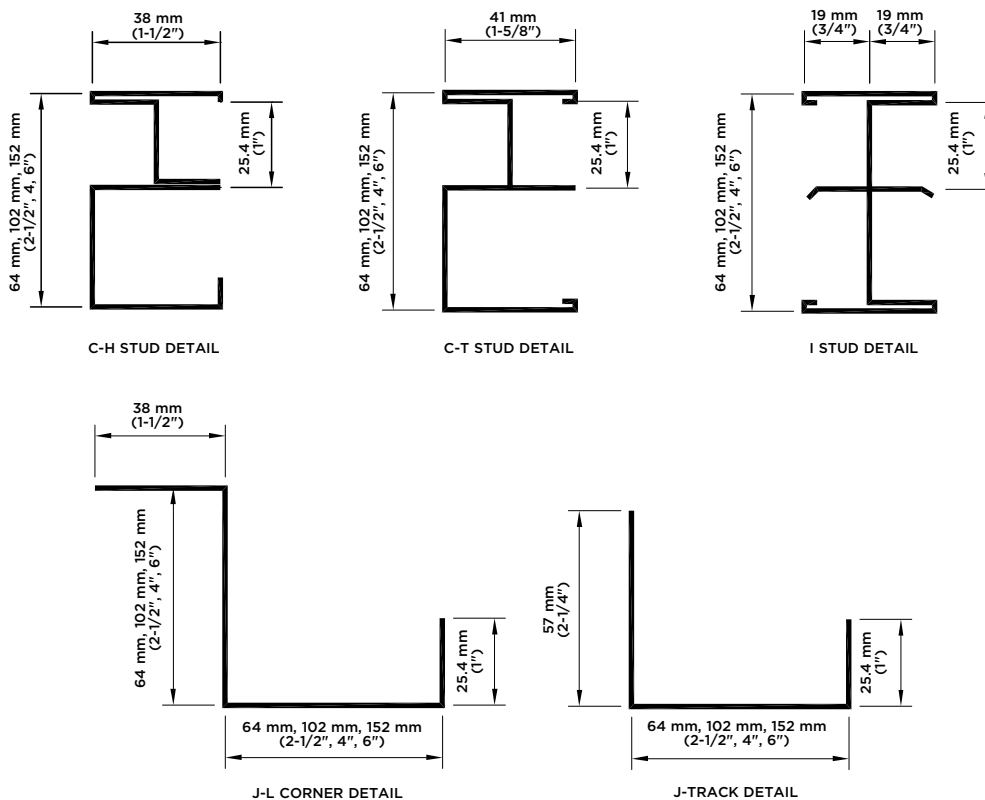
previous layer, including M2Tech® Shaftliner. Succeeding butt joints in the third layer between adjoining panels should be spaced no closer than 300 mm (12") in elevation.

#### Fourth and Fifth Layer, when needed for a 4-Hour Vertical Shaftwall System

**Note: All layers must be 15.9 mm (5/8") CertainTeed Type C to achieve a 4 hour rating.**

Furring channels applied over the third layer with 57 mm (2-1/4") Type S steel screws. Fourth layer of Type C secured to the furring channels with 28 mm (1-1/8") long Type S self-drilling, self-tapping bugle-head steel screws spaced 300 mm (12") o.c. Fifth layer of Type C secured to furring channels with 41 mm (1-5/8") Type S self-drilling, self-tapping bugle-head steel screws spaced 300 mm (12") o.c. Screws staggered between layers. Horizontal butt joints staggered minimum 610 mm (24") within layers and in between successive layers

### Section Details



# SHAFTWALLS VERTICAL SYSTEMS

## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)

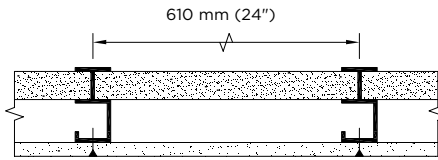
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

### FIRE RESISTANCE RATING: 1h

STC  
42



Thickness: 80 mm (3-1/8")  
Weight: 32 kg/m<sup>2</sup> (6.5 lb/ft<sup>2</sup>)

#### System WSD142 Vertical Shaftwall System *Finished one side*

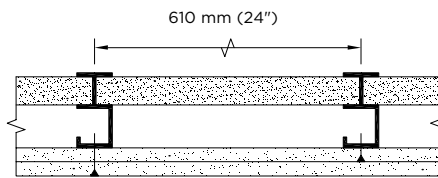
25.4 mm (1") M2Tech® or GlasRoc® Shaftliner gypsum panels are inserted between 64 mm (2-1/2"), 102 mm (4") or 152 mm (6") C-H or C-T studs. A single layer of any 15.9 mm (5/8") CertainTeed Type X product is applied vertically, on open stud-face side with 25.4 mm (1") Type S screws spaced 300 mm (12") on center at all location. Exposed joints and screwheads are to be finished with CertainTeed Finishing System.

FIRE:  
ULC W446

SOUND:  
Intertek  
3123470EEV,  
(64 mm stud)  
STC 42 with  
CertainTeed's  
Glass Fibre  
Insulation

### FIRE RESISTANCE RATING: 2h

STC  
53



Thickness: 95 mm (3-3/4")  
Weight: 44 kg/m<sup>2</sup> (9 psf)

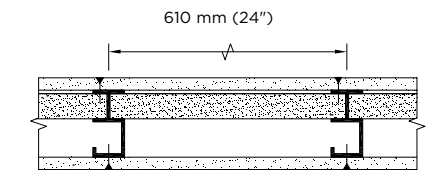
#### System WSD250 Vertical Shaftwall System *Finished one side*

M2Tech® or GlasRoc® Shaftliner gypsum panels are inserted between 64 mm (2-1/2"), 102 mm (4") or 152 mm (6") C-H or C-T studs. Two layers of any 12.7 mm (1/2") CertainTeed Type C product or any 15.9 mm (5/8") CertainTeed Type X product are applied to one side, with the base layer applied vertically or horizontally to the open-stud-face of framing studs with 25 mm (1") Type S buglehead screws spaced 610 mm (24") o.c. The second layer is placed vertically or horizontally (opposite of base layer) over the base layer and fastened using 41 mm (1-5/8") No. 6 Type S screws spaced 610 mm (24") o.c., staggered 300 mm (12") from base layer screws. Exposed joints and screwheads are to be finished with CertainTeed Finishing system.

FIRE:  
ULC W446

SOUND:  
NOAL 18-0811  
STC 53 with  
64 mm (2-1/2")  
C-T studs  
15.9 mm (5/8")  
CertainTeed  
Type X  
products,  
resilient  
channel and  
CertainTeed's  
Glass Fibre  
Insulation

STC  
53



Thickness: 95 mm (3-3/4")  
Weight: 44 kg/m<sup>2</sup> (9 psf)

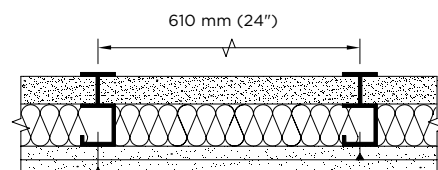
#### System WSD250a Vertical Shaftwall System *Finished both sides*

M2Tech® or GlasRoc® Shaftliner gypsum panels are inserted between 64 mm (2-1/2"), 102 mm (4") or 152 mm (6") C-H or C-T studs. A single layer of any 12.7 mm (1/2") CertainTeed Type C product or any 15.9 mm (5/8") CertainTeed Type X product is applied vertically on both sides, parallel to framing, with 25 mm (1") Type S screws spaced 300 mm (12") o.c. Vertical joints on opposite sides of wall staggered a minimum of 610 mm (24"). Exposed joints and screwheads are to be finished with CertainTeed Finishing System.

FIRE:  
ULC W446

SOUND:  
NOAL 18-0810  
STC 53 with  
64 mm (2-1/2")  
C-T studs,  
15.9 mm (5/8")  
CertainTeed  
Type X with  
resilient  
channel and  
CertainTeed's  
Glass Fibre  
Insulation

STC  
54



Thickness: 133 mm (5-1/4")  
Weight: 47 kg/m<sup>2</sup> (9.7 lb/ft<sup>2</sup>)

#### System WSD254 *Finished one side.*

15.9 mm (5/8") CertainTeed Type X products or 12.7 mm (1/2") CertainTeed Type C products, 2 layers, corridor side. CertainTeed's Glass Fibre Insulation 89 mm (3-1/2") within cavity.

Install 101 mm (4") C-H or C-T studs and M2Tech® or GlasRoc® Shaftliner panels. Fasten base layer horizontally or vertically to corridor side with 25 mm (1") screws spaced 610 mm (24") o.c. starting 75 mm (3") from the top of each stud. Fasten face layer opposite of base layer with 41 mm (1-5/8") screws spaced 610 mm (24") o.c. staggered 300 mm (12") from base layer screws starting 152 mm (6") from top of each stud. Screws are not required along top or bottom tracks. Joints must be offset. Tape and finish corridor joints with CertainTeed products.

FIRE:  
ULC W446

SOUND:  
NRC TL-94-037



# SHAFTWALLS VERTICAL SYSTEMS

## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)

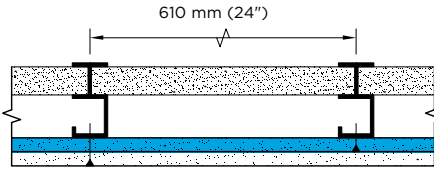
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/TEST REPORTS

### FIRE RESISTANCE RATING: 2h (continued)

STC 55



Thickness: 133 mm (5-1/4")  
Weight: 47 kg/m<sup>2</sup> (9.7 lb/ft<sup>2</sup>)

#### System WSD255 *Finished one side.*

15.9 mm (5/8") CertainTeed Type X products or 12.7 mm (1/2") CertainTeed Type C products, 2 layers, corridor side.

Install 64 mm (2-1/2") C-T studs, **SilentFX® QuickCut™** Type X and M2Tech® or GlasRoc® Shaftliner panels. Fasten 15.9 mm (5/8") **SilentFX® QuickCut™** Type X base layer horizontally or vertically to corridor side with 25 mm (1") screws spaced 610 mm (24") o.c. starting 75 mm (3") from the top of each stud. Fasten face layer opposite of base layer with 41 mm (1-5/8") screws spaced 610 mm (24") o.c. staggered 300 mm (12") from base layer screws starting 152 mm (6") from top of each stud. Screws are not required along top or bottom tracks. Joints must be offset. Tape and finish corridor joints with CertainTeed products.

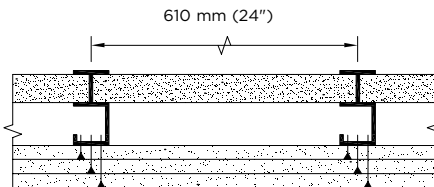
FIRE: cUL U417

SOUND:  
NOAL 17-1141

Tested with CertainTeed's Glass Fibre Insulation 38 mm (1-1/2") within cavity

### FIRE RESISTANCE RATING: 3h

STC 50



Thickness: 111 mm (4-3/8")  
Weight: 59 kg/m<sup>2</sup> (12 psf)

#### System WSD350

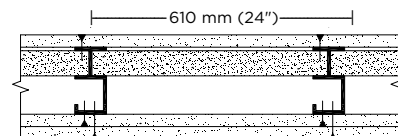
##### Vertical Shaftwall System *Finished one side*

25.4 mm (1") M2Tech® or GlasRoc® Shaftliner panels are inserted between 64 mm (2-1/2"), 102 mm (4") or 152 mm (6") C-H or C-T studs. Three layers of any 15.9 mm (5/8") CertainTeed Type C product are installed on the open stud-face with the base layer installed vertically with 25 mm (1") Type S screws spaced 610 mm (24") o.c. Remaining layers applied horizontally or vertically, middle layer with 41 mm (1-5/8") and face with 57 mm (2-1/4") Type S screws. Screws offset 152 mm (6") from layer below. When panel is applied horizontally, 38 mm (1-1/2") Type G screws to be installed at the center of each stud cavity, 38 mm (1-1/2") from both sides of the horizontal joint. Exposed joints and screwheads finished with CertainTeed Finishing System.

FIRE:  
ULC W446

SOUND:  
NOAL 18-0719

STC 52



Thickness: 111 mm (4-3/8")  
Weight: 59 kg/m<sup>2</sup> (12 psf)

#### System WSD350a

##### Vertical Shaftwall System *Finished two sides*

25.4 mm (1") M2Tech® or GlasRoc® Shaftliner panels are inserted between 64 mm (2-1/2"), 102 mm (4") or 152 mm (6") C-H or C-T studs. A single layer of any 15.9 mm (5/8") CertainTeed Type C product is installed on top of M2Tech® Shaftliner, applied vertically and attached with 25.4 mm (1") long Type S screws spaced 300 mm (12") o.c.. Two layers of any 15.9 mm (5/8") CertainTeed Type C product are installed on the open stud-face. Base layer is installed vertically with 25 mm (1") Type S screws spaced 610 mm (24") o.c. Face layer is applied horizontally or vertically with 41 mm (1-5/8") Type S screws. Screws offset 152 mm (6") from layer below. When panel is applied horizontally, 38 mm (1-1/2") Type G screws to be installed at the center of each stud cavity, 38 mm (1-1/2") from both sides of the horizontal joint. Exposed joints and screwheads finished with CertainTeed Finishing System.

FIRE:  
ULC W446

SOUND:  
NOAL 18-0720

# SHAFTWALLS VERTICAL SYSTEMS

## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)

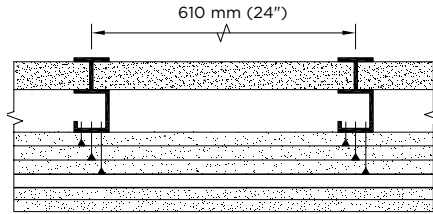
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 4h**

STC  
54



Thickness: 111 mm (4-3/8")  
Weight: 59 kg/m<sup>2</sup> (12 psf)

### System WSD454 Vertical Shaftwall Assembly *Finished one side*

25.4 mm (1") M2Tech® or GlasRoc® Shaftliner panels, with vertical edges inserted in "I", "CH" or "CT" studs. Free edge of end panels attached to long leg of channel track with 41 mm (1-5/8") Type S self-drilling, self-tapping bugle-head steel screws spaced not greater than 300 mm (12") o.c.

15.9 mm (5/8") CertainTeed Type C gypsum panel applied vertically in five layers. Vertical joints centered over steel studs and staggered min 610 mm (24") First layer secured to studs with 28 mm (1-1/8") long Type S self-drilling, self-tapping bugle-head steel screws spaced 300 mm (12") o.c. at the perimeter and in the field. Second layer secured to studs with 41 mm (1-5/8") Type S self-drilling, self-tapping bugle-head steel screws spaced 300 mm (12") o.c. at the perimeter and in the field. Horizontal butt joints in second layer shall be secured to first layer of Type C with 38 mm (1-1/2") Type G screws spaced 204 mm (8") o.c. on both sides of the joint. Third layer of Type C is secured to studs with 57 mm (2-1/4") Type S self-drilling, self-tapping bugle-head steel screws spaced 300 mm (12") OC at the perimeter and in the field. Horizontal butt joints in third layer shall be secured to inner layers of gypsum panel with 38 mm (1-1/2") Type G screws spaced 204 mm (8") o.c. on both sides of the joint. Fourth layer of Type C secured to the furring channels with 28 mm (1-1/8") long Type S self-drilling, self-tapping bugle-head steel screws spaced 300 mm (12") o.c. Fifth layer of Type C secured to furring channels with 41 mm (1-5/8") Type S self-drilling, self-tapping bugle-head steel screws spaced 300 mm (12") o.c. Screws staggered between layers. Horizontal butt joints staggered minimum 610mm (24") within layers and in between successive layers.

FIRE: cUL W471

SOUND:  
NGC 2019098  
STC 54 with  
CertainTeed  
Glass Fibre  
Insulation or  
equivalent.

# SHAFTWALLS HORIZONTAL SYSTEMS

## Non-Loadbearing

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 1h**

### System WHD1XX Horizontal Shaftwall System

FIRE:  
UL/cUL 1515

Minimum 64 mm (2-1/2"), 0.019 in./0.46 mm thick, (25 gauge), galvanized steel J-Track with unequal legs of 51 mm (2") and 25.4 mm (1") fastened to adjacent wall assembly with 12.7 mm (1/2") Type S screws, spaced 610 mm (24") o.c. J-Track attached with the 51 mm (2") leg is on the top and the 25.4 mm (1") leg on the bottom, facing the finished gypsum side of the ceiling.

25.4 mm (1") GlasRoc® or M2Tech® Shaftliner Type X gypsum panels are inserted between a minimum 64 mm (2-1/2"), 0.019 in./0.46 mm thick, (25 gauge) I, C-H, or C-T Studs. GlasRoc® or M2Tech® Shaftliner Type X gypsum panels are cut 25.4 mm (1") shorter than the length of the J-Track to J-Track spacing. Corners of the GlasRoc® or M2Tech® Shaftliner Type X gypsum panels are secured to the J-Track with 41 mm (1-5/8") Type S Screws.

Two layers of 15.9 mm (5/8") CertainTeed Type X gypsum panel are installed on the open stud face with the first layer installed at right angles to the I, C-H, or C-T Studs with 25.4 mm (1") Type S screws spaced 300 mm (12") o.c., starting 38 mm (1-1/2") from side joints. Butt joint screws 12.7 mm (1/2") from the joint edge. Butt joints are staggered a minimum of 1828 mm (6') o.c. The second layer installed at right angles to the I, C-H, or C-T Studs with 41 mm (1-5/8") o.c. Type S screws at 300 mm (12") o.c., starting 38 mm (1-1/2") o.c. Butt joint screws 12.7 mm (1/2") from the joint edge. Butt joints are staggered a minimum of 610 mm (24") o.c.

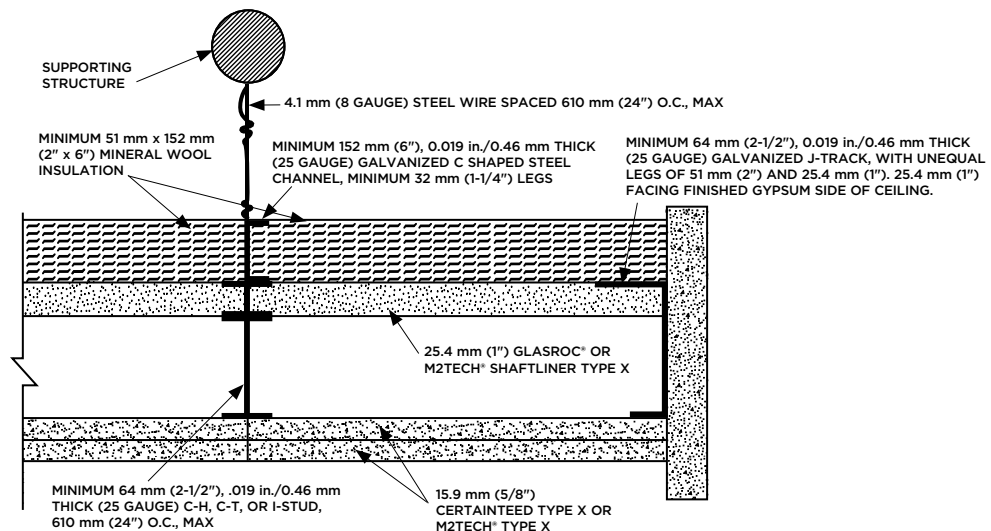
Unsupported length of studs should not exceed 2438 mm (96") in length.

#### For spans exceeding 2438 mm (96") in length, support is required by a suspension method as follows:

Minimum 8 gauge (4.1 mm thick) steel wire, spaced 610 mm (24") o.c., hung from holes punched in a minimum 152 mm (6"), 0.019 in./0.46 mm thick, (25 gauge), galvanized C Shaped Steel channel with minimum 32 mm (1-1/4") legs and attached to a suitable supporting structure. The above referenced J-Track is secured to both sides of the C Shaped Steel channel with 12.7 mm (1/2") Type S screws, spaced 610 mm (24") o.c. Minimum 51 mm thick (2"), 152 mm wide (6") mineral wool insulation placed on the surface of the 25.4 mm (1") GlasRoc® or M2Tech® Shaftliner Type X gypsum panels and across the full length of the C Shaped Steel channel.

(Non-Loadbearing)

### FRONT VIEW



# SHAFTWALL HORIZONTAL SYSTEMS

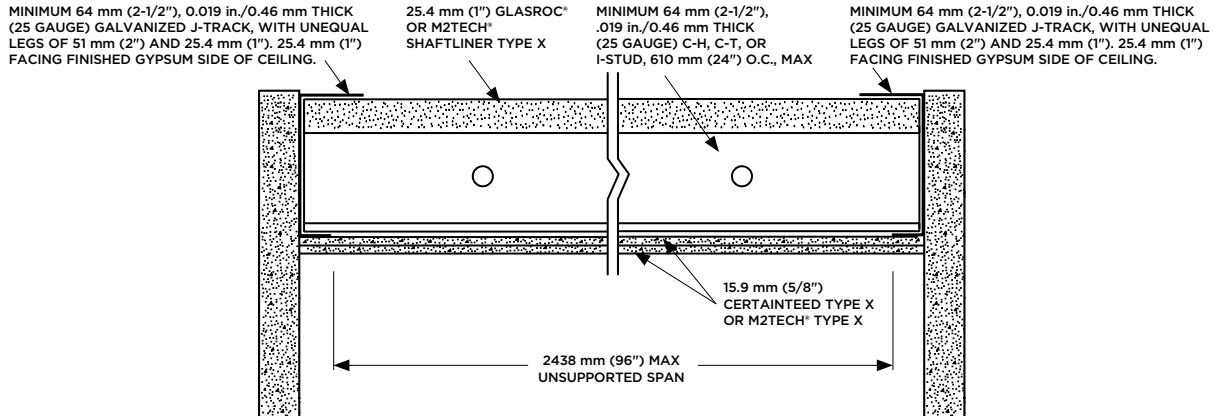
## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)

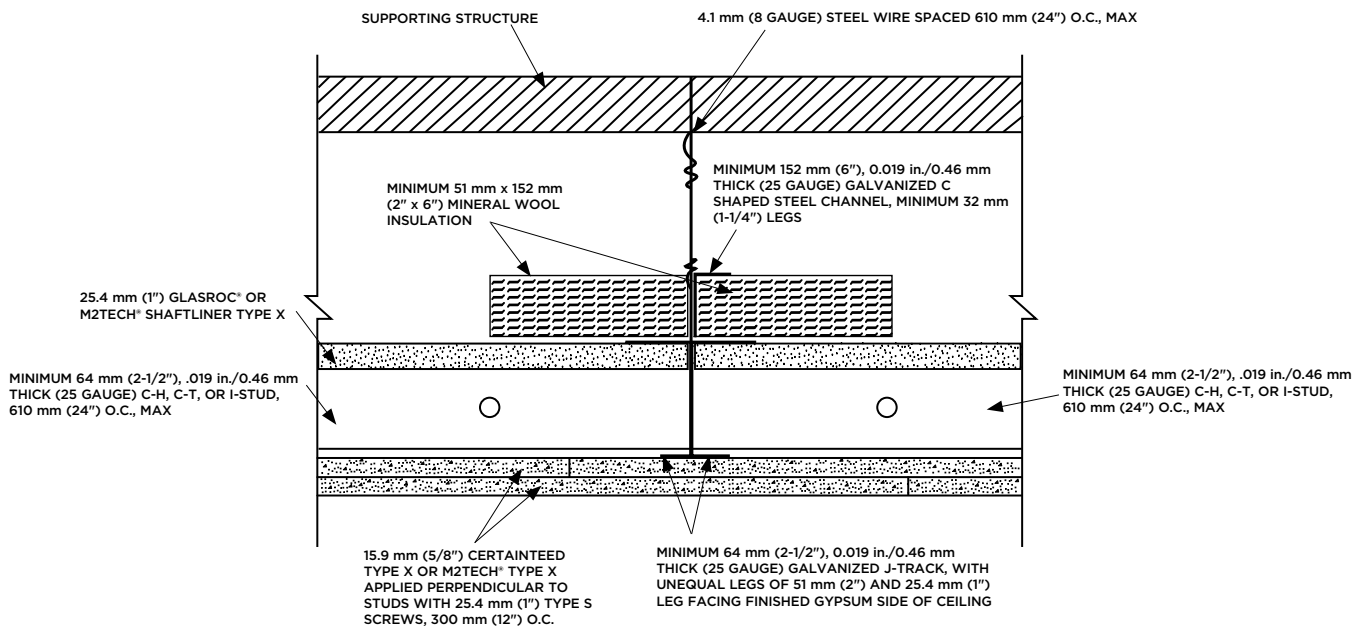
DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 1h** (continued)

### SIDE VIEW (IF 2438 mm [96"] OR LESS CLEAR SPAN)



### SIDE VIEW (IF OVER 2438 mm [96"] CLEAR SPAN)



# SHAFTWALLS HORIZONTAL SYSTEMS

## Non-Loadbearing

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 2h**

### System WHD2XX Horizontal Shaftwall System

FIRE:  
UL/cUL 1515

Minimum 64 mm (2-1/2"), 0.033 in. (0.84 mm thick), galvanized steel J-Track with unequal legs of 51 mm (2") and 25.4 mm (1") fastened to adjacent wall assembly with 12.7 mm (1/2") Type S screws, spaced 610 mm (24") o.c. J-Track attached with the 51 mm (2") leg is on the top and the 25.4 mm (1") leg on the bottom, facing the finished gypsum side of the ceiling.

25.4 mm (1") GlasRoc® or M2Tech® Shaftliner Type X gypsum panels are inserted between a minimum 64 mm (2-1/2"), 0.033 in. (0.84 mm thick), I, C-H, or C-T Studs. GlasRoc® or M2Tech® Shaftliner Type X gypsum panels are cut 25.4 mm (1") shorter than the length of the J-Track to J-Track spacing. Corners of the GlasRoc® or M2Tech® Shaftliner Type X gypsum panels are secured to the J-Track with 41 mm (1-5/8") Type S Screws.

Three layers of 15.9 mm (5/8") CertainTeed Type C gypsum panel are installed on the open stud face with resilient channel between the 2nd layer and 3rd (face) layer. The first layer installed at right angles to the C-H, I or C-T Studs with 25.4 mm (1") Type S screws spaced 300 mm (12") o.c., starting 38 mm (1-1/2") from side joints. Butt joint screws 12.7 mm (1/2") from the joint edge. Butt joints are staggered a minimum of 1828 mm (6') o.c. The second layer installed at right angles to the C-H, I or C-T Studs with 41 mm (1-5/8") o.c. Type S screws at 300 mm (12") o.c., starting 38 mm (1-1/2") o.c. Butt joint screws 12.7 mm (1/2") from the joint edge. Butt joints are staggered a minimum of 610 mm (24") o.c. 0.019 in./0.46 mm thick, (25 gauge) Resilient channel installed 406 mm (16") o.c., perpendicular to the C-H, I or C-T Studs with 41 mm (1-5/8") Type S bugle head screws, spaced 300 mm (12") o.c. Resilient Channels overlapped 102 mm (4") at splices. Two channels spaced 102 mm (4") o.c., oriented opposite at each gypsum panel butt joint. The third layer (face layer) installed parallel to the direction of the C-H, I or C-T Studs to the resilient channels with 25.4 mm (1") Type S screws spaced 300 mm (12") o.c. Butt joint screws 12.7 mm (1/2") from the joint edge. Butt joints are staggered a minimum of 610 mm (24") o.c.

Nominal 102 mm (4") x 152 mm (6") wide mineral wool placed over the surface of the C-Channel and Studs. Mineral wool should cover the C-Channel and Studs so all visible metal surfaces are covered.

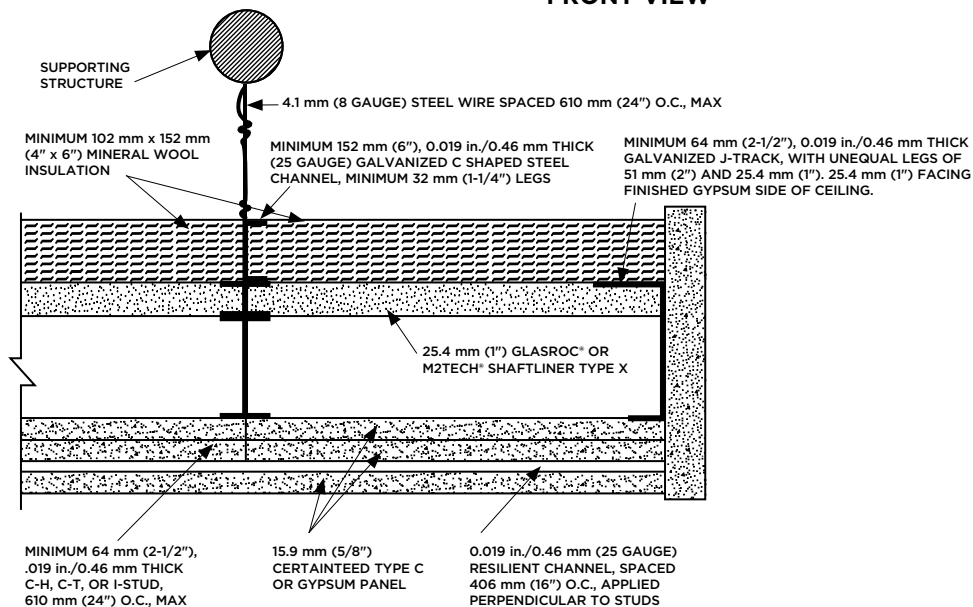
Unsupported length of studs should not exceed 2438 mm (96") in length.

#### For spans exceeding 2438 mm (96") in length, support is required by a suspension method as follows:

Minimum 8 gauge (4.1 mm thick) steel wire, spaced 610 mm (24") o.c., hung from holes punched in a minimum 152 mm (6"), 25 gauge (0.019 in.) (0.46 mm thick), 0.019 in./0.46 mm thick, (25 gauge) galvanized C Shaped Steel channel with minimum 32 mm (1-1/4") legs and attached to a suitable supporting structure. The above referenced J-Track is secured to both sides of the C Shaped Steel channel with 12.7 mm (1/2") Type S screws, spaced 610 mm (24") o.c. Minimum 51 mm thick (2"), 152 mm wide (6") mineral wool insulation placed on the surface of the 25.4 mm (1") GlasRoc® or M2Tech® Shaftliner Type X gypsum panels and across the full length of the C Shaped Steel channel

(Non-Loadbearing)

#### FRONT VIEW



# SHAFTWALL HORIZONTAL SYSTEMS

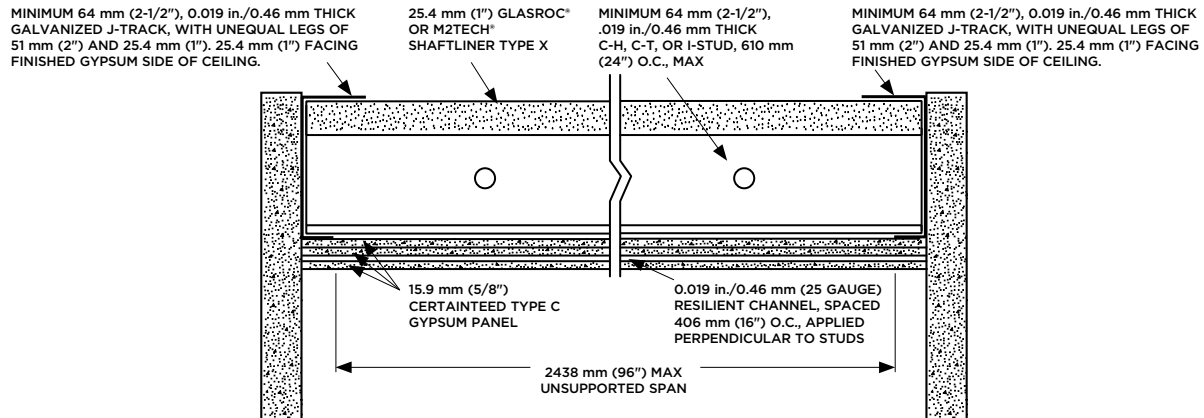
## Non-Loadbearing

DESCRIPTION

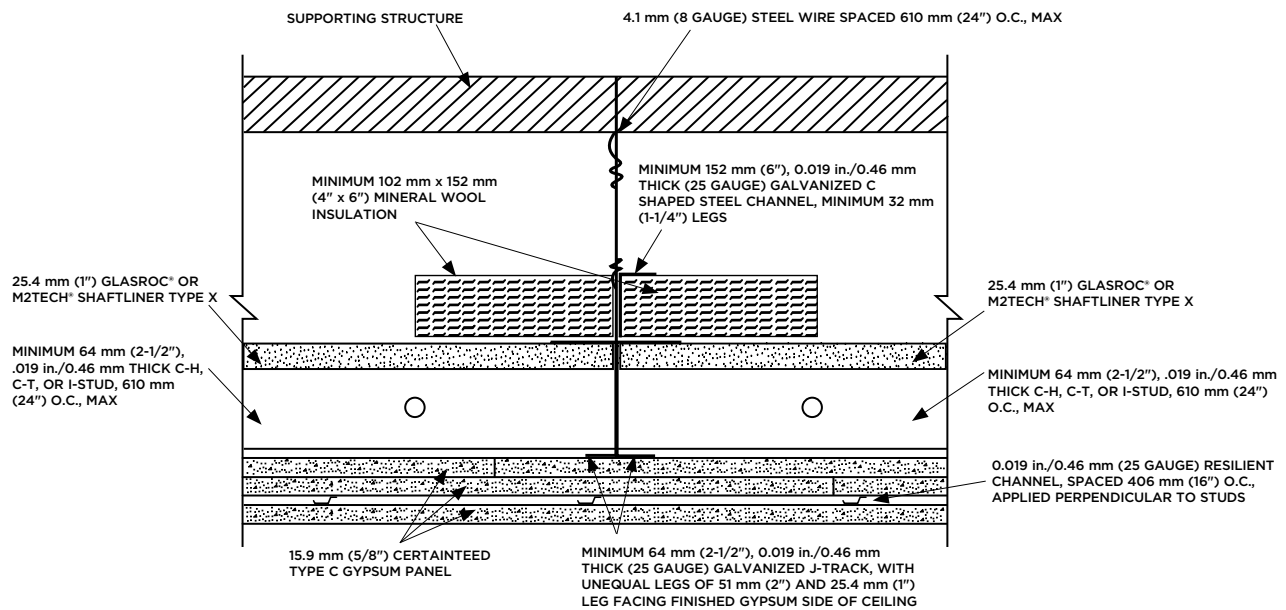
DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 2h (continued)**

### SIDE VIEW (IF 2438 mm [96"] OR LESS CLEAR SPAN)



### SIDE VIEW (IF OVER 2438 mm [96"] CLEAR SPAN)



# SHAFTWALL HORIZONTAL SYSTEMS

## Non-Loadbearing

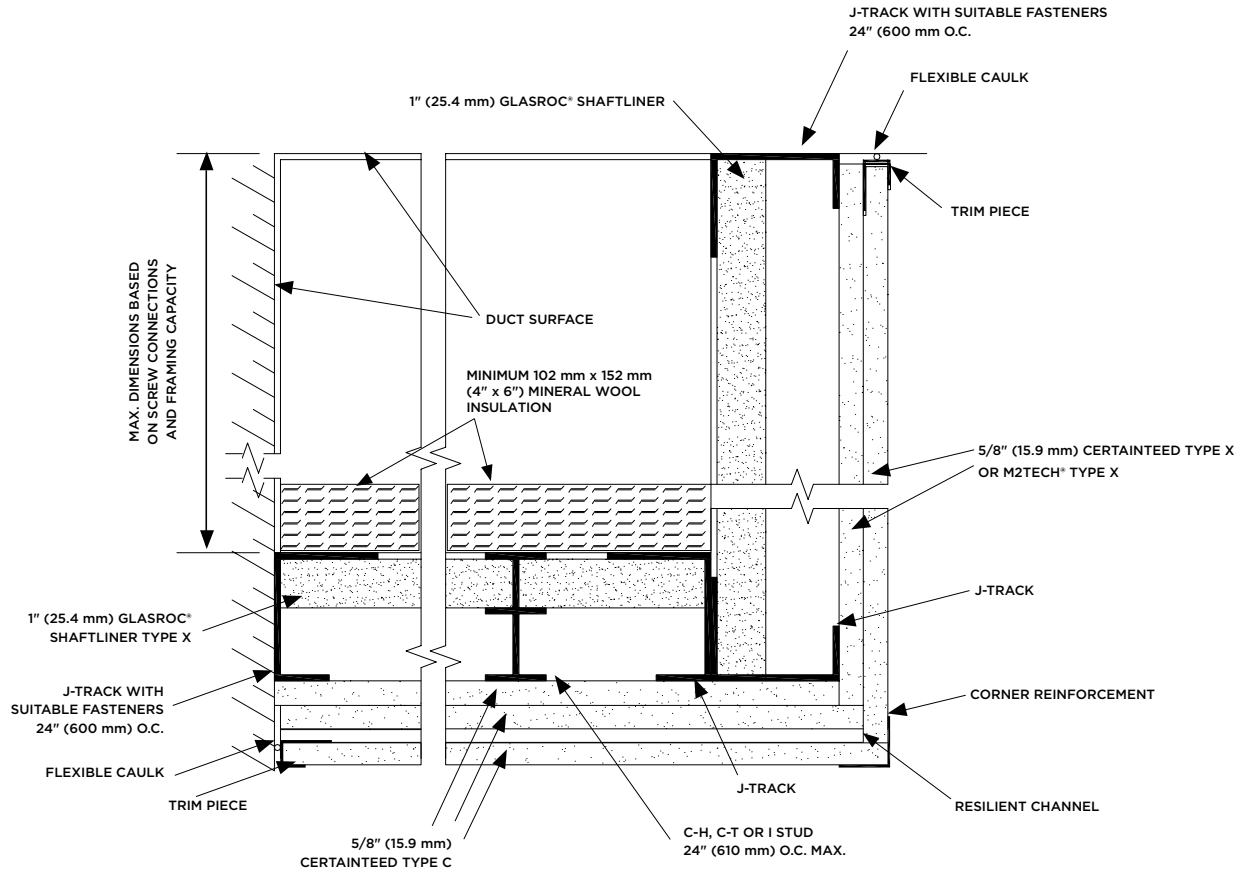
DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 2h**

**System WSD240a**  
**Horizontal Membrane for Duct Enclosure**  
*For corridors, ducts, enclosures, etc.*

FIRE: cUL I515  
UL U417/ULC W446,  
Systems A or C  
(Vertical Section)



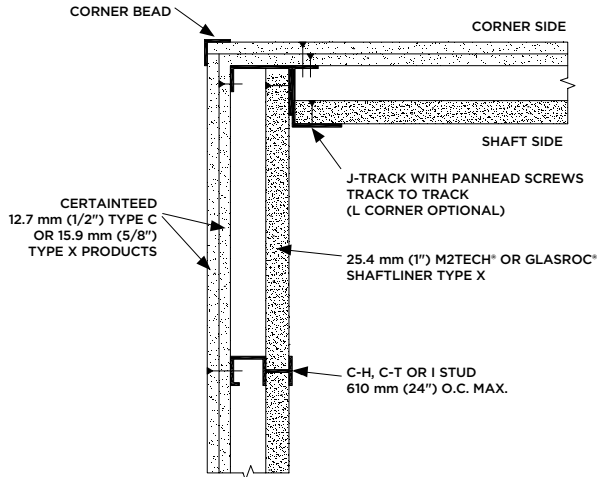
**Horizontal Duct Enclosure**

# SHAFTWALLS

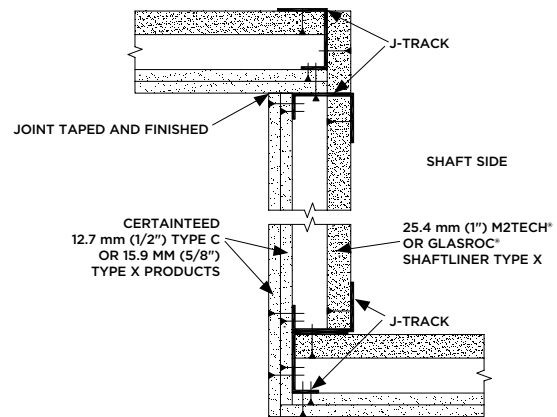
## Vertical Assembly Details

### TYPICAL DETAILS - FINISHED ONE SIDE

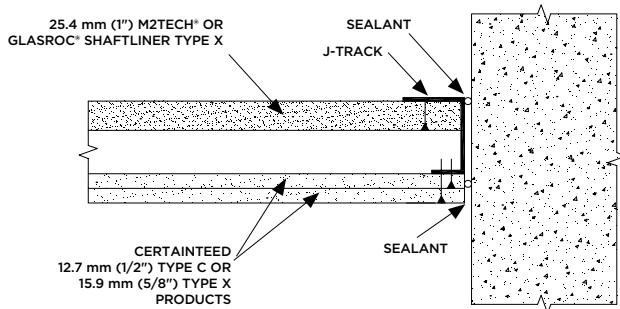
**OUTSIDE CORNER**



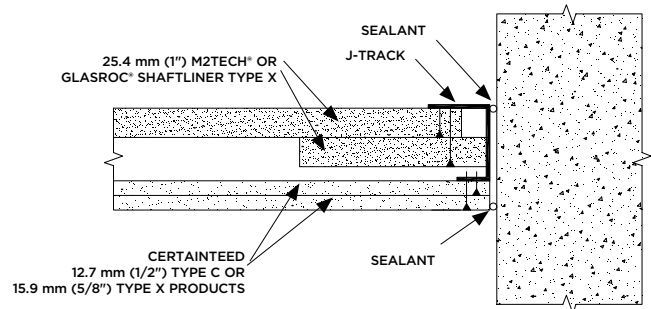
**INSIDE AND OUTSIDE CORNER**



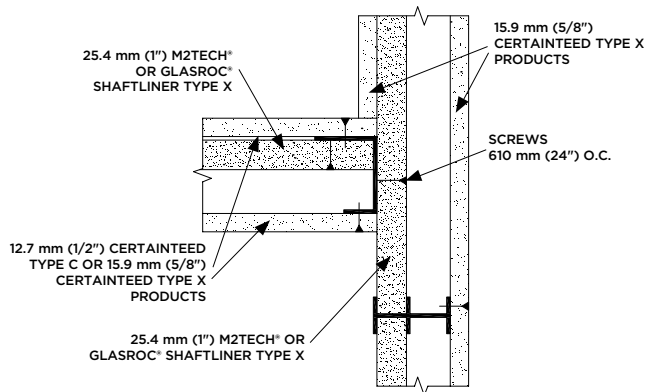
**TYPICAL START/END OF WALL**



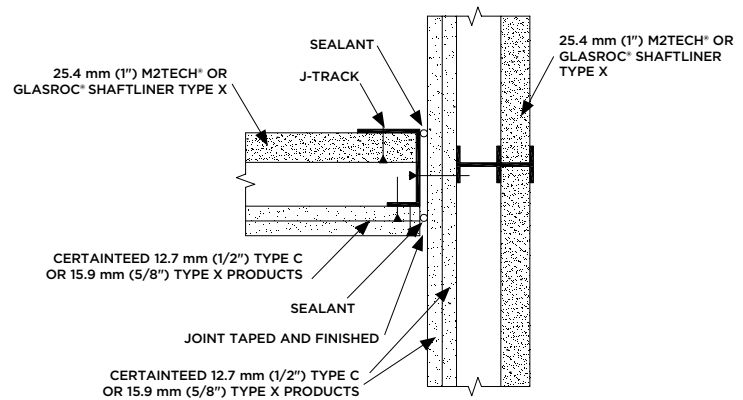
**ALTERNATE END OF WALL SECTION**



**WALL INTERSECTION ON SHAFTLINER SIDE**



**SEPARATION WALL INTERSECTION ON FINISHED SIDE**



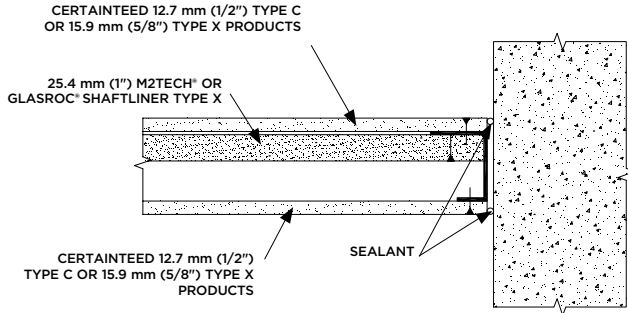


# SHAFTWALLS

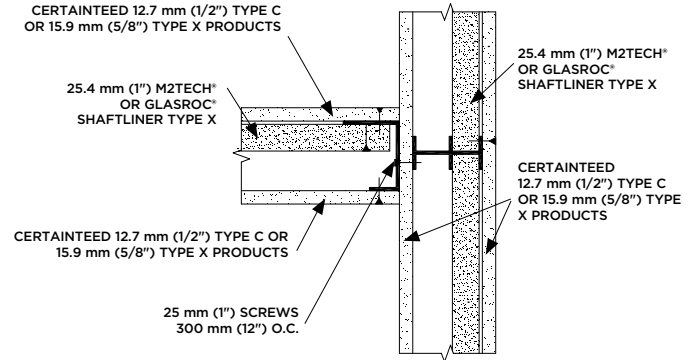
## Vertical Assembly Details

### TYPICAL DETAILS - FINISHED BOTH SIDES

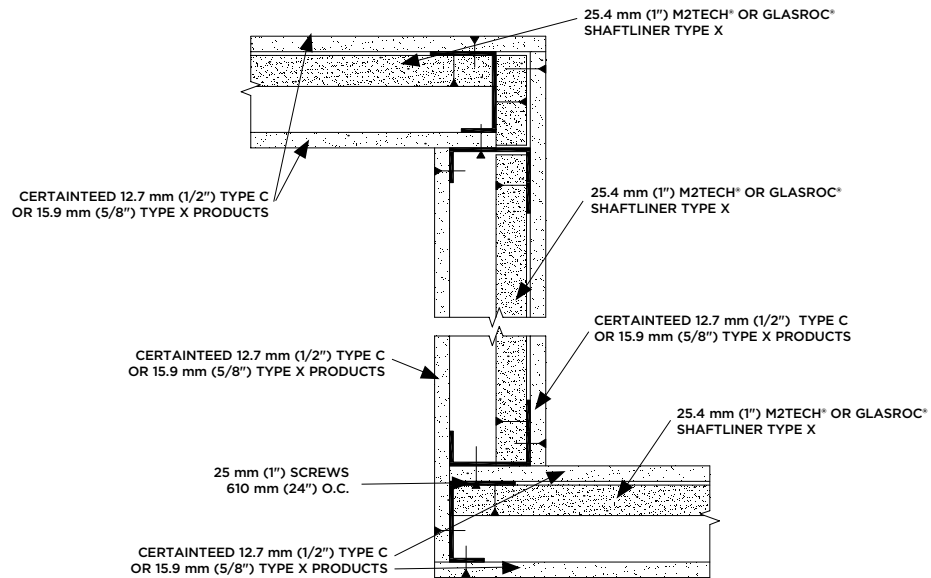
#### ABUTMENT TO MASONRY



#### WALL INTERSECTION ON CAVITY SIDE



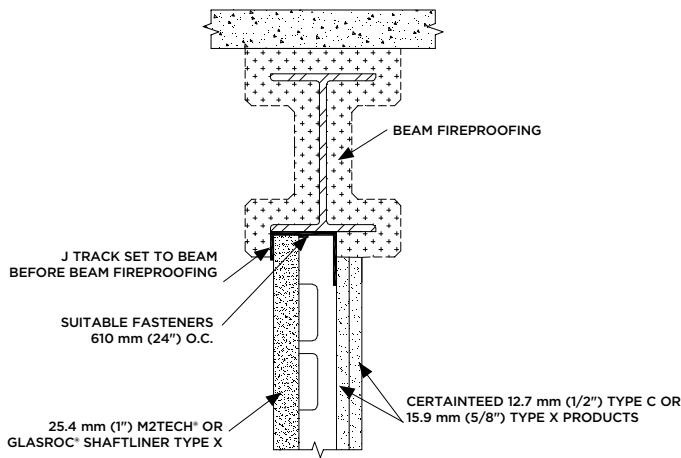
#### INSIDE AND OUTSIDE CORNER



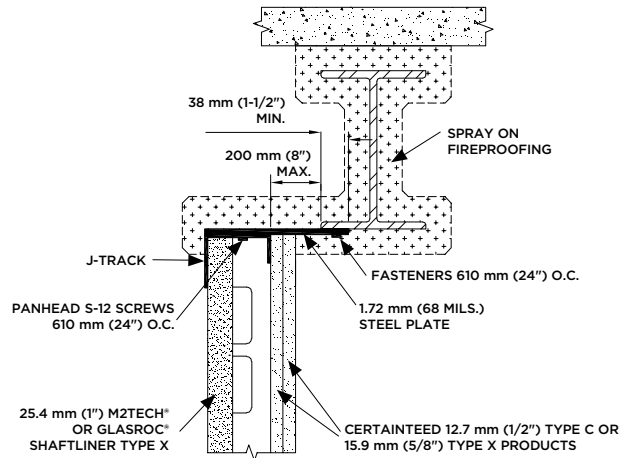
# SHAFTWALLS

## Vertical Assembly TYPICAL DETAILS

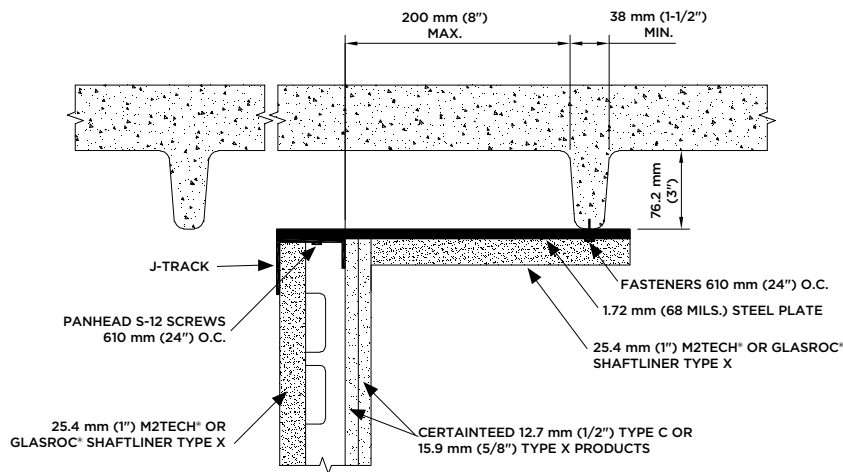
**SHAFTWALL TO BEAM**



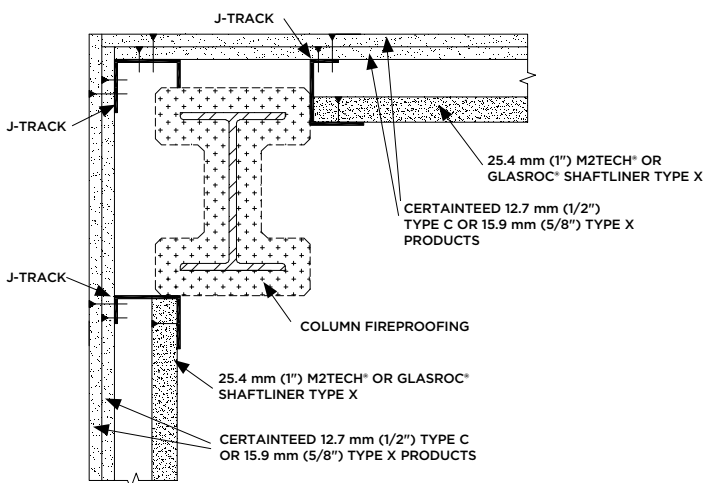
**SHAFTWALL OFFSET FROM BEAM**



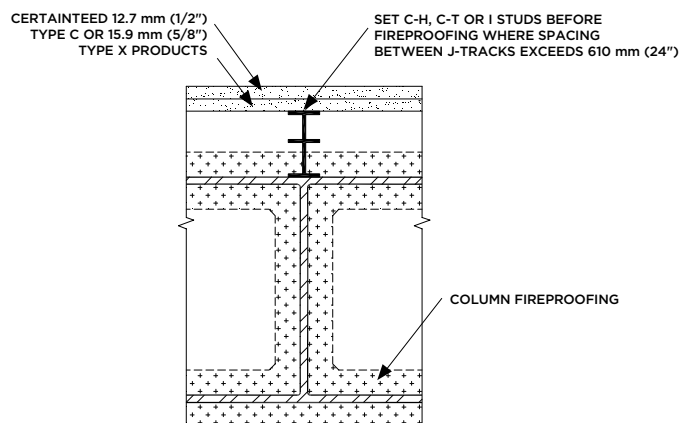
**SHAFTWALL OFFSET FROM DECK**



**CORNER COLUMN BYPASS**



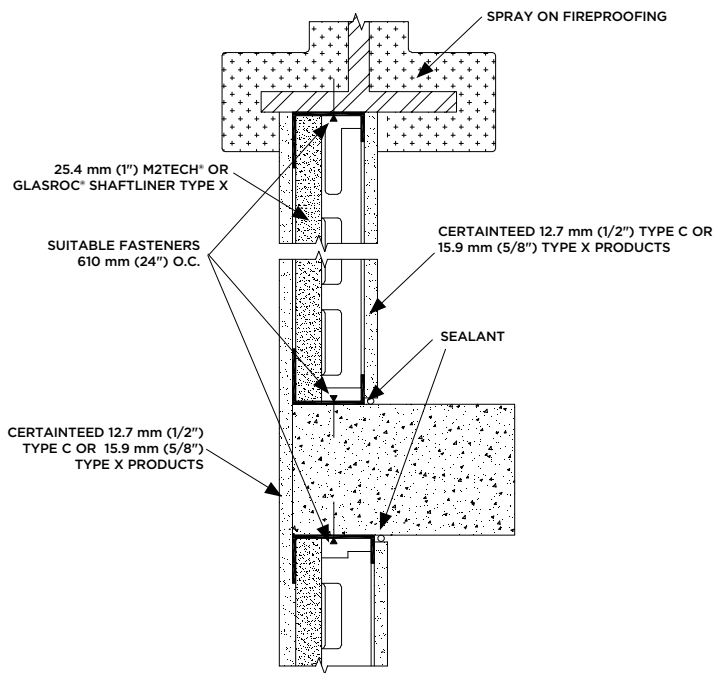
**BYPASS OF LARGE COLUMNS**



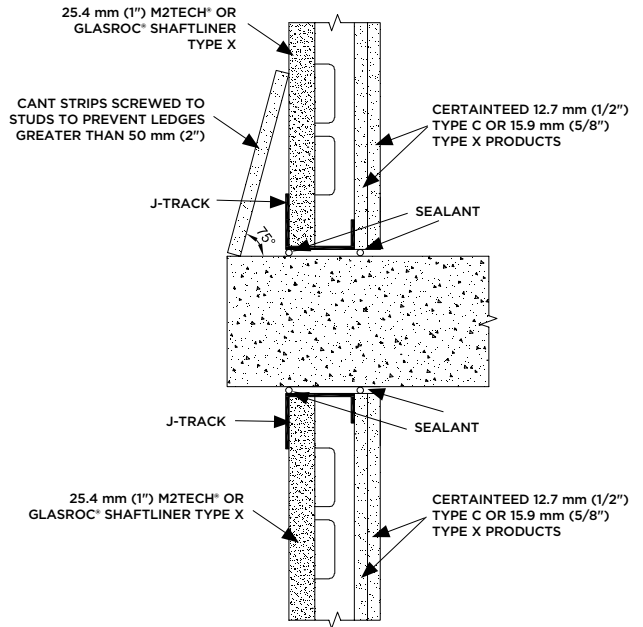
# SHAFTWALLS

## Vertical Assembly TYPICAL DETAILS

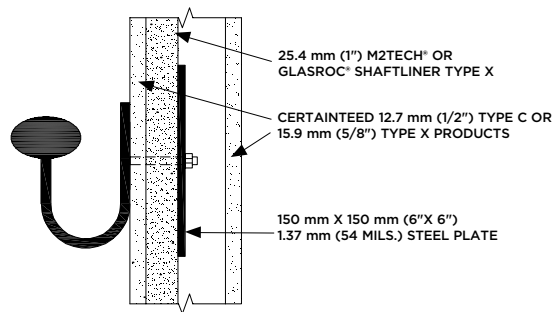
TOP AT BEAM AND FLOOR BYPASS



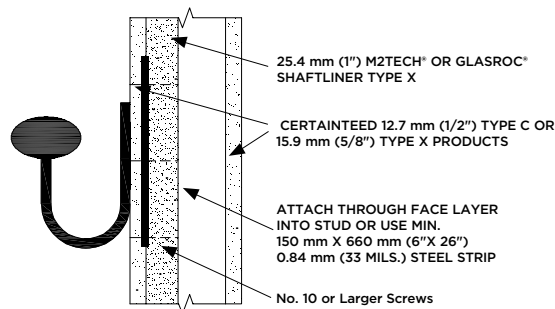
SHAFT CANTILEVER



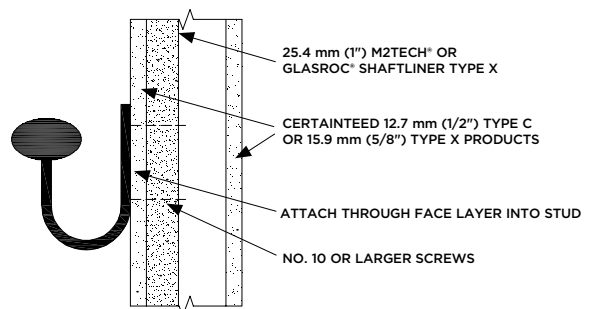
HAND RAIL ATTACHMENT DETAILS



HEAVY



MEDIUM

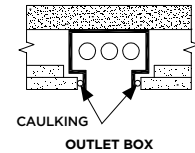
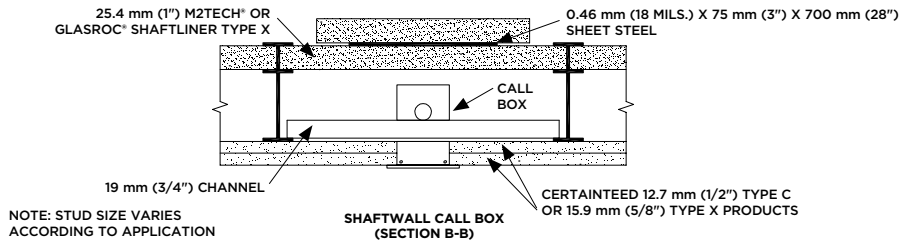
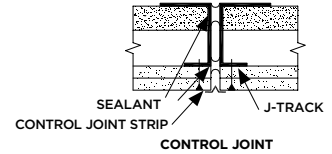
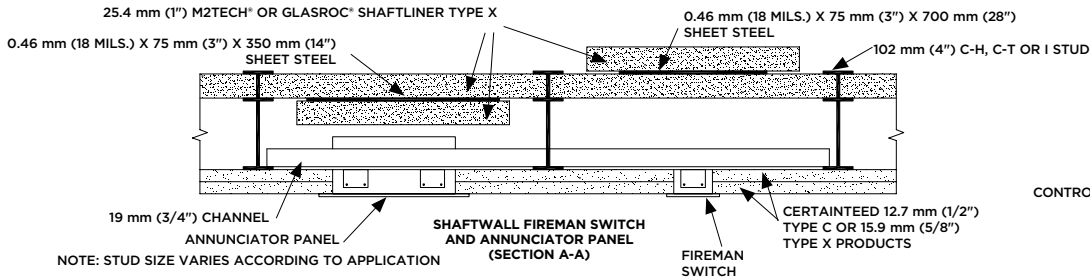
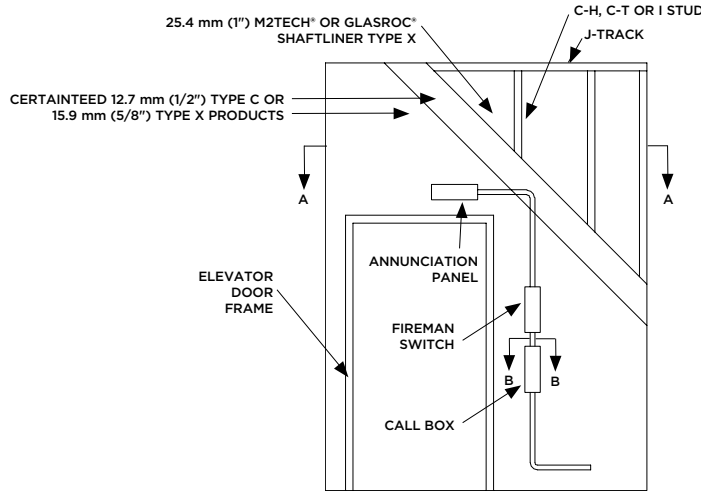


LIGHT

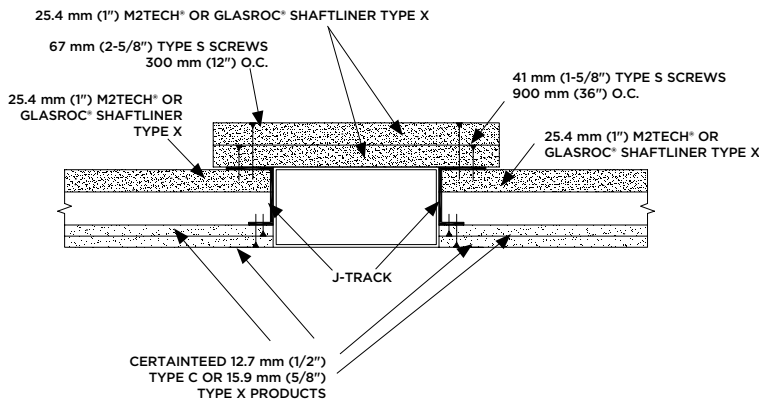
# SHAFTWALLS

## Vertical Assembly TYPICAL DETAILS

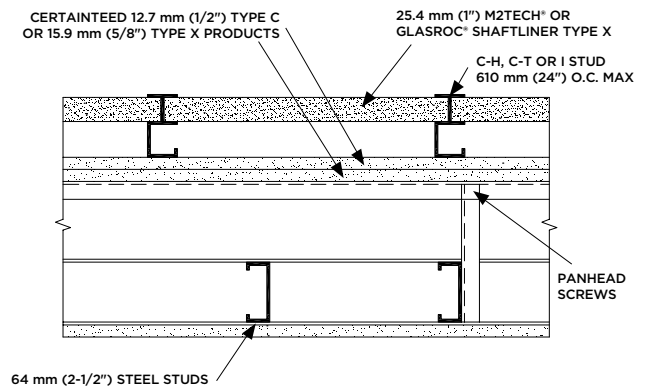
### SHAFTWALL ELEVATOR ELECTRICAL CONTROL LAYOUT



### MAIL CHUTE



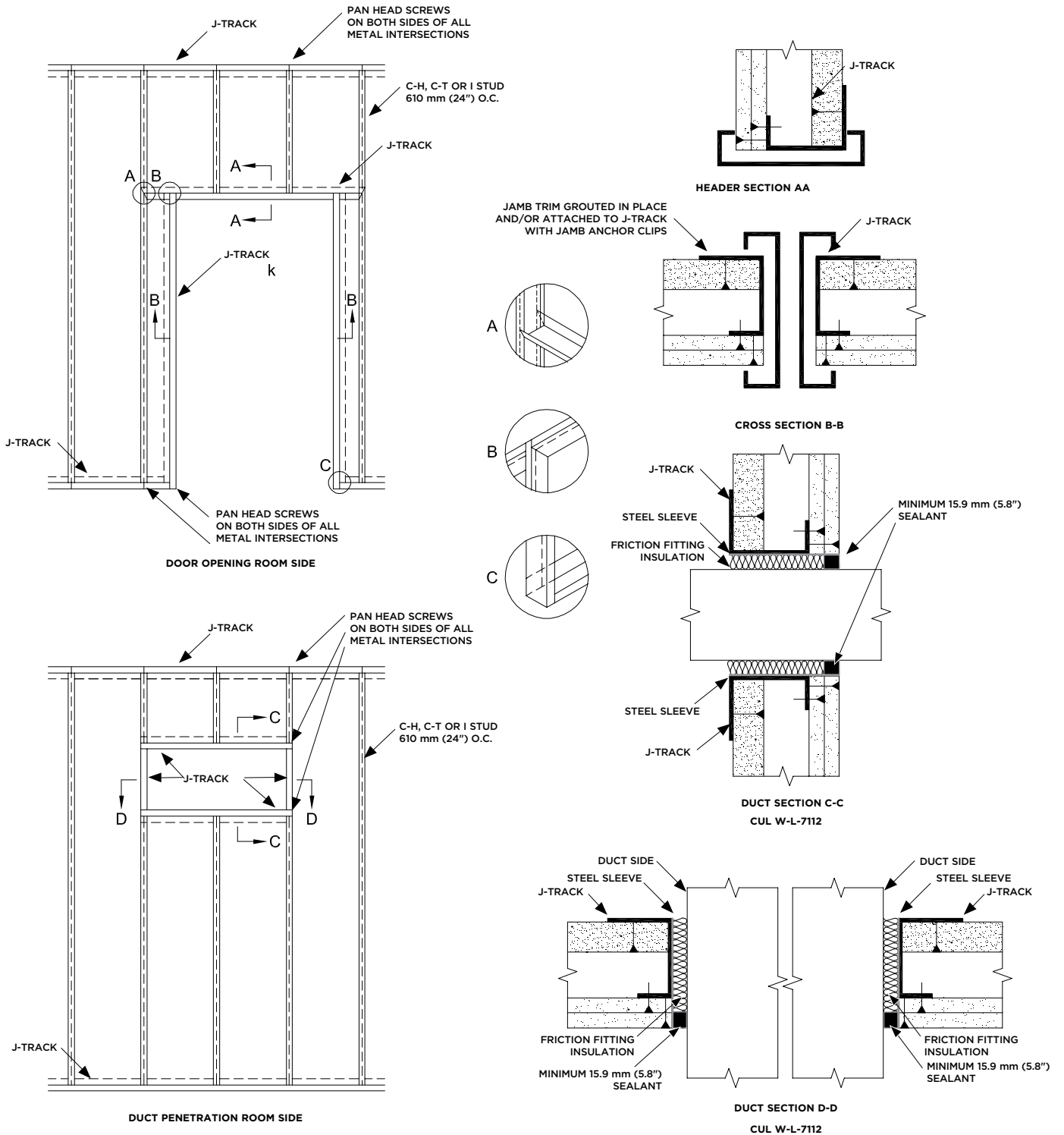
### CHASE WALL



# SHAFTWALLS

## Vertical Assembly TYPICAL DETAILS

ILLUSTRATED WITH 2h RATED ASSEMBLY



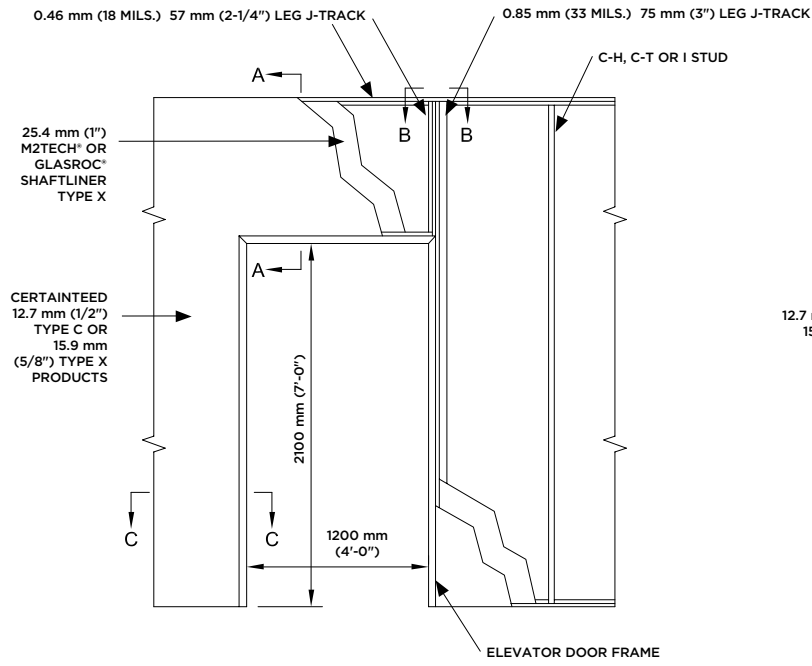
**NOTE:**  
CLEARANCE OPENINGS AND ATTACHMENTS DETAILS SHOULD BE AS PER FIRE DAMPER MANUFACTURER'S INSTALLATION REQUIREMENTS

# SHAFTWALLS

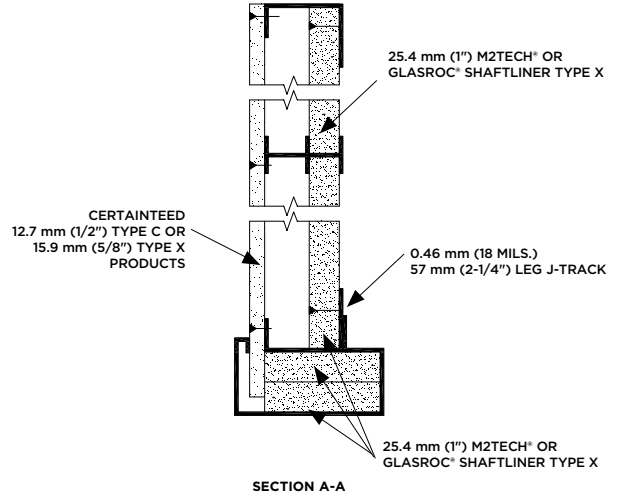
## Vertical Assembly TYPICAL DETAILS

DETAILS: **1h**

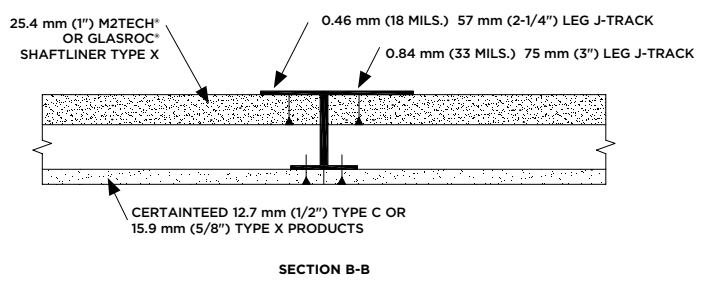
### ELEVATOR DOOR FRAMING



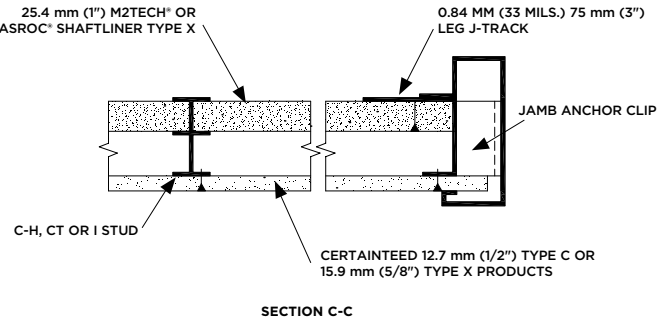
### ELEVATOR DOOR HEAD



### J-TRACK FRAMING ABOVE DOOR



### ELEVATOR DOOR JAMB

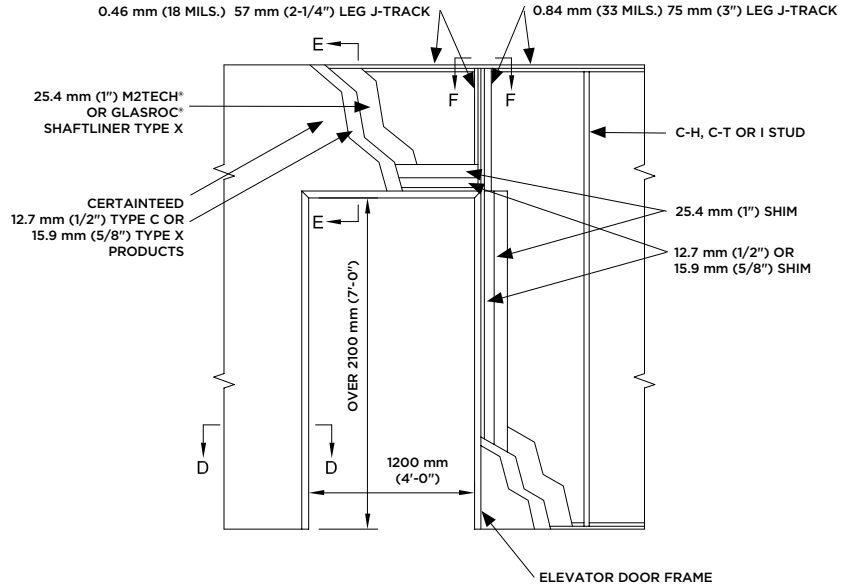


# SHAFTWALLS

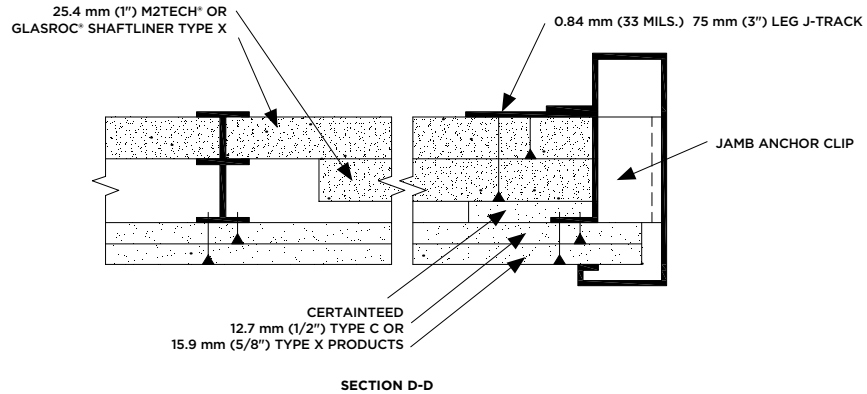
## Vertical Assembly TYPICAL DETAILS

DETAILS: **2h**

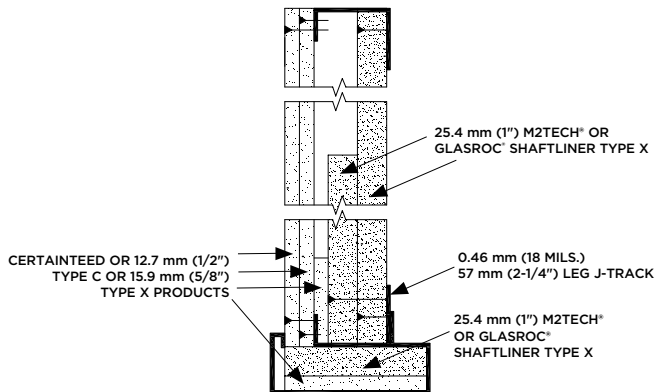
### ELEVATOR DOOR FRAMING



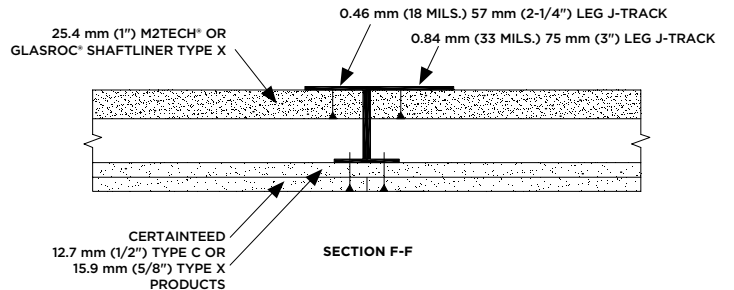
### ELEVATOR DOOR JAMB



### ELEVATOR DOOR HEAD



### J-TRACK FRAMING ABOVE ELEVATOR DOOR



# FIREWALLS

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## FIREWALLS

M2Tech® or GlasRoc® Shaftliner gypsum panels are used in conjunction with other CertainTeed gypsum panel products in Firewalls. Firewalls are solid type separation walls assembled using 25.4 mm (1") M2Tech® or GlasRoc® Shaftliner gypsum panels, metal framing and any minimum 12.7 mm (1/2") CertainTeed gypsum panels approved for wall construction for the interior finish. The firewall is easily stacked, floor to floor, allowing progressive construction.

Breakaway aluminum clips are used to attach the interior wall to adjacent structural metal framing and provide lateral support. When one side is exposed to fire, the clips will soften and release if the burning unit collapses. The clips on the non-fire side are protected by the firewall and will continue to support the firewall. The Firewall will remain intact to protect neighboring spaces. Firewalls are easier and faster to construct, lighter weight, and take up less space than masonry wall systems.

### Installation\*

Steel framing and installation of 25.4 mm (1") M2Tech® or GlasRoc® Shaftliner gypsum panels for solid type Firewalls are used as the common wall of one unit. A Firewall can be constructed by following these steps before continuing to frame the adjacent unit.

1. Attach 51 mm (2") wide C-Track to slab at bottom of wall using suitable fasteners at a maximum of 610 mm (24") o.c. Allow a minimum 19 mm (3/4") space from wood stud framing on each side of the firewall. As an alternate to the 19 mm (3/4") air space the steel components are permitted to be covered with either (a) 152 mm (6") wide batten strips of 12.7 mm (1/2") gypsum panel screw attached to the framing with 25 mm (1") Type S drywall screws or (b) 25.4 mm (1") mineral wool fiber insulation. Space ends of adjacent sections of C-Track a minimum of 6 mm (1/4") apart. When required, use an approved acoustical sealant to caulk around the perimeter of wall sections.
2. Install vertical C-Track at the beginning of the wall and support as needed.
3. Insert two sections of 25.4 mm (1") M2Tech® or GlasRoc® Shaftliner gypsum panels in the bottom channel and plumb to vertical C-Track. Make sure the first two shaftliner panels are seated all the way into the floor and vertical C-Tracks and that the edges are flush. Insert an H-Stud into the floor C-Track and engage the H-Stud legs over the long edges of the shaftliner panels.
4. Install the next 25.4 mm (1") M2Tech® or GlasRoc® Shaftliner gypsum panels vertically into the H-Studs. Continue wall as needed by placing H-Studs between the proceeding panels every 610 mm (24") for the length of the wall and enclose the end panels with vertical C-Track.
5. Cap the wall assembly before continuing higher using C-Track fastened to the H-Studs on alternate sides with 10 mm (3/8") Type S screws. A second C-Track for the next row of shaftliner panels is then placed back to back with end joints staggered at least 300 mm (12") o.c. and fastened with double 10 mm (3/8") Type S screws at ends and 610 mm (24") o.c.
6. Attachment Clips: Aluminum angle; 1.6 mm (0.063") thick, minimum 51 mm (2") and 57 mm (2-1/4") legs. Clips are secured with Type S screws 10 mm (3/8") long to H-Studs and with Type W screws 32 mm (1-1/4") long to wood framing through holes provided in the clip. Clips should be attached to each H-Stud per the following schedule:
  - For firewalls up to 7 m (23') high, clip placement should be:
    - i. Clips are required to be spaced a maximum of 3 m (10') o.c. vertically between wood framing and H-Studs.
  - For firewalls greater than 7 m (23') high and up to 13.4 m (44') high, clip placement should be:
    - i. The lower 6.1 m (20') requires clips to be spaced a maximum of 1.5 m (5') o.c. vertically between the wood framing and the H-Studs
    - i. The upper section of the wall (6.1 m to 13.4 m) (20' to 44') requires the clips to be spaced a maximum of 3 m (10') o.c. vertically between the wood framing and the H-Studs.
  - For firewalls greater than 13.4 m (44') high and up to 20.7 m (68') high, clip placement should be:
    - i. The lower 7.3 m (24') requires clips to be spaced a maximum of 1 m (40") o.c. vertically between the wood framing and the H-Studs.
    - ii. The next 6.1 m (20') section requires clips to be spaced a maximum of 1.5 m (5') o.c. vertically between the wood framing and the H-Studs.
    - iii. The upper section of the wall 13.4 m to 20.7 m (44' to 68') requires the clips to be spaced a maximum of 3 m (10') o.c. vertically between the wood framing and the H-Studs.



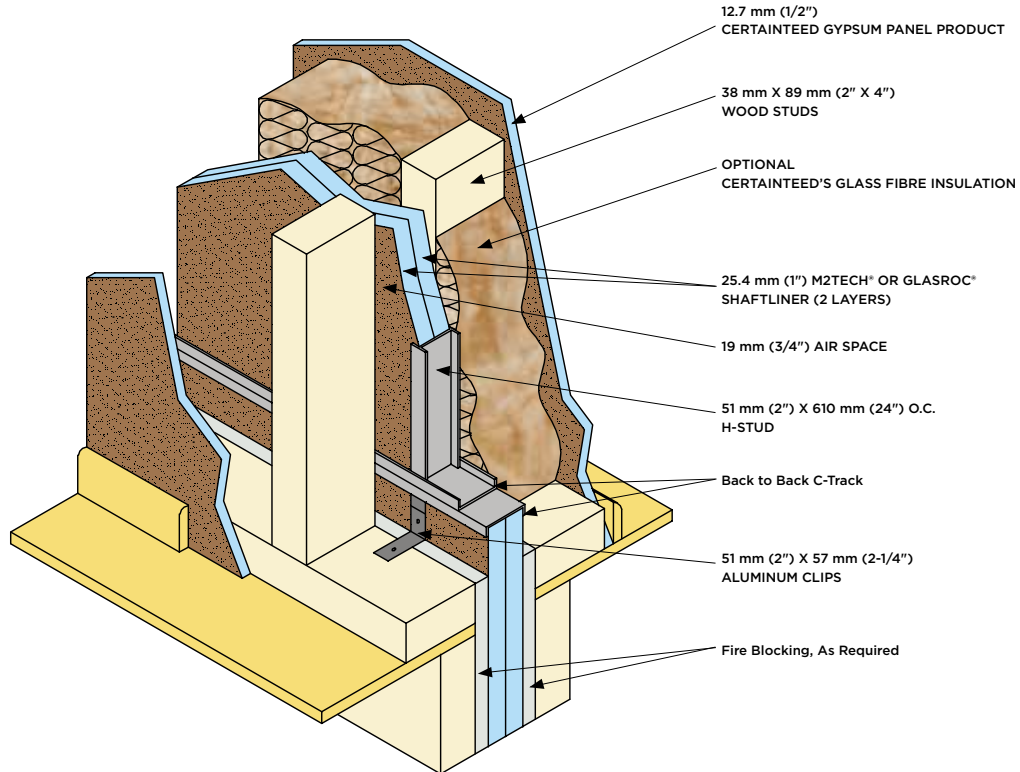
# FIREWALLS

7. Cap the top of the assembly with 51 mm (2") C-Track and protect the entire installation from moisture. The firewall must extend above the roof deck.

\* It is important for structural purposes that the above installation particulars be followed to provide lateral support for the firewall.

## Interior Finish Wall

8. Wood Studs - Nominal 38 mm x 89 mm (2" x 4") with a maximum spacing of 610 mm (24") o.c. Studs are cross-braced at mid-height where necessary for clip attachment. Ensure a minimum 19 mm (3/4") separation between wood framing and Firewall.
9. Insulation (Optional) - CertainTeed's Glass Fibre Insulation, or equivalent, installed between wood studs to meet listed STC performance.
10. CertainTeed gypsum panels, minimum 12.7 mm (1/2") thick, 1220 mm (48") wide, applied either horizontally or vertically. Gypsum panels are attached to studs with 32 mm (1-1/4") long steel drywall nails or 32 mm (1-1/4") Type W drywall screws spaced 200 mm (8") o.c. Vertical joints are located over studs. Joints and fasteners are finished with CertainTeed Finishing system.



# FIREWALLS

## Non-Loadbearing

STC (SOUND TRANSMISSION CLASS)

CONSTRUCTION

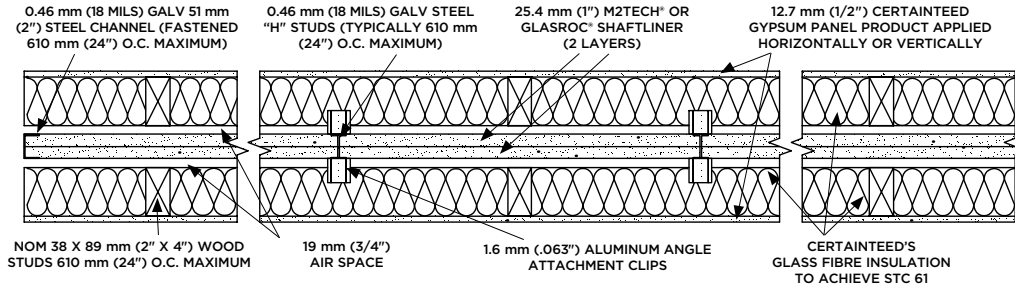
DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 2h**

**EXPOSED TO FIRE FROM EITHER SIDE**

**STC 61** System **WAH261**



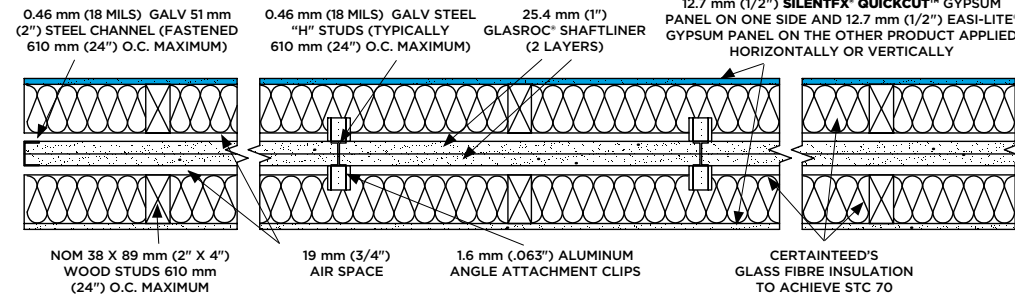
FIRE: ULC W311  
ITS Report No. 100260628SAT-006A, 006B

SOUND: RAL-TL00-176

Thickness: 292 mm (11-1/2")  
Weight: 63 kg/m<sup>2</sup> (13 psf)

**EXPOSED TO FIRE FROM EITHER SIDE**

**STC 70** System **WAH270**



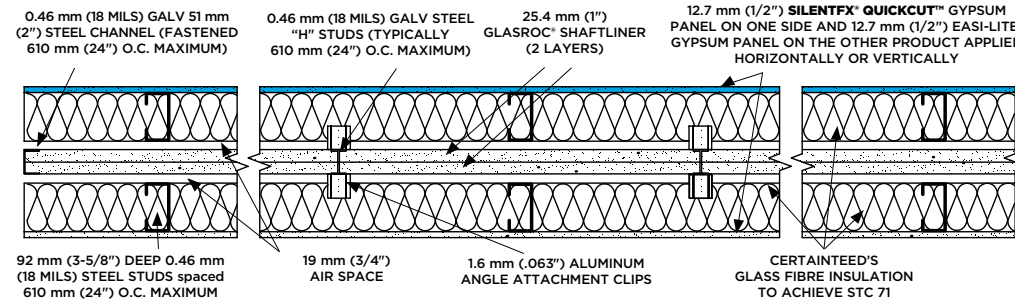
FIRE: ULC W311

SOUND: NOAL 17-1134

Thickness: 292 mm (11-1/2")  
Weight: 73 kg/m<sup>2</sup> (14.97 psf)

**EXPOSED TO FIRE FROM EITHER SIDE**

**STC 71** System **WAH271**



FIRE: ULC W311

SOUND: NGC 2017121\_R2

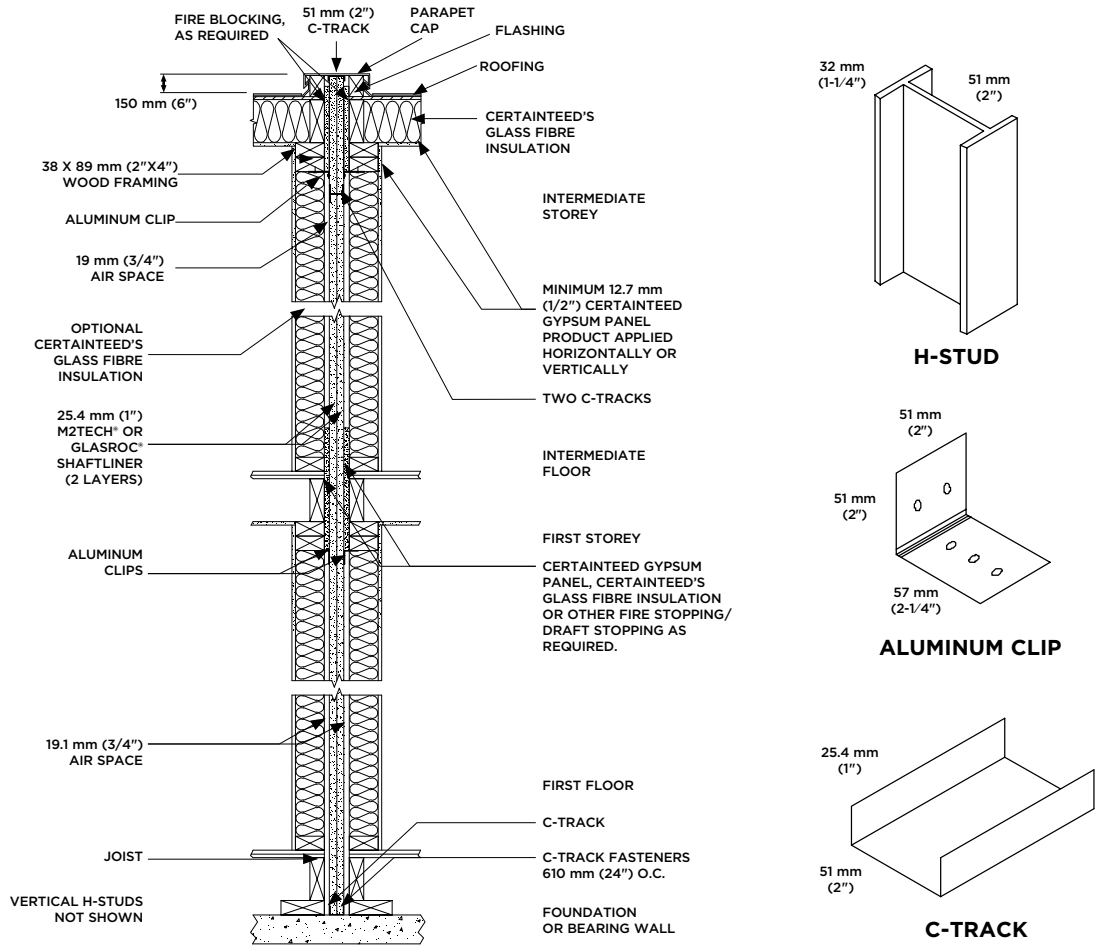
Thickness: 292 mm (11-1/2")  
Weight: 69.42 kg/m<sup>2</sup> (13.34 psf)

# FIREWALLS

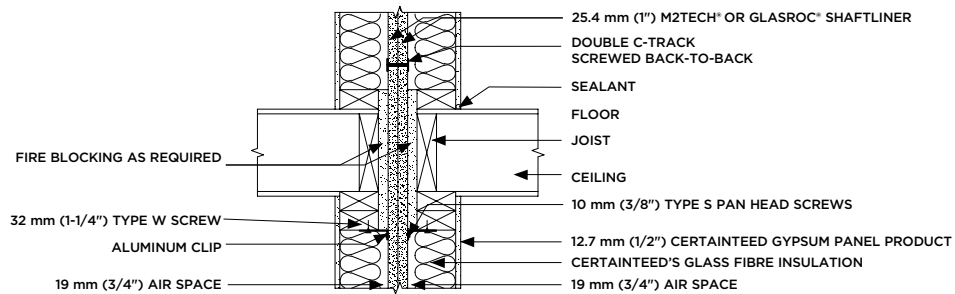
## Non-Loadbearing

**FIRE RESISTANCE RATING: 2h**

### TYPICAL INSTALLATION DETAILS



### INTERMEDIATE FLOOR INTERSECTION LOCATION OF CLIPS

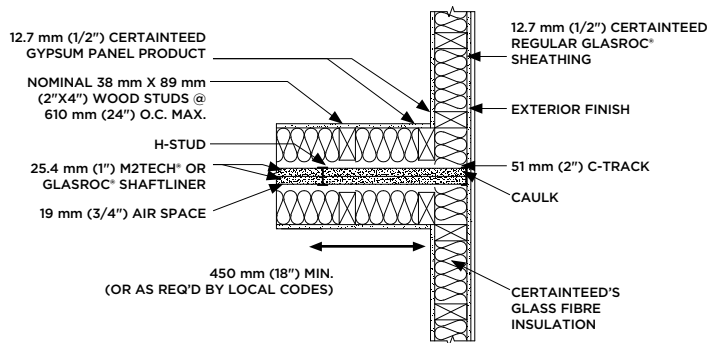


# FIREWALLS

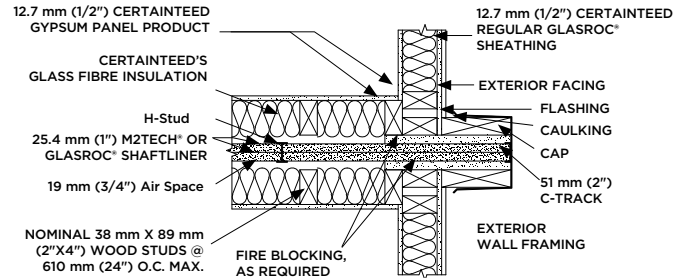
## Non-Loadbearing

**FIRE RESISTANCE RATING: 2h**

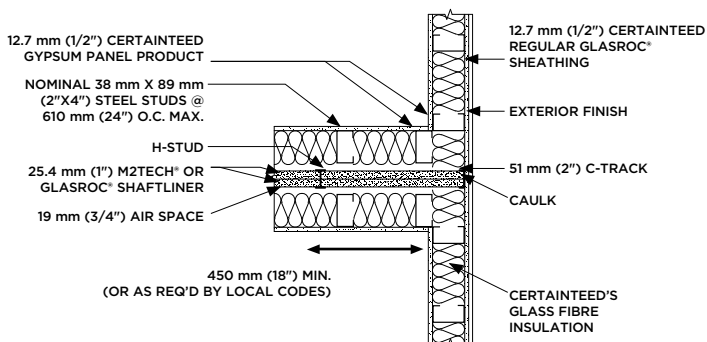
### EXTERIOR WALL INTERSECTION - WOOD FRAME



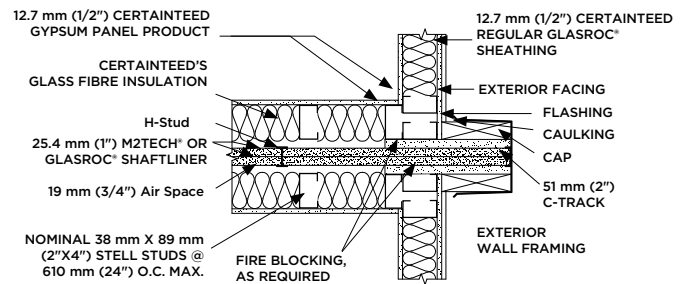
### PROTRUDING EXTERIOR WALL - WOOD FRAME



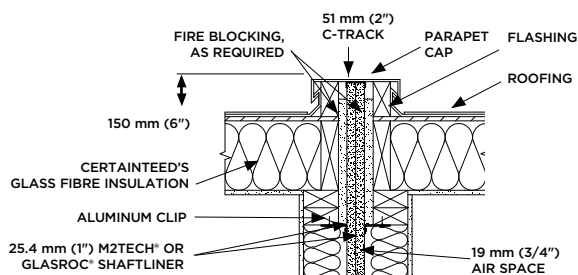
### EXTERIOR WALL INTERSECTION - STEEL FRAME



### PROTRUDING EXTERIOR WALL - STEEL FRAME



### TYPICAL ROOF PARAPET DETAIL



# STEEL JOIST FLOORS & CEILINGS

STC (SOUND TRANSMISSION CLASS)	CONSTRUCTION	DESCRIPTION	DESIGN NUMBER/ TEST REPORTS
<b>FIRE RESISTANCE RATING: 1h</b>			
<b>STC 53</b>		<p><b>System WFS1B</b> 51 mm (2"), 19 MPa (2800 psi) concrete floor. 15.9 mm (5/8") CertainTeed Type X products, 1 layer on steel furring channels.</p> <p>Fasten panels perpendicular to furring channels with 25 mm (1") screws spaced 300 mm (12") o.c. Locate screws 10 mm (3/8") minimum from edges and ends of panel. Joints must be offset. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: ULC I509 SOUND: Calculated to ASTM E413</p>
	<p>Thickness: 395 mm (15-1/2") Weight: 156 kg/m<sup>2</sup> (32 lb/ft<sup>2</sup>)</p>		
		<p><b>System WFS1XX</b> 12.7 mm (1/2") CertainTeed Type C products or 15.9 mm (5/8") CertainTeed Type C products, 2 layers. Minimum 200 mm (8") deep 90 mm C Channel steel joists, resilient channels spaced 406 mm (16") o.c. perpendicular to steel joists, 90 mm (3 1/2") CertainTeed Glass Fibre Insulation. Floor 15.9 mm (5/8") T&amp;G plywood.</p> <p>Fasten base layer perpendicular to resilient channels with 32 mm (1-1/4") screws spaced 300 mm (12") o.c. Fasten face layer perpendicular to resilient channels with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Locate face layer end joints at double resilient channels. Locate screws minimum of 38 mm (1-1/2") from edges of panel. Joints must be offset. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: ULC M511</p>
	<p>Thickness: 257 mm (10-1/8") Weight: 68 kg/m<sup>2</sup> (14 lb/ft<sup>2</sup>)</p>		
	<p>Gypsum panels applied to underside of steel supports maximum spacing 610 mm (24") o.c.</p>	<p><b>System WFX1XX</b> Fire rating provided by membrane only. 15.9 mm (5/8") CertainTeed Type X products, 2 layers, steel structural member, maximum spacing 610 mm (24") o.c.</p>	<p>FIRE: NBCC (2015) Appendix D Table D.2.3.4-B</p>
	<p>Thickness: Varies Weight: 22 kg/m<sup>2</sup> (4.6 lb/ft<sup>2</sup>) plus framing</p>	<p>Fasten base layer perpendicular to supports with 25 mm (1") screws spaced 300 mm (12") o.c. Fasten face layer perpendicular to supports with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Joints must be offset. Tape and finish joints with CertainTeed products.</p>	
<b>FIRE RESISTANCE RATING: 1-1/2h</b>			
<b>STC 53</b>		<p><b>System WFS1C</b> 51 mm (2"), 21 MPa (3100 psi) concrete floor. 12.7 mm (1/2") CertainTeed Type C products, 1 layer on steel furring channels.</p> <p>Fasten panels perpendicular to furring channels with 25 mm (1") screws spaced 200 mm (8") o.c. along end joints and 300 mm (12") o.c. in the field. Locate screws 15 mm (5/8") minimum from edges and ends of panel. Joints must be offset. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: ULC I510 SOUND: Calculated to ASTM E413</p>
	<p>Thickness: 389 mm (15-3/8") Weight: 166 kg/m<sup>2</sup> (34 lb/ft<sup>2</sup>)</p>		
<b>FIRE RESISTANCE RATING: 2h</b>			
<b>STC 54</b>		<p><b>System WFS2B</b> 64 mm (2-1/2"), 28 MPa (4000 psi) concrete floor. 12.7 mm (1/2") CertainTeed Type C products, 1 layer on steel furring channels.</p> <p>Fasten panels perpendicular to furring channels with 25 mm (1") screws spaced 200 mm (8") o.c. along end joints and 300 mm (12") o.c. in the field. Locate screws 35 mm (1-1/2") and 40 mm (1-5/8") minimum from end and side joints respectively. Joints must be offset. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: ULC I511 SOUND: Calculated to ASTM E413</p>
	<p>Thickness: 355 mm (14") Weight: 190 kg/m<sup>2</sup> (39 lb/ft<sup>2</sup>)</p>		

# STEEL JOIST FLOORS & CEILINGS

SOUND TRANSMISSION CLASS (STC)

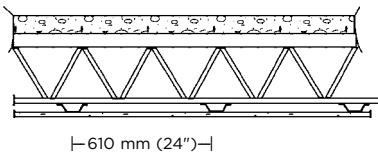
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/ TEST REPORTS

## FIRE RESISTANCE RATING: 2h (continued)

STC 54



Thickness: 355 mm (14")  
Weight: 190 kg/m<sup>2</sup> (39 lb/ft<sup>2</sup>)

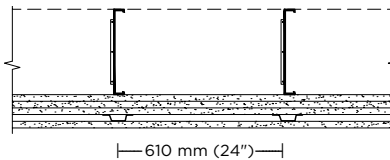
### System WFS2E

65 mm (2-1/2"), 24 MPa (3500 psi) concrete floor. 12.7 mm (1/2") CertainTeed Type C products, 1 layer on steel furring channels.

Fasten panels perpendicular to furring channels with 25 mm (1") screws spaced 300 mm (12") o.c. Locate screws 20 mm (3/4") minimum from edges and 50 mm (2") from ends of panel. Butt joints may be protected by 75 mm (3") wide by 12.7 mm (1/2") thick gypsum panel back blocking. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: ULC I506

SOUND: Calculated to ASTM E413



Thickness: 310 mm (12-1/4")

### System WFS2XX

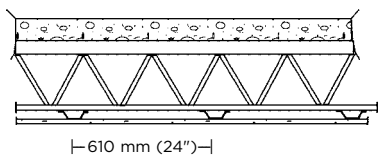
Fire rating provided by membrane only. 15.9 mm (5/8") CertainTeed Type X products, 4 layers. Steel Channel joists 200 mm (8") deep with 38 mm (1-1/2") flanges and 12.7 mm (1/2") stiffening flanges spaced 610 mm (24") o.c. Minimum yield strength of joist is 227 MPa (33 ksi). Subflooring is 19 mm (3/4") thick T&G wood structural panels.

First three layers perpendicular to joist with adjacent butt joints staggered 1220 mm (48"). Overlapping layers installed so edges and butt joints offset minimum 250 mm (10") from previous layer. Fasten base layer with 32 mm (1-1/4") screws spaced 300 mm (12") o.c. Fasten second layer with 50 mm (2") screws spaced 300 mm (12") o.c. Fasten third layer with 63 mm (2-1/2") screws spaced 300 mm (12") o.c. Fasten hat shaped furring channels spaced 610 mm (24") o.c. perpendicular to joists with 63 mm (2-1/2") screws spaced 300 mm (12") o.c. Fasten fourth layer perpendicular to hat channels with 29 mm (1-1/8") screws spaced 300 mm (12") o.c. Screws spaced 12.7 mm (1/2") from butt end joints and 25.4 mm (1") from side joints. Tape and finish face layer joints with CertainTeed finishing products.

FIRE: ULC M514

## FIRE RESISTANCE RATING: 3h

STC 57



Thickness: 380 mm (15")  
Weight: 244 kg/m<sup>2</sup> (50 lb/ft<sup>2</sup>)

### System WFS3A

90 mm (3-1/2"), 24 MPa (3500 psi) concrete floor. 12.7 mm (1/2") CertainTeed Type C products, 1 layer on steel furring channels.

Fasten panels perpendicular to furring channels with 25 mm (1") screws spaced 300 mm (12") o.c. Locate screws 20 mm (3/4") minimum from edges and 50 mm (2") from ends of panel. Butt joints may be protected by 75 mm (3") wide by 12.7 mm (1/2") thick gypsum panel back blocking. Joints must be offset. Tape and finish joints with CertainTeed products.

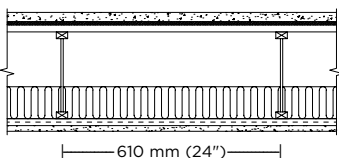
FIRE: ULC I506

SOUND: Calculated to ASTM E413

# WOOD JOIST FLOORS & CEILINGS

## FIRE RESISTANCE RATING: 3/4h

STC 50



Thickness: 289 mm (11-3/8")  
Weight: 60 kg/m<sup>2</sup> (12 lb/ft<sup>2</sup>)

### System WFF050

15.9 mm (5/8") CertainTeed Type X products, 1 layer. 241 mm (9-1/2") TJI® wood I-joists and resilient channels. Subfloor 19 mm (3/4") OSB.

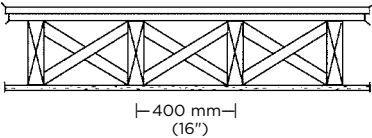
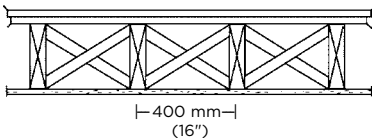
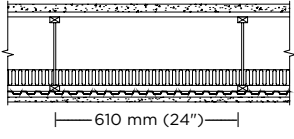
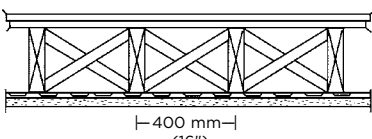
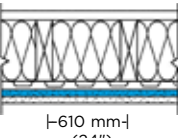
Fasten panels perpendicular to resilient channels with 32 mm (1-1/4") screws. Locate edge joints between joists. End joints staggered at least 610 mm (24"). Locate 2 rows of screws 19 mm (3/4") from edge and 15 mm (5/8") from end joints. Tape and finish joints with CertainTeed products.

FIRE: ITS WNR/FCA 45-01

SOUND: With insulation.

STC 57 with minimum 38 mm (1-1/2") topping.

# WOOD JOIST FLOORS & CEILINGS

STC (SOUND TRANSMISSION CLASS)	CONSTRUCTION	DESCRIPTION	DESIGN NUMBER/ TEST REPORTS	
<b>FIRE RESISTANCE RATING: 1h</b>				
<b>STC 34</b>		<p><b>System WFF134</b>            12.7 mm (1/2") CertainTeed Type C products, 1 layer. 38 mm x 235 mm (2 x 10) wood joists spaced 406 mm (16") o.c. Subfloor 12.7 mm (1/2") sheathing grade Douglas Fir plywood. Finished floor 15.5 mm (5/8") T&amp;G sheathing Douglas Fir plywood.</p> <p>Fasten panels perpendicular to joists with 44 mm (1-3/4") nails spaced 150 mm (6") o.c. Locate nails 20 mm (3/4") from edge and 15 mm (5/8") from end joints. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: ULC M502            SOUND: Calculated to ASTM E413</p>	
<p>Thickness: 276 mm (10-7/8")            Weight: 59 kg/m<sup>2</sup> (12 lb/ft<sup>2</sup>)</p>	<b>STC 35</b>		<p><b>System WFF135</b>            15.9 mm (5/8") CertainTeed Type X products, 1 layer. 38 mm x 235 mm (2 x 10) wood joists spaced 406 mm (16") o.c. Subfloor 12.7 mm (1/2") sheathing grade Douglas Fir plywood. Finished floor 15.5 mm (5/8") T&amp;G sheathing Douglas Fir plywood.</p> <p>Fasten panels perpendicular to joists with 44 mm (1-3/4") nails spaced 150 mm (6") o.c. Locate nails 20 mm (3/4") from edge and 15 mm (5/8") from end joints. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: ULC M500            SOUND: Calculated to ASTM E413</p>
<p>Thickness: 279 mm (11")            Weight: 64 kg/m<sup>2</sup> (13 lb/ft<sup>2</sup>)</p>	<b>STC 41</b>		<p><b>System WFF141B</b>            15.9 mm (5/8") CertainTeed Type C products, 1 layer. 241 mm (9-1/2") TJI® wood I-joists with flanges minimum 2-1/2" wide by 1-1/2" deep and hat channels. Subfloor 15.9 mm (5/8") OSB or plywood.</p> <p>Fasten panels perpendicular to furring channels with 32 mm (1-1/4") screws spaced 150 mm (6") o.c. Locate edge joints between joists. End joints at double row of furring channel and staggered 1200 mm (48"). Locate screws 76 mm (3") from edges and ends of panel. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: WNR/WIJ 60-01            SOUND: Calculated to ASTM E413</p>
<p>Thickness: 292 mm (11-1/2")            Weight: 60 kg/m<sup>2</sup> (12 lb/ft<sup>2</sup>)</p>	<b>STC 42</b>		<p><b>System WFF142</b>            12.7 mm (1/2") CertainTeed Type C products, 1 layer. 38 mm x 235 mm (2 x 10) wood joists and resilient channels spaced 610 mm (24") o.c. spaced 406 mm (16") o.c. and resilient channels. Subfloor 12.7 mm (1/2") sheathing grade Douglas Fir plywood. Finished floor 15.5 mm (5/8") T&amp;G sheathing Douglas Fir plywood.</p> <p>Fasten panels perpendicular to resilient channels with 25 mm (1") Type S screws spaced 300 mm (12") o.c. Locate edge joints between joists. Fasten panel end joints to additional pieces of resilient channel extending 150 mm (6") beyond end joints and attached to joists. Locate screws 15 mm (5/8") from edges and ends of panel. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: ULC M501            SOUND: Calculated to ASTM E413</p>
<p>Thickness: 289 mm (11-3/8")            Weight: 59 kg/m<sup>2</sup> (12 lb/ft<sup>2</sup>)</p>	<b>STC 54</b>		<p><b>System WFF154</b>            Face layer of 12.7 mm (1/2") CertainTeed Type C product and 15.9 mm (5/8") base layer <b>SilentFX® QuickCut™</b> Type X product. Wood I-joists 241 mm (9-1/2") deep wood I-joists spaced 610 mm (24") o.c. Subfloor 15.1 mm (19/32") plywood, OSB or waferboard with a sound mat and gypcrete 19.1 mm (3/4"). CertainTeed loose fill insulation applied in cavity.</p> <p>Fasten base layer perpendicular to resilient channels with 32 mm (1-1/4") screws spaced 300 mm (12") o.c. and 200 mm (8") at the butt joints. Locate edge joints between joists. End joints staggered 1200 mm (48"). Fasten face layer perpendicular to furring channels with 41 mm (1-5/8") screws spaced 200 mm (8") o.c. Butt joints must be staggered 1525 mm (60") while side joints of face layer must be offset from base layer by 610 mm (24"). Locate end joints of face layer at double resilient channels. Locate screws 38 mm (1-1/2") from edges of panel. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: cUL M535            SOUND: NGC 5017060</p>
<p>Thickness: 289 mm (11-3/8")            Weight: 68 kg/m<sup>2</sup> (14 lb/ft<sup>2</sup>)</p>				

# WOOD JOIST FLOORS & CEILINGS

STC (SOUND TRANSMISSION CLASS)

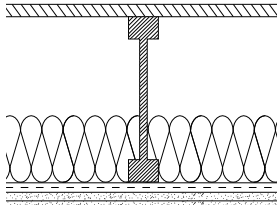
CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/TEST REPORTS

## FIRE RESISTANCE RATING: 1h (continued)

STC 58



Thickness: varies  
Weight: varies

### System WFF158

Vinyl floor covering (optional). Minimum 25 mm (1"), 10 MPa (1500 psi) floor topping on minimum 18 mm (23/32") sheathing grade OSB subfloor. 44 mm (1-3/4") x 240 mm (9-1/2") "I" joists conforming to ICC-ES-ESR-1153 report. Minimum 89 mm (3-1/2") CertainTeed glass fibre insulation in cavity. 15.9 mm (5/8") CertainTeed Type X products.

Fasten base layer perpendicular to resilient channel with 25 mm (1") screws 200 mm (8") o.c. Fasten face layer perpendicular to resilient channel with 41 mm (1-5/8") screws. Butt joints of face layer staggered minimum 2100 mm (7') o.c. Tape and finish joints with CertainTeed products.

FIRE: cUL M544

SOUND: With Vinyl Floor covering NGC 5019094

Gypsum panels applied to underside of wood supports maximum spacing 610 mm (24") o.c.



Thickness: varies  
Weight: 22 kg/m<sup>2</sup> (4.6 lb/ft<sup>2</sup>) plus framing

### System WFF1XX

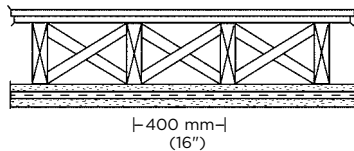
Fire rating provided by membrane only. 15.9 mm (5/8") CertainTeed Type X products, 2 layers. Acceptable wood joists. Resilient or furring channels optional. Subfloor plywood, OSB or waferboard.

Fasten base layer perpendicular to resilient channels with 25 mm (1") screws spaced 300 mm (12") o.c. Fasten face layer perpendicular to resilient channels with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. If resilient channels are not used, attach panel perpendicular to wood joists with 51 mm (2") screws spaced 300 mm (12") o.c. for both layers. Joints must be offset. Tape and finish joints with CertainTeed products.

FIRE: NBCC (2015) Appendix D Table D.2.3.12

## FIRE RESISTANCE RATING: 2h

STC 35



Thickness: 308 mm (12-1/8")  
Weight: 78 kg/m<sup>2</sup> (16 lb/ft<sup>2</sup>)

### System WFF235

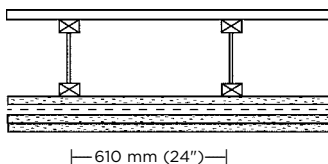
15.9 mm (5/8") CertainTeed Type C products, 2 layers. 38 mm x 235 mm (2 x 10) wood joists spaced 406 mm (16") o.c. and resilient channels. Subfloor 12.7 mm (1/2") sheathing grade Douglas Fir plywood. Finished floor 15.5 mm (5/8") T&G sheathing Douglas Fir plywood.

Fasten base layer perpendicular to joists with 63 mm (2-1/2") 8d box nails spaced 180 mm (7") o.c. Locate nails a minimum 15 mm (5/8") from edges of panels. Attach resilient channels perpendicular to joists 610 mm (24") o.c. with 64 mm (2-1/2") 8d common nails. Provide a 102 mm (4") overlap at splices and a minimum 20 mm (3/4") wall clearance. Fasten face layer perpendicular to resilient channels with 25 mm (1") screws spaced 300 mm (12") o.c. with additional screws 75 mm (3") from side joints. Located edge joints between joists and fasten end joints of panels to additional pieces of resilient channel extending 150 mm (6") beyond end joints and attached to joists. Locate screws a minimum 25.4 mm (1") from edges of panel. Tape and finish joints with CertainTeed products.

FIRE: ULC M503

SOUND: Calculated to ASTM E413

STC 54



Thickness: 321 mm (12-5/8")  
Weight: 78 kg/m<sup>2</sup> (16 lb/ft<sup>2</sup>)

### System WFF254

15.9 mm (5/8") CertainTeed Type C products, 3 layers. 241 mm (9-1/2") TJI® wood I-joists and resilient channels. Subfloor 15.9 mm (5/8") OSB or plywood.

Fasten base layer perpendicular to joists with 41 mm (1-5/8") screws spaced 200 mm (8") o.c. Attach furring channels perpendicular to joists 406 mm (16") o.c. with 48 mm (1-7/8") screws at each I-joist. Fasten second layer perpendicular to furring channel with 32 mm (1-1/4") screws spaced 200 mm (8") o.c. and edges of panel located between floor I-joists. Fasten face layer perpendicular to furring channels with 48 mm (1-7/8") screws spaced 200 mm (8") o.c. with joints offset. Locate screws 38 mm (1-1/2") from edges and 19 mm (3/4") from ends of panels. End joints must be staggered. Tape and finish joints with CertainTeed products.

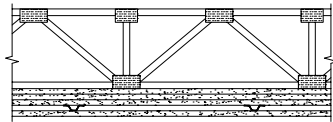
FIRE: ITS WNR/FCA 120-03

SOUND: Estimated, with 38 mm light weight gypsum concrete



# WOOD JOIST FLOORS & CEILINGS

CONSTRUCTION	DESCRIPTION	DESIGN NUMBER/ TEST REPORTS
<b>FIRE RESISTANCE RATING: 2h (continued)</b>		



Thickness: 310 mm (12-1/4")

### System WFF2XX

Fire rating provided by membrane only. 15.9 mm (5/8") CertainTeed Type X products, 4 layers. Wood joists, 38 mm x 184 mm (2" x 8") or minimum 450 mm (17-3/4") deep parallel chord trusses spaced a maximum of 610 mm (24"). Subflooring 19 mm (3/4") thick T&G wood structural panels.

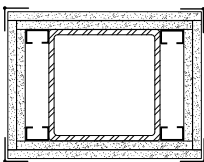
First three layers perpendicular to bottom of chord with adjacent butt joints staggered 1220 mm (48"). Overlapping layers installed so edges and butt joints offset minimum 250 mm (10") from previous layer. Fasten base layer with 32 mm (1-1/4") screws spaced 300 mm (12") o.c. Fasten second layer with 50 mm (2") screws spaced 300 mm (12") o.c. Fasten third layer with 63 mm (2-1/2") screws spaced 300 mm (12") o.c. Fasten hat shaped furring channels spaced 610 mm (24") o.c. perpendicular to joists with 63 mm (2-1/2") screws spaced 300 mm (12") o.c. Fasten fourth layer perpendicular to hat channels with 29 mm (1-1/8") screws spaced 300 mm (12") o.c. Screws spaced 12.7 mm (1/2") from butt end joints and 25.4 mm (1") from side joints. Tape and finish face layer joints with CertainTeed finishing products.

FIRE: ULC M514

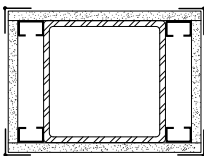
# COLUMN & BEAM PROTECTION

<b>FIRE RESISTANCE RATING: 1h</b>		
<p><b>Column</b></p> <p>Minimum W250 x 73 (W10 x 49) Weight:</p>	<p><b>System WC1Aa</b></p> <p>12.7 mm (1/2") CertainTeed Type C product, 1 layer. 41 mm (1-5/8") steel studs positioned at column corners, 12.7 mm (1/2") less than column height. Install panel vertically with 25 mm (1") screws spaced 610 mm (24") o.c. Install NO-COAT® corner or apply metal corner bead with 25 mm (1") screws spaced 300 mm (12") o.c. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: cUL X528 (See also NBCC (2015) Appendix D Table D-2.6.1.F.)</p>
<p><b>Column</b></p> <p>HSS - 102 x 102 x 5 (4" x 4" x 0.188")</p> <p>HSS - 200 x 200 x 6 (8" x 8" x 0.250")</p>	<p><b>System WC1Ab</b></p> <p>12.7 mm (1/2") CertainTeed Type C product, 2 layers. 41 mm (1-5/8") steel studs positioned at column corners of HSS - 102 x 102 x 5 (4" x 4" x 0.188") column, 12.7 mm (1/2") less than column height. Install panel vertically with 25 mm (1") screws spaced 610 mm (24") o.c. and fasten first layer using 25 mm (1") screws spaced 610 mm (24") o.c. Second layer fastened using 44 mm (1-3/4") screws spaced 300 mm (12") o.c. For an HSS - 200 x 200 x 6 (8" x 8" x 0.250") column, replace two layers of 12.7 mm (1/2") CertainTeed Type C with 1 layer of 15.9 mm (5/8") CertainTeed Type X. Fasten using 25 mm (1") screws spaced 610 mm (24") o.c. Install NO-COAT® corner or apply metal corner bead with 25 mm (1") screws spaced 300 mm (12") o.c. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: cUL X528 (See also NBCC (2015) Appendix D Table D-2.6.1.F.)</p>

### Column



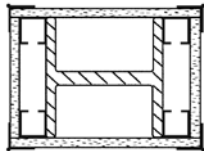
HSS - 102 x 102 x 5 (4" x 4" x 0.188")



HSS - 200 x 200 x 6 (8" x 8" x 0.250")

### FIRE RESISTANCE RATING: 1h

### Column



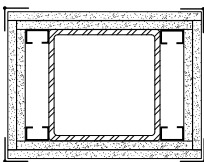
Minimum W250 x 73 (W10 x 49)  
Weight:

### System WC1Aa

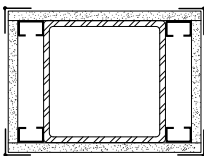
12.7 mm (1/2") CertainTeed Type C product, 1 layer. 41 mm (1-5/8") steel studs positioned at column corners, 12.7 mm (1/2") less than column height. Install panel vertically with 25 mm (1") screws spaced 610 mm (24") o.c. Install NO-COAT® corner or apply metal corner bead with 25 mm (1") screws spaced 300 mm (12") o.c. Tape and finish joints with CertainTeed products.

FIRE: cUL X528  
(See also NBCC (2015) Appendix D Table D-2.6.1.F.)

### Column



HSS - 102 x 102 x 5 (4" x 4" x 0.188")



HSS - 200 x 200 x 6 (8" x 8" x 0.250")

### System WC1Ab

12.7 mm (1/2") CertainTeed Type C product, 2 layers. 41 mm (1-5/8") steel studs positioned at column corners of HSS - 102 x 102 x 5 (4" x 4" x 0.188") column, 12.7 mm (1/2") less than column height. Install panel vertically with 25 mm (1") screws spaced 610 mm (24") o.c. and fasten first layer using 25 mm (1") screws spaced 610 mm (24") o.c. Second layer fastened using 44 mm (1-3/4") screws spaced 300 mm (12") o.c. For an HSS - 200 x 200 x 6 (8" x 8" x 0.250") column, replace two layers of 12.7 mm (1/2") CertainTeed Type C with 1 layer of 15.9 mm (5/8") CertainTeed Type X. Fasten using 25 mm (1") screws spaced 610 mm (24") o.c. Install NO-COAT® corner or apply metal corner bead with 25 mm (1") screws spaced 300 mm (12") o.c. Tape and finish joints with CertainTeed products.

FIRE: cUL X528  
(See also NBCC (2015) Appendix D Table D-2.6.1.F.)

# COLUMN & BEAM PROTECTION

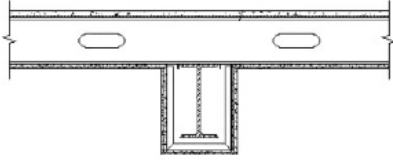
## CONSTRUCTION

## DESCRIPTION

## DESIGN NUMBER/ TEST REPORTS

### FIRE RESISTANCE RATING: 2h

#### Beam



Minimum Min W200 x 22 (W8 x 15) steel beam  
Weight: 29 kg/m<sup>2</sup> (6 lb/ft<sup>2</sup>)

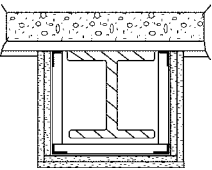
#### System WB1A

12.7 mm (1/2") CertainTeed Type C product, 2 layers, fastened to Beam cage. Inner layer fastened using 25 mm (1") long screws spaced 300mm (12") o.c. Outer layer secured using 41 mm (1-5/8") steel screws spaced 300 mm (12") o.c. Joints staggered between layers.

Beam Cage is fabricated from steel angle 22 mm (7/8") x 35 mm (1-3/8") and metal studs 64mm (2-1/2") wide with 25 mm (1") legs.

FIRE: cUL L524

#### Beam



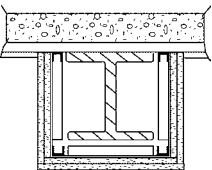
Minimum W200 x 36 (W8 x 24) steel beam.  
Weight: 29 kg/m<sup>2</sup> (6 lb/ft<sup>2</sup>)

#### System WB2A

15.9 mm (5/8") CertainTeed Type X products, 2 layers. 43 mm x 25.4 mm (1-11/16" x 1") steel channels and 25.4 mm x 50 mm (1" x 2") steel angles. Leave a minimum 12.7 mm (1/2") clearance at sides and bottom of beam. Attach angle to steel deck with 12 mm (1/2") Phillips pan head screws spaced 300 mm (12") o.c. Attach channel brackets to angle 610 mm (24") o.c. with 12 mm (1/2") Phillips pan head screws. Attach steel angle to lower corners of U-brackets with 12 mm (1/2") Phillips pan head screws at 406 mm (16") o.c. Install base layer of panel with 30 mm (1-1/4") screws spaced 406 mm (16") o.c. Install face layer with 45 mm (1-3/4") screws spaced 200 mm (8") o.c. Joints must be offset. Attach metal corner bead, tape and finish joints with CertainTeed products.

FIRE: ULC O501

#### Beam



Minimum W200 x 36 (W8 x 24) steel beam.  
Weight: 29 kg/m<sup>2</sup> (6 lb/ft<sup>2</sup>)

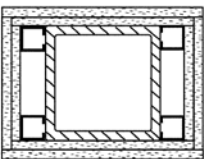
#### System WB2B

15.9 mm (5/8") CertainTeed Type X products, 2 layers. 43 mm x 25.4 mm (1-11/16" x 1") steel channels.

Leave a minimum 12.7 mm (1/2") clearance at sides and bottom of beam. Attach angle to steel deck with 12 mm (1/2") Phillips pan head screws spaced 300 mm (12") o.c. Attach channel brackets to angle 610 mm (24") o.c. with 12 mm (1/2") Phillips pan head screws. Insert corner angle in channel bracket cutout, screw attachment is not required. Install base layer of panel with 30 mm (1-1/4") screws spaced 406 mm (16") o.c. Install face layer with 45 mm (1-3/4") screws spaced 200 mm (8") o.c. Joints must be offset. Attach metal corner bead, tape and finish joints with CertainTeed products.

FIRE: ULC O502

#### Column



Minimum W250 x 73 (W10 x 49) steel column.

#### System WC2Aa

Base layer 12.7 mm (1/2") CertainTeed Type C gypsum panel, face layer 15.9 mm (5/8") CertainTeed Type X product. 41 mm (1-5/8") steel studs positioned at column corners, 12.7 mm (1/2") less than column height. Install base layer of panel vertically with 25 mm (1") screws spaced 610 mm (24") o.c. Install face layer vertically with 44 mm (1-3/4") screws spaced 300 mm (12") o.c. Install NO-COAT® corner or apply metal corner bead with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Tape and finish joints with CertainTeed products.

FIRE: cUL X528

# COLUMN & BEAM PROTECTION

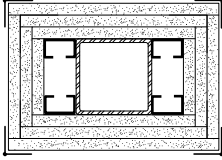
CONSTRUCTION

DESCRIPTION

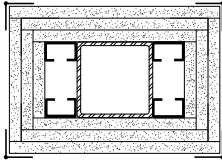
DESIGN NUMBER/  
TEST REPORTS

## FIRE RESISTANCE RATING: 2h (continued)

### Column



HSS - 102 x 102 x 5 (4" x 4" x 0.188")



HSS - 200 x 200 x 6 (8" x 8" x 0.250")

### System WC2Aa

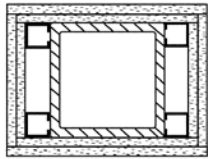
Base layer 12.7 mm (1/2") CertainTeed Type C gypsum panel, second layer and face layer 15.9 mm (5/8") CertainTeed Type X product. 41 mm (1-5/8") steel studs positioned at HSS - 102 x 102 x 5 (4" x 4" x 0.188") column corners, 12.7 mm (1/2") less than column height. Install base layer of panel vertically with 25 mm (1") screws spaced 610 mm (24") o.c. Install second layer of panel vertically with 44 mm (1-3/4") screws spaced 300 mm (12") o.c. Install face layer using 57 mm (2-1/2") screws spaced 300 mm (12") o.c. For HSS - 200 x 200 x 6 (8" x 8" x 0.250") columns, all three gypsum panel layers are 12.7 mm (1/2") thick.

Install NO-COAT® corner or apply metal corner bead with 41 mm (1-5/8") screws spaced 300 mm (12") o.c. Tape and finish joints with CertainTeed products.

FIRE: cUL X528

## FIRE RESISTANCE RATING: 3h

### Column



Minimum W250 x 73 (W10 x 49) steel column.  
Weight: 39 kg/m<sup>2</sup> (8 lb/ft<sup>2</sup>)

### System WC3A

15.9 mm (5/8") CertainTeed Type X products, 3 layers. 41 mm (1-5/8") steel studs positioned at column corners, 12.7 mm (1/2") less than column height. Install base layer of panel vertically with 25 mm (1") screws spaced 610 mm (24") o.c. Install second layer vertically with 45 mm (1-3/4") screws spaced 300 mm (12") o.c. Install face layer vertically with 57 mm (2-1/4") No. 8 screws spaced 300 mm (12") o.c. Install NO-COAT® corner or apply metal corner bead with 45 mm (1-3/4") 6d nails spaced 300 mm (12") o.c. Tape and finish joints with CertainTeed products.

FIRE: ULC Z502

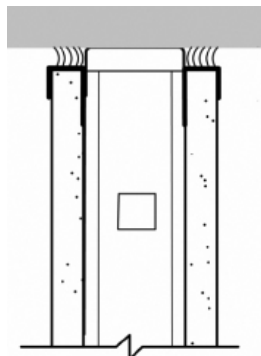
# HEAD OF WALL

CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

## FIRE RESISTANCE RATING: 1h



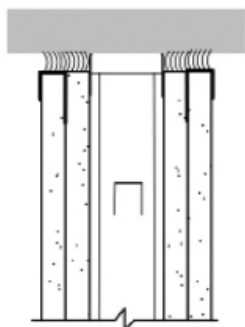
### HEAD OF WALL - STEEL RUNNER (TRACK), STEEL STUDS, DRYWALL TRIM, FLEXIBLE SEALANT

Steel top track with minimum 25.4 mm (1") lip attached to the ceiling or deck. Steel studs cut 12.7 mm (1/2") short and positioned into top track leaving a 12.7 mm (1/2") space between the top of the stud and the web of the track. Gypsum panels applied to the wall as specified in the listing for the one-hour fire-resistance rated system leaving a 12.7 mm (1/2") space between the top edge of the gypsum panel and the ceiling or deck. The first row of screws in each layer of gypsum panel products is located not less than 12.7 mm (1/2") below the lip of the drywall track applied to the ceiling. Drywall J-bead applied to top edge of Face layer of gypsum panel products. Minimum 12.7 mm (1/2") of flexible sealant applied in space between the top edge of the gypsum panel and the ceiling or deck. This perimeter relief system is intended for use in any one-hour fire-resistance steel stud system in this Manual using a single row of studs. The wall system shall be constructed of the materials and in the manner described in the UL Design.

**(Non Load Bearing - NLB)**

FIRE:  
Factory Mutual  
WP-163

## FIRE RESISTANCE RATING: 2h

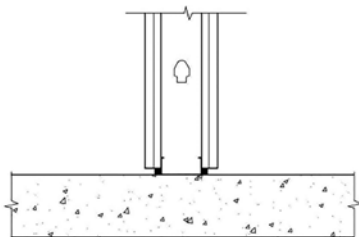


### HEAD OF WALL STEEL - RUNNER (TRACK), STEEL STUDS, DRYWALL TRIM, FLEXIBLE SEALANT

Steel top track with minimum 25.4mm (1") legs attached to the ceiling or deck. Steel studs cut 12.7 mm (1/2") short and positioned into top track leaving a 12.7 mm (1/2") space between the top of the stud and the web of the track. Gypsum panels applied to the wall as specified in the listing for the two-hour fire-resistance rated system leaving a 12.7 mm (1/2") space between the top edge of the gypsum panel and the ceiling or deck. The first row of screws in each layer of gypsum panel products is located not less than 12.7 mm (1/2") below the lip of the drywall track applied to the ceiling. Drywall J-bead applied to top edge of Face layer of gypsum panel products. Minimum 12.7 mm (1/2") of flexible sealant applied in space between the top edge of the gypsum panel and the ceiling or deck. This perimeter relief system is intended for use in any two-hour fire-resistance steel stud system in this Manual using a single row of studs. The wall system shall be constructed of the materials and in the manner described in the individual UL Design. **(NLB)**

FIRE:  
Factory Mutual  
WP-163

## FIRE RESISTANCE RATING: 1 or 2h



### BASE OF WALL - STEEL RUNNER (TRACK), STEEL STUDS, FLEXIBLE SEALANT

Steel runner track with minimum 25.4 mm (1") leg attached to concrete floor. Steel studs cut 9.5 mm (3/8") to 15.9 mm (5/8") short and positioned into floor and ceiling runners leaving a 15.9 mm (5/8") space between the bottom edge of the gypsum panel and floor slab and filled with smoke and sound barrier sealant. Type X gypsum panel applied to the wall as specified in the listing for the one or two-hour fire-resistance rated system. The first row of screws in each layer of gypsum panel is located not less than 15.9 mm (5/8") below the edge of the drywall track applied to the floor. The perimeter relief system is intended for use in any 1 or two-hour **load-bearing or NLB** fire-resistance rated steel stud system in this Manual using a single row of studs. The wall system shall be constructed of the materials and in the manner described in the individual UL Design.

FIRE:  
UL Design  
BW-S-0013

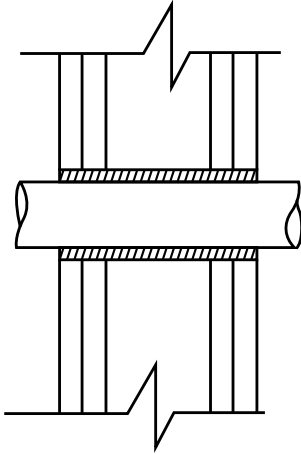
# THROUGH PENETRATION

CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

## FIRE RESISTANCE RATING: 1 or 2h



### THROUGH-WALL-PENETRATION, WOOD STUDS, GYPSUM PANEL, FIRE STOP SYSTEM

FIRE: W-L-1042

**Wall Assembly** — 1 or 2 hr fire-rated gypsum panel/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 Series Wall or Partition Design and shall include the following construction features: **Studs** — Wood studs to consist of nom 38 mm x 89 mm (2" x 4") lumber spaced 406 mm (16") o.c. **Gypsum PANEL** — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Diameter of opening to be 12.7 mm (1/2") to 25.4 mm (1") larger than outside diameter of through penetrant. Max diameter of opening is 127 mm (5").

**The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.**

**Through Penetrant** — One metallic pipe, conduit or tubing installed concentrically or eccentrically within the firestop system. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. Pipe, conduit or tube to be rigidly supported on both sides of wall assembly. The annular space between the pipe, conduit or tube and periphery of the opening shall be min 0" (point contact) to maximum 12.7 mm (1/2"). The following types and sizes of metallic pipes, conduits or tubing may be used: **Steel Pipe** — Nom 102 mm 4" diameter (or smaller) Schedule 10 (or heavier) steel pipe, **Iron Pipe** — Nom 102 mm (4") diameter (or smaller) cast or ductile iron pipe, **Conduit** — Nom 102 mm (4") diameter (or smaller) steel electrical metallic tubing (EMT) or steel conduit, **Copper Tubing** — Nom 102 mm (4") diameter (or smaller) Type L (or heavier) copper tube, or **Copper Pipe** — Nom 102 mm (4") diameter (or smaller) Regular (or heavier) copper pipe. **Fill, Void or Cavity Material — Sealant** — Min 15.9 mm (5/8") thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At the point contact location or when the annulus between the through penetrant and wall is 3.2 mm (1/8") or less, min 12.7 mm (1/2") diameter bead of fill material applied at the through penetrant/gypsum panel interface. **SPECIFIED TECHNOLOGIES INC** — Type WF300 Caulk.

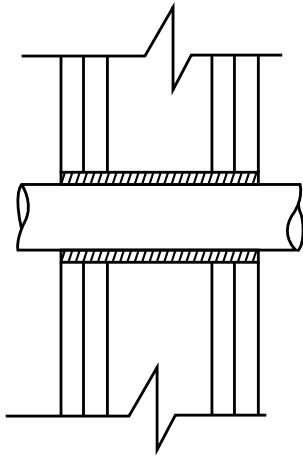
# THROUGH PENETRATION

CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

**FIRE RESISTANCE RATING: 1 or 2h**



## THROUGH-WALL-PENETRATION, STEEL STUDS, GYPSUM PANEL, FIRE STOP SYSTEM

FIRE: W-L-1049

**Wall Assembly** — 1 or 2 hr fire-rated gypsum panel/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design and shall include the following construction features:

**Studs** — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 38 mm x 89 mm (2" x 4") lumber spaced 406 mm (16") o.c., Steel studs to be min 92 mm (3-5/8") wide and spaced max 610 mm (24") o.c. When steel studs are used and the diameter of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 102 mm (4") to 152 mm (6") wider and 102 mm (4") to 152 mm (6") higher than the diameter of the penetrating item such that, when the penetrating item is installed in the opening, a 51 mm (2") to 75 mm (3") clearance is present between the penetrating item and the framing on all four sides.

**Gypsum PANEL** — 15.9 mm (5/8") thick, 1220 mm (4') wide with square or tapered edges. The gypsum panel type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design. Max diameter of opening is 660 mm (26") for steel stud walls. Max diameter of opening is 368 mm (14-1/2") for wood stud walls.

**The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.**

**Metallic Sleeve** — (Optional, Not Shown) - Cylindrical sleeve fabricated from min 0.40 mm (0.016") to max 2.7 mm (0.105") thick sheet steel. Length of steel sleeve to be equal to the thickness of wall. Longitudinal seam of sleeve welded or overlapped min 25.4 mm (1"). The ends of the steel sleeve shall be flush or recessed max 6.4 mm (1/4") from wall surfaces. **Through Penetrant** — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 mm (0") (point contact) to max 51 mm (2"). For maximum 406 mm (16") diameter (or smaller) pipes, annular space shall be min 0 mm (0") (point contact) to max 51 mm (2"). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly.

The following types and sizes of metallic pipes, conduits or tubing may be used:

**Steel Pipe** — Nom 914 mm (36") diameter (or smaller) Schedule 10 (or heavier) steel pipe,

**Iron Pipe** — Nom 914 mm (36") diameter (or smaller) cast or ductile iron pipe, **Conduit** — Nom 102 mm (4") diameter (or smaller) steel electrical metallic tubing, nom 152 mm (6") diameter (or smaller) steel conduit or nom 25.4 mm (1") diameter (or smaller) flexible steel conduit, **Copper Tubing** — Nom 152 mm (6") diameter (or smaller) Type L (or heavier) copper tubing, or **Copper Pipe** — Nom 152 mm (6") diameter (or smaller) Regular (or heavier) copper pipe. **Fill, Void or Cavity Material** — Sealant — Min 15.9 mm (5/8") thickness of fill material applied within annulus, flush with both surfaces of wall.

At the point contact location between through penetrant and gypsum panel, a min 9.5 mm (3/8") diameter bead of fill material shall be applied at the gypsum panel/through penetrant interface on both surfaces of wall.

**SPECIFIED TECHNOLOGIES INC** — SpecSeal Series SSS Sealant or SpecSeal LCI Sealant.

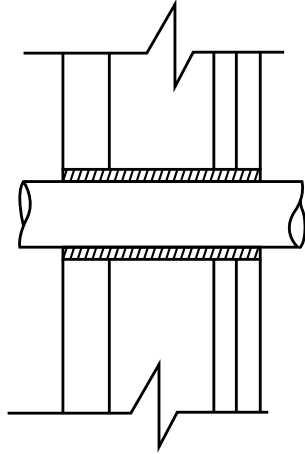
# THROUGH PENETRATION

CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

## FIRE RESISTANCE RATING: 1 or 2h



### THROUGH-WALL-PENETRATION, C-H or C-T STEEL STUDS, FIRE STOP SYSTEM

FIRE: W-L-2417

**Wall Assembly** — 1 or 2 hr fire-rated gypsum panel/stud shaft wall assembly shall be constructed of the materials and in the manner specified in the individual U400 and V400 Series Wall and Partition Designs in the UL Design and shall incorporate the following construction features: **Steel Studs** — "C-H" or "C-T" shaped studs, min 64 mm (2-1/2") wide by 38 mm (1-1/2") deep, fabricated from min 0.46 mm [18 mil (25 gauge)] galvanized steel, spaced max 610 mm (24") o.c. **Gypsum PANEL** — 25.4 mm (1") thick X 610 mm (24") wide gypsum liner panels installed vertically. Circular cutout in gypsum liner panel to be min 12.7 mm (1/2") to max 19.1 mm (3/4") larger than outside diameter of through penetrant. Maximum diameter of circular cutout in gypsum liner panel is 75 mm (3").

**Gypsum PANEL** — 12.7 mm (1/2") or 15.9 mm (5/8") thick, 1220 mm (48") wide gypsum panels. Gypsum PANEL type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Circular cutout in gypsum panel to align with and be equal in diameter to the circular cutout in the liner panel. **Through Penetrants** — One nonmetallic pipe, tubing or conduit installed concentrically or eccentrically within the firestop system. Annular space between penetrant and edge of opening shall be min 3/8" to max 19.1 mm (3/4"). Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used: **Polyvinyl Chloride (PVC) Pipe** — Nom 51 mm (2") diameter (or smaller) Schedule 40 solid core PVC pipe, **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 51 mm (2") diameter (or smaller) SDR13.5 CPVC pipe, or **Rigid Nonmetallic Conduit+** — Nom 51 mm (2") diameter (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70). **Firestop System** — shall consist of the following: **Fill, Void or Cavity Materials** — **Wrap Strip** — Nom 6.4 mm (1/4") thick by 75 mm (3") wide intumescent material encapsulated within poly bag. One wrap strip tightly wrapped around penetrant and held in place with adhesive strip provided on bag. Wrap strip to be slid into annular space and extend through thickness of liner panel and recessed from finished side of wall as necessary to accommodate the required thickness of sealant. **NUCO INC** — Self Seal FireBand™ or **Fill, Void or Cavity Material** — Sealant applied within the annulus, flush with the finished surface of wall assembly. For 2 hr fire rated shaft wall, a minimum 12.7 mm (1/2") thickness of sealant is required. For 1 hr fire rated shaft wall, a minimum 3.2 mm (1/8") thickness of sealant is required.

**NUCO INC** — Self Seal GG-266

# THROUGH PENETRATION

CONSTRUCTION

DESCRIPTION

DESIGN NUMBER/  
TEST REPORTS

## FIRE RESISTANCE RATING: 2h

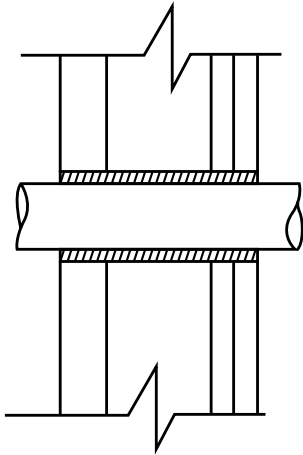
FIRE: W-L-2356

### THROUGH-WALL-PENETRATION, C-H STEEL STUDS, GYPSUM PANEL, FIRE STOP SYSTEM

**Wall Assembly** — 2 hr fire-rated shaft wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall and Partition Designs in the UL Design and shall include the following construction features:

**Steel Studs** — C-H -shaped studs, 64 mm (2-1/2") wide by 38 mm (1-1/2") deep, spaced 610 mm (24") o.c. **Shaftliner Panel** — 25.4 mm (1") thick gypsum panel liner panels, supplied in nominal 610 mm (24") widths as specified in the individual Wall and Partition Design. Maximum diameter of opening is 75 mm (3"). **Gypsum PANEL** — Two layers of 15.9 mm (5/8") thick gypsum panel as specified in the individual Wall and Partition Design. Maximum diameter of opening is 75 mm (3"). **Steel Sleeve** — Cylindrical sleeve fabricated from min 0.46 mm {0.019" (28 gauge)] thick galvanized sheet steel and having a min 51 mm (2") lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall or up to 51 mm (2") longer than the thickness of wall such that, when installed, the ends of the sleeve will be flush with wall surface or project up to 25.4 mm (1") beyond the surface of the wall on each side of the wall assembly. Sleeve installed by coiling the sheet steel to a diameter smaller than the max 75 mm (3") diameter through opening, inserting the coil through the opening and releasing the coil to let it uncoil against the circular cutouts in the gypsum panel layers. **Through Penetrants** — One nonmetallic pipe or conduit concentrically or eccentrically within the firestop system. The annular space between penetrant and sleeve shall be min 3.2 mm (1/8") to max 12.7 mm (1/2"). Penetrant to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes or conduits: **Polyvinyl Chloride (PVC) Pipe** — Nom 51 mm (2") diameter (or smaller) Schedule 40 solid core or cellular core PVC pipe, **Rigid Nonmetallic Conduit++** — Nom 51 mm (2") diameter (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70), **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 51 mm (2") diameter (or smaller) SDR13.5 CPVC pipe, or **Acrylonitrile Butadiene Styrene (ABS) Pipe** — Nom 51 mm (2") diameter (or smaller) Schedule 40 solid core or cellular core ABS pipe. **Firestop System** — shall consist of the following: **Fill, Void or Cavity Materials — Wrap Strip** — Nom 3.2 mm (1/8") thick intumescent material supplied in 51 mm (2") wide strips. Minimum one layer of wrap strip tightly wrapped around nonmetallic pipe and held in position using foil tape. Wrap strip to be recessed from finished surface of wall approx 44 mm (1-3/4") such that the leading edge of wrap strip is flush with inner surface of gypsum panel liner panel. **3M COMPANY** — Ultra GS

**Packing Material** — Minimum 75 mm (3") thickness of minimum 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from finished surface of wall to accommodate the required thickness of fill material. **Fill, Void or Cavity Materials — Caulk or Sealant** — Minimum 19.1 mm (3/4") thickness of caulk applied within annulus, flush with finished surface of wall assembly. **3M COMPANY** — IC 15WB+, CP-25 WB+ caulk or FB-3000 WT sealant. (Note: CP 25WB+ not suitable for use with CPVC pipes.)









The Canadian Gypsum and Insulation Systems Manual is the result of CertainTeed's focus on innovation, safety, durability and sustainability. Many of the assemblies within are composed of sustainable products recognized by independent 3rd parties. For more information on CertainTeed products or to download a digital copy of this manual, visit [certainteed.ca](http://certainteed.ca).

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