certainteed
SAINT-GOBAIN

CertainTeed Gypsum and Insulation Fire and Sound Control Design Manual

SAINT-GOBAIN

Dependability When it Matters Most

The walls you build are constructed with precision and hard work. The products you use need to bring that same level of performance. That's why we offer a full range of reliable drywall and finishing solutions that make installations faster and simpler, all while helping you keep pace with demand — no matter the size, complexity, or location of the project.

Our drywall solutions are manufactured with quality and consistency, and our products are readily available, no matter where you are in the country. Plus, our in-house technical support team is at the ready to help you through even the most demanding installations. We have your back, so you can easily stay on schedule, within budget, and keep your projects running smoothly.

BIM/CAD INFORMATION

The BIM and CAD UL fire rated assemblies and sound assemblies can be found on CertainTeed's BIM and CAD Design Studio at **bimlibrary.saint-gobain.com/certainteed**. CertainTeed's BIM and CAD Design Studio provides BIM and CAD details to many UL fire rated assemblies and sound assemblies in an easy to view experience. Plus, downloadable Revit and DWG and PDF CAD Details are available.

SUSTAINABILITY

Can contribute to the U.S. Green Building Council's LEED Credit Qualification in several credit categories to assist in obtaining LEED certification. Sustainable documentation, including recycled content, EPD's, HPD's, VOC Certifications, can be found at **saintgobain.ecomedes.com**.

Gypsum Panel Systems Manual

INTRODUCTION

GENERAL

This manual is intended to provide architects, builders, contractors and engineers with reference data on Gypsum Panel Systems incorporating CertainTeed Gypsum Panel products. It contains sections on Partitions, Exterior Walls, Chase Walls, Shaft Walls, Horizontal Systems, Area Separation Walls, Floors/Ceiling Systems, Roof/Ceiling Systems, Column and Beam Protection, Head of Wall, Base of Wall and Through Wall Penetrations. Each section lists the systems in ascending order of fire rating and includes sound ratings and basic construction details.

TECHNICAL CONTACT INFORMATION

The Gypsum Panel Systems Manual is available on our web site at **certainteed.com**. Further assistance regarding the application of CertainTeed Gypsum in Gypsum Panel Systems or Sound Systems can be obtained by contacting CertainTeed Gypsum Technical Services by email at **gypsumtechnicalsupport@saint-gobain.com** or by phone at: 1-800-446-5284.

CONTENT DISCLAIMER

Any product information, data or specifications contained in this Manual have been prepared with information available to CertainTeed Gypsum at the time of printing and every effort has been made to ensure that all information, data and specifications are complete and accurate. 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 Gypsum 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.

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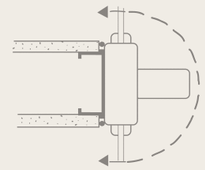
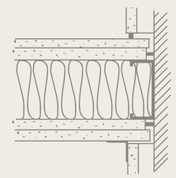

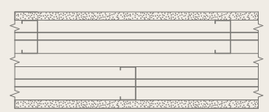
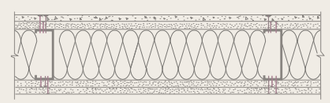

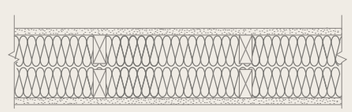

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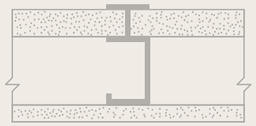
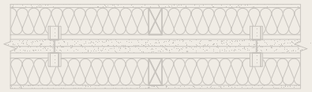
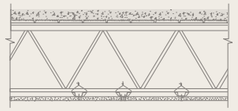
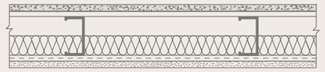
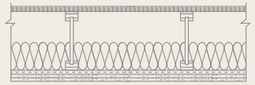
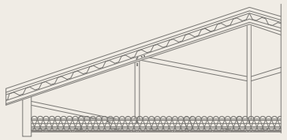
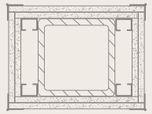
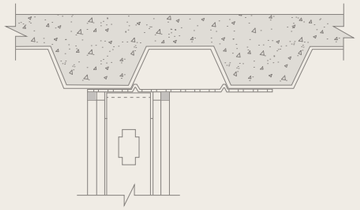



Gypsum panel is the most commonly used fire resistive material and is equally well known as a reliable and economic surfacing material. When used in combination with other products, excellent fire resistive and sound control properties can be achieved.

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. When 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 (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 GYPSUM PANEL

Gypsum Panel Type X, designates gypsum panels, except gypsum lath, gypsum coreboard and gypsum shaftliner panel, complying with ASTM specification that provides not less than 1 hour fire-resistance rating for panels 5/8″ thick or 3/4 hour fire-resistance rating for 1/2″ thick, applied parallel with and on each side of load bearing 2″x 4″ wood studs spaced 16″ on center with 6d coated nails, 1-7/8″ long, 0.0915″ diameter shank, 1/4″ diameter heads, spaced 7″ on centers with gypsum panel joints staggered 16″ on each side of the partition and tested in accordance with ASTM E119.

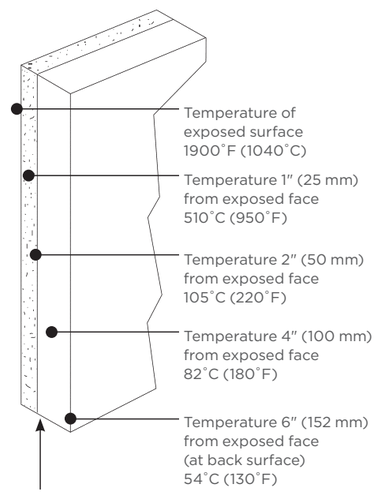
Type X gypsum panels manufactured by CertainTeed Gypsum are described as either GlasRoc®, GlasRoc® Shaftliner, or Type X and these products are classified/listed by Underwriters Laboratories.

All CertainTeed Type X, M2Tech®, Extreme Abuse, Extreme Impact, Veneer Plaster Base and Gypsum Sheathing Treated Core, CertainTeed Type C, M2Tech® Shaftliner, GlasRoc® Sheathing Type X, GlasRoc® Shaftliner and GlasRoc® Tile Backer Type X products meet ASTM definitions of Type X gypsum panel.

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.

How Gypsum Retards Heat Transmission

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



Vertical line represents plane of calcination. Temperature never greatly exceeds 212˚F (100˚C) behind plane of calcination.

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: ASTM E119 *Fire Tests of Building Construction and Materials* or UL 263 *Standard for Fire Test 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 walls. Comprehensive research by fire protection agencies has determined the average combustible content to be expected for a given occupancy; also the time required for the contents to be consumed by fire and the resulting temperature. Thus, the average fire load may be predicted for a given occupancy, and fire resistance classifications are assigned accordingly in building codes and similar regulations.

In ASTM E119 or UL 263 fire tests, various wall, floor, roof, column and beam assemblies are exposed in a furnace which reaches the indicated average temperatures at the time stated in the standard time-temperature curve. All of the walls and partitions tested and classified must be at least 100ft^2 with no side dimension less than 9 feet. Temperatures are measured at a minimum of nine points on the unexposed surface of the assembly. When testing load bearing walls and partitions the superimposed load applied shall simulate the working stress of the construction components.

The wall or partition must also stop flame or hot gasses capable of igniting cotton waste. The average temperature of the unexposed surface cannot increase more than 250˚F above ambient nor shall the temperature rise at any individual point exceed 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 180ft^2 with neither dimension less than 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 250˚F above the initial temperature nor shall the temperature rise at any individual point exceed 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 tunnel test: ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials or UL 723 Standard Method for Surface Burning Characteristics of Building Materials.

These 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 (see table).

	ASTM E84	
	Flame Spread	Smoke Developed
Asbestos Cement Board (control classification)	0	0
Gypsum Plaster	0	0
CertainTeed® Type X, Type C, Easi-Lite®, Easi-Lite® 30, Extreme Abuse, Extreme Impact, Exterior Soffit and M2Tech Type X	15	0
GlasRoc® Sheathing, Tile Backer, Interior and Shaftliner	0	0
CertainTeed M2Tech® Shaftliner	15	0
SilentFX® QuickCut™, FireLITE® Type X	0	0
Heptane	100	0

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SOUND CONTROL

THE PROBLEM OF NOISE IN THE BUILT ENVIRONMENT

It's a noisy world. Twenty-four hours a day, seven days a week, we are exposed to sounds we do not want, need, or benefit from. There are few places on the planet where in our daily lives we are free from unwanted sounds.

Noise from many outdoor sources assails our hearing as it invades our homes and workplaces: traffic, aircraft, barking dogs, neighbors' voices. Noise within the workplace — from office machines, telephones, ventilating systems, unwanted conversation in the next cubicle — distracts us from our work and makes us less productive.

Noise from within the home — from appliances, upstairs footsteps, TV sound traveling from room to room — keeps our homes from being the restful refuges they ought to be. Noise in the classroom impedes the learning process and threatens our children's educational experience. Noise can frustrate and impede speech communication. It can imperil us as we walk or drive city streets. It can be a physical health hazard as well: Exposure to high noise levels can cause permanent hearing loss. In short: Noise is unwanted sound.

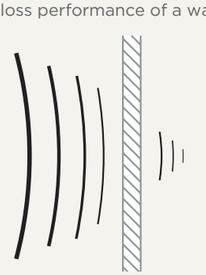
SOUND TRANSMISSION CLASS (STC)

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.

Sound Transmission Class (STC) Rating

A single number rating system that represents the sound transmission loss performance of a wall.



Ambient Noise

All sound in a given environment, including sound from outdoors, building services and utilities.

SOUND ISOLATION

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. A first essential for airborne sound insulation using any assembly is to close off air leaks and flanking paths by which noise can go around the 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 illustration.

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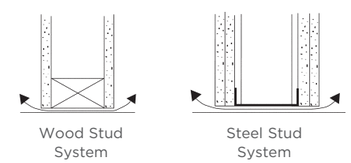
SOUND ISOLATION CONSTRUCTION

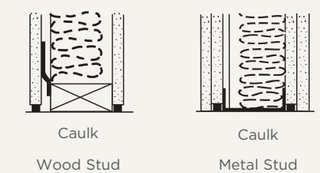
"NORMAL CONSTRUCTION"
Not suitable for good sound control. Arrows show flanking paths

"SELECT CONSTRUCTION"
Caulking of relief detail at perimeter of partition to prevent sound leakage

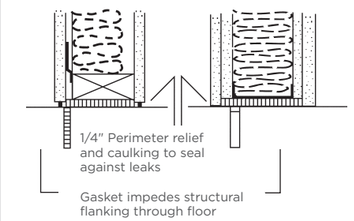
"PRE-DESIGN" CONSTRUCTION
Simulating laboratory conditions



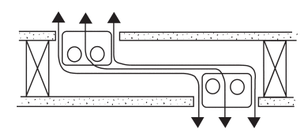
Elevation
Under and Over Partitions



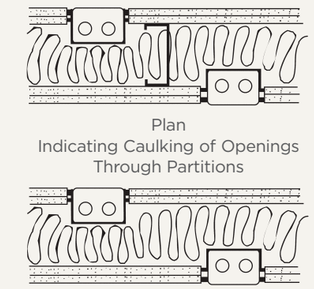
Elevation



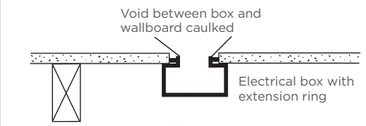
Elevation
Typical Floor-Ceiling or Roof Detail



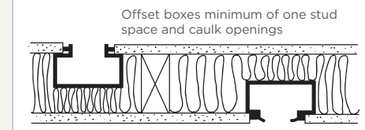
Plan
Through Partitions, Openings, Outlet Boxes

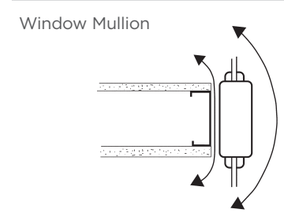


Plan
Indicating Caulking of Openings Through Partitions

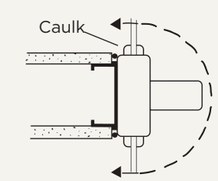


Plan
Outlet Box Detail

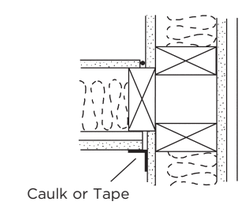




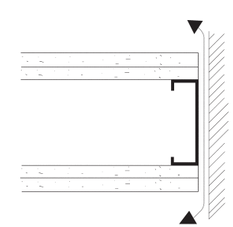
Plan
Around Flanking Partition Ends



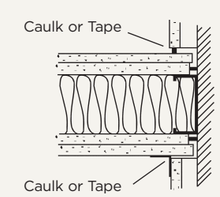
Plan
Typical Partition Mullion Intersection



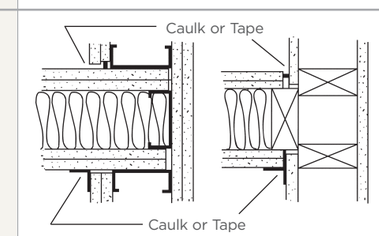
Plan
Intersection With Exterior Wall



Plan
Metal Stud
Around Flanking Partition Ends



Plan
Intersection With Interior Wall



Plan
Typical Partition Intersections

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TESTING COMPANIES

DEFINITIONS

Definitions of "Fire Resistance Rating" and "STC" as used in this manual are as follows:

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 ASTM E119.

STC: Sound Transmission Class, a single number which represents the overall performance of an assembly at all sound frequencies. As per ASTM E90 and E413, the higher the STC, the more efficient the system for reducing sound transmission.

TESTING AUTHORITIES

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

Fire Resistance Ratings

UL - Underwriters Laboratories

Sound Ratings

NGC - NGC Testing Services
NOAL – North Orbit Acoustic Laboratories
OL - Orfield Laboratories, Inc.
RAL - Riverbank Acoustical Laboratories

BUILDING CODES

Building Codes govern among other items, the type, use and application of construction materials. Therefore, it is 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
UL – Underwriter Laboratories

PRODUCTS AND STANDARDS

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

Gypsum Panel Product	Standard(s)
Regular - 1/4", 3/8"	ASTM C1396
Easi-Lite® - 1/2"	ASTM C1396
M2Tech® - 1/2"	ASTM C1396
Type C – 1/2"	ASTM C1396
SilentFX® QuickCut™	ASTM C1766
Easi-Lite® Veneer Plaster Base - 1/2"	ASTM C1396
GlasRoc® Interior – 1/2"	ASTM C1658
GlasRoc® Sheathing – 1/2"	ASTM C1177
GlasRoc® Tile Backer – 1/2"	ASTM C1178
Type X, Type C – 5/8"	ASTM C1396
M2Tech® Type X – 5/8"	ASTM C1396
Extreme Abuse – 5/8"	ASTM C1396, C1629
Extreme Impact – 5/8"	ASTM C1396, C1629
SilentFX® QuickCut™ Type X – 5/8"	ASTM C1766
Veneer Plaster Base Type X – 5/8"	ASTM C1396
Exterior Soffit Type X, Type C – 5/8"	ASTM C1396
GlasRoc® Interior Type X – 5/8"	ASTM C1658
GlasRoc® Sheathing Type X – 5/8"	ASTM C1177
GlasRoc® Tile Backer Type X – 5/8"	ASTM C1178
M2Tech® Shaftliner – 1"	ASTM C1396
GlasRoc® Shaftliner – 1"	ASTM C1658
FireLITE® Type X - 5/8"	ASTM C1396

Gypsum Panel Systems Manual

STANDARDS

ACCESSORY MATERIALS

The materials used in conjunction with CertainTeed Gypsum panel products are manufactured to meet or exceed the following standards.

Material	Standard(s)
Steel Stud	ASTM C645, ASTM C955
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	ASTM C514
Adhesives	ASTM C557
Sealants	ASTM C920
Joint Compounds	ASTM C475
Joint Tape	ASTM C475
Gypsum Plaster	ASTM C28
Accessories	ASTM C1047

APPLICATION STANDARDS

ASTM C840, *Application and Finishing of Gypsum Board*
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, *Application and Finishing of Gypsum Panel Products*
Gypsum Association GA-253, *Application of Gypsum Sheathing*
Gypsum Association GA-214, *Levels of Finish for Gypsum Panel Products*
IBC International Building Code
IRC International Residential Code

UL TYPE DESIGNATIONS

Type X-1: 5/8" CertainTeed® Type X, M2Tech®, Extreme Abuse, Extreme Impact, Veneer Plaster Base and Gypsum Sheathing Treated Core Gypsum Panels

Type Easi-Lite 30: 5/8" Easi-Lite® 30 Gypsum Panels

Type SilentFX: 5/8" CertainTeed SilentFX® QuickCut™ Gypsum Panels

Type GlasRoc: 5/8" GlasRoc® Sheathing, GlasRoc® Interior and GlasRoc® Tile Backer Gypsum Panels

Type C: 5/8" CertainTeed® Type C Gypsum Panels
Type C: 1/2" CertainTeed® Type C Gypsum Panels

Type Shaftliner: 1" CertainTeed M2Tech® Shaftliner

Type LGFCSL: 1" GlasRoc® Shaftliner

Gypsum Panel Systems Manual

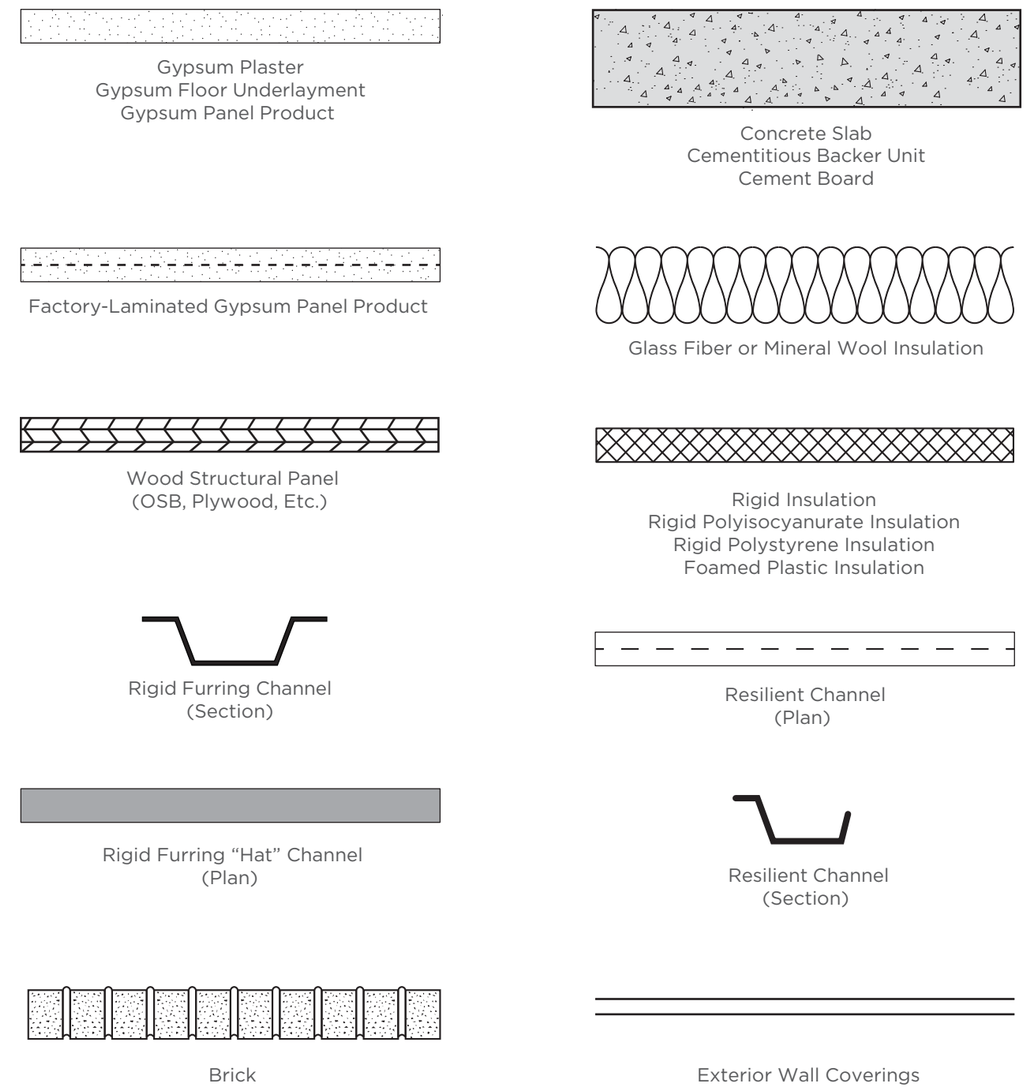
GENERAL DESIGN NOTES

1. Screws meeting ASTM C1002 can be substituted for the prescribed nails, one for one, when the length and head diameter of the screws equal or exceed those of the nails specified in the tested system, and the screw spacing does not exceed the spacing specified for the nails.
2. Unless specified, the face layers of all systems, except those with exterior gypsum sheathing panels, shall have joints taped with either paper tape or glass fiber mesh tape (minimum Level 1 as specified in GA-214 Recommended Levels of Finish for Gypsum Panel, Glass Mat and Fiber-Reinforced Gypsum Panels) and fastener heads treated. Base layers in multi-layer systems shall not be required to have joints or fasteners taped or covered with joint compound.
3. Unless otherwise stated in the detailed description, joints shall be staggered as follows:
   a. Horizontal butt joints on opposite sides of a partition in a single layer application shall be staggered not less than 12 inches.
   b. Horizontal butt joints in adjacent layers on the same side of a partition in multi-layer applications shall be staggered not less than 12 inches.
   c. Vertical joints on opposite sides of a partition in single layer applications shall not occur on the same stud.
4. Partitions Extending Above the Ceiling — When a fire-resistance rated partition extends above the ceiling, the gypsum panel joints occurring above the ceiling need not be taped and fasteners need not be covered when all of the following conditions are met:
   a. The ceiling is part of a fire-resistance rated floor-ceiling or roof-ceiling system;
   b. All vertical joints occur over framing members;
   c. Horizontal joints are either staggered 24 inches o.c. on opposite sides of the partition or are covered with strips of gypsum panel not less than 6 inches wide; or the partition is a two-layer system with joints staggered 16 inches or 24 inches o.c.; and
   d. The partition is not part of a smoke or sound control system.

   Where joint treatment is discontinued at or just above the ceiling line, the vertical joint shall be cross taped at this location to reduce the possibility of joint cracking.
5. When not specified as a component of a fire rated wall design, either faced or unfaced mineral fiber, glass fiber, or cellulose fiber insulation of a thickness exceeding the cavity depth shall be permitted to be added within the stud cavity.
6. In floor-ceiling or roof–ceiling systems, the addition or deletion of mineral or glass fiber insulation in ceiling joist spaces could possibly reduce the fire-resistance rating. The addition of up to 16-3/4 inches of 0.5 pcf glass fiber insulation (R-40), either faced or unfaced batt, or loose fill to any 1 or 2 hour fire-resistance rated floor-ceiling or roof-ceiling system having a cavity deep enough to accept the insulation is permitted, provided one additional layer of either 1/2″ Type C or 5/8″ Type X gypsum panel is applied to the ceiling. The additional layer of gypsum panel shall be of the same type specified in the original design and applied to the face layer of the tested system, except the fastener length shall be increased to by not less than the thickness of the additional layer of gypsum panel.
7. Additional layers of any type of gypsum panel are permitted to be added to any system.
8. Insulation in the fire-resistance system shall be built using the type specified.
9. Stud sizes in metal or wood stud systems are minimums and can be increased. Metal studs of greater mil thickness than those tested for fire performance shall be permitted.
10. Stud spacing are maximums and maybe reduced.
11. Specified floor-ceiling and roof-ceiling framing sizes or truss dimensions are minimums.
12. Specified floor-ceiling and roof-ceiling spacing are the maximums.
13. When not specified as a component of a fire-resistance rated wall or partition system, cementitious backer units and/or wood structural panels shall be permitted to be added to one or both side as a base or face layer.

Gypsum Panel Systems Manual

GA-600 2021 KEY



STEEL STUD PARTITIONS

1 Hour Fire Rating – Non-Loadbearing

UL Design W440, V450, V486

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 3-5/8" 25EQ (15 mil) steel studs at 24" o.c. max

Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X	3-5/8" 25EQ (15 mil) steel studs at 16" o.c., Type X both sides, 3-1/2" FG insulation	47	NOAL 24-12008
	3-5/8" 25EQ (15 mil) steel studs at 24" o.c., Type X both sides, 3-1/2" FG insulation	49	NOAL 19-0932
	3-5/8" 25EQ (15 mil) steel studs at 16" o.c., resilient channel at 24" o.c. and one layer Type X both sides, 3-1/2" FG insulation	50	NOAL 22-0704
	3-5/8" 25EQ (15 mil) steel studs at 16" o.c., SilentFX QC one side, Type X other side, 3-1/2" FG insulation	54	OL 17-0222
	3-5/8" 25EQ (15 mil) steel studs at 24" o.c., SilentFX QC one side, Type X other side, 3-1/2" FG insulation	56	OL 17-0221
	3-5/8" 25EQ (15 mil) steel studs at 24" o.c., SilentFX QC both sides, 3-1/2" FG insulation	58	OL 17-0220

UL Design W440, V450, V486

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 3-5/8" 25EQ (15 mil) steel studs at 24" o.c. max
- 3-1/2" FG insulation

Gypsum Panel Types	Acoustical Details	STC	Report #
• SilentFX QuickCut Type X • FireLITE Type X	3-5/8" 25EQ (15 mil) steel studs at 16" o.c., FireLITE Type X both sides	43	NOAL 23-10112
	3-5/8" 25EQ (15 mil) steel studs at 24" o.c., FireLITE Type X both sides	45	NOAL 22-1110
	*3-5/8" 25EQ (15 mil) steel studs at 16" o.c., resilient channel at 24" o.c. and one layer FireLITE Type X both sides	47	NOAL 23-10117
	*3-5/8" 25EQ (15 mil) steel studs at 24" o.c., resilient channel at 24" o.c. and one layer FireLITE Type X both sides	48	NOAL 23-10006
	*3-5/8" 25EQ (15 mil) steel studs at 16" o.c., SilentFX QC one side, FireLITE Type X other side	48	NOAL 23-10115
	*3-5/8" 25EQ (15 mil) steel studs at 16" o.c., one layer FireLITE Type X one side and two layers FireLITE Type X other side	49	NOAL 23-10113
	*3-5/8" 25EQ (15 mil) steel studs at 24" o.c. SilentFX QC one side, FireLITE Type X other side	51	NOAL 23-10002
	*3-5/8" 25EQ (15 mil) steel studs at 24" o.c., one layer FireLITE Type X one side and two layers FireLITE Type X other side	51	NOAL 23-10005
	*3-5/8" 25EQ (15 mil) steel studs at 16" o.c., resilient channel at 24" o.c., one layer FireLITE Type X one side and SilentFX QC other side	51	NOAL 23-10118
	*3-5/8" 25EQ (15 mil) steel studs at 24" o.c., one layer FireLITE Type X one side and SilentFX QC other side	51	NOAL 23-10002
	*3-5/8" 25EQ (15 mil) steel studs at 16" o.c., one layer SilentFX QC one side and two layers FireLITE Type X other side	54	NOAL 23-10114

Gypsum Panel Systems Manual

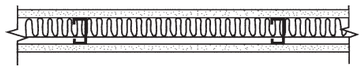
ASSEMBLIES

STEEL STUD PARTITIONS

1 Hour Fire Rating – Non-Loadbearing

UL Design W440

Fire System Details
- 1/2" or 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25ga (18 mil) steel studs at 24" o.c. max
- 1-1/2" Mineral wool insulation



Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • M2Tech Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X • 1/2" or 5/8" Type C	2-1/2" 25ga (18 mil) steel studs at 24" o.c., 1/2" Type C both sides	44	NOAL 18-0644

UL Design W443

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 3-5/8" 25EQ (15 mil) steel studs at 24" o.c. max
- Laminating compound required for 2 layer system

Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • M2Tech Type X • GlasRoc Interior Type X	3-5/8" 25EQ (15 mil) steel studs at 24" o.c., 2 layers Type X with laminating compound between layers one side, 3-1/2" FG insulation	40	NOAL 21-0703
	3-5/8" 25EQ (15 mil) steel studs at 24" o.c., 3 layers Type X one side, 3-1/2" FG insulation	41	NGC 2017065

UL Design U465

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 3-5/8" 25ga (18 mil) steel studs at 24" o.c.max

Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X • FireLITE Type X	3-5/8" 20EQ (18 mil) steel studs at 24" o.c., GlasRoc Interior Type X both sides, 3-1/2" FG insulation	50	NOAL 22-0682
	3-5/8" 25ga (18 mil) steel studs at 24" o.c., one layer Type X both sides, 3-1/2" FG insulation	50	NOAL 18-0652
	3-5/8" 20EQ (18 mil) steel studs at 24" o.c., SilentFX one side, Type X other side, 3-1/2" FG insulation	52	NOAL 21-0652
	3-5/8" 20EQ (18 mil) steel studs at 24" o.c., SilentFX QC both sides, 3-1/2" FG insulation	55	NOAL 21-0653
	3-5/8" 25ga (18 mil) steel studs at 24" o.c., SilentFX QC one side, Type X other side, 3-1/2" FG insulation	55	OL 19-0719
	3-5/8" 25ga (18 mil) steel studs at 24" o.c., SilentFX QC both sides, 3-1/2" FG insulation	57	NOAL 18-0656
	3-5/8" 20EQ (18 mil) steel studs 24" o.c., resilient channel at 24" o.c. with one layer SilentFX QC one side and two layers Type X other side, 3-1/2" FG insulation	60	NOAL 22-0679

STEEL STUD PARTITIONS

1 Hour Fire Rating – Non-Loadbearing

UL Design W440

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 3-5/8" 25ga (18 mil) steel studs at 24" o.c.max

Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X • FireLITE Type X	6" 20EQ (18 mil) steel studs at 24" oc, RC at 24" oc, one layer FireLITE Type X both sides, 6-1/4" FG insulation	54	NOAL 24-05037
	6" 20EQ (18 mil) steel studs at 16" oc, RC at 24" oc, one layer Type X both sides, 6-1/4" FG insulation	54	NOAL 24-05023
	6" 20 EQ (18 mil) steel studs at 24" oc, one layer SilentFX QC one side and one layer FireLITE Type X other side, 6-1/4" FG insulation	55	NOAL 24-05035
	6" 20EQ (18 mil) steel studs at 16" oc, RC at 24" oc, one layer Type X one side and one layer SilentFX QC other side, 6-1/4" FG insulation	57	NOAL 24-05028
	6" 20EQ (18 mil) steel studs at 24" oc, RC at 24" oc, one layer Type X one side and one layer SilentFX QC other side, 6-1/4" FG insulation	58	NOAL 24-05040
	6" 20EQ (18 mil) steel studs at 16" oc, RC at 24" oc, two layers Type X RC side, one layer Type X other side, 6-1/4" FG insulation	59	NOAL 24-05024
	6" 20EQ (18 mil) steel studs at 24" oc, one layer Type X and one layer SilentFX QC both sides, 6-1/4" FG insulation	63	NOAL 240-05034
	6" 20EQ (18 mil) steel studs at 24" oc, RC at 24" oc, two layers Type X RC side and one layer SilentFX QC other side, 6-1/4" FG insulation	63	NOAL 24-05041

2 Hour Fire Rating – Non-loadbearing

UL Design U411

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25EQ (15 mil) steel studs at 24" o.c.max

Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X • FireLITE Type X	4" 16ga (54 mil) steel studs at 16" o.c., first layer SilentFX QC and second layer Extreme Abuse both sides 3-1/2" FG insulation	51	NOAL 18-0805
	2-1/2" 25EQ (15 mil) steel studs at 24" o.c., two layers of Type X both sides, 2-1/2" FG insulation	55	NOAL 18-0641
	6" 16ga (54 mil) steel studs at 16" o.c., first layer SilentFX QC and second layer Type X each side, 5-1/2" FG insulation	55	OL 18-1238
	3-5/8" 25ga (18 mil) steel studs at 24" o.c., first layer Type X and second layer of M2Tech Type X each side, 3-1/2" FG insulation	56	NOAL 19-0603

Gypsum Panel Systems Manual

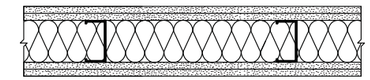
ASSEMBLIES

STEEL STUD PARTITIONS

2 Hour Fire Rating – Non-loadbearing

UL Design V418

Fire System Details
- 1/2" CertainTeed Gypsum Panels
- Min. 1-5/8" 25ga (18 mil) steel studs at 24" o.c. max
- Min. 1" mineral wool insulation

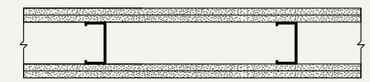


Gypsum Panel Types

- 1/2" Type C

UL Design W440

Fire System Details
- 1/2" or 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25ga (18 mil) steel studs at 24" o.c.max



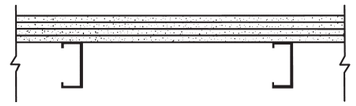
Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • M2Tech Type X • 1/2" or 5/8" Type C • SilentFX QuickCut Type X • GlasRoc Interior Type X	6" 18 ga (43 mil) steel studs at 16" oc, two layers Type X both sides, 6-1/4" FG insulation	50	NOAL 24-06003
	2-1/2" 25ga (18 mil) steel studs at 24" o.c., two layers 1/2" Type C both sides, 2-1/2" FG insulation	51	NOAL 18-0647
	3-5/8" 25EQ (15 mil) steel studs at 24" o.c. max, two layers FireLITE® Type X both sides, 3-1/2" FG insulation	51	NOAL 22-1111
	6" 18 ga (43 mil) steel studs at 16" oc, one layer Type X and one layer SilentFX QC one side, two layers Type X other side, 6-1/4" FG insulation	52	NOAL 24-06004
	6" 18 ga (43 mil) steel studs at 16" oc, RC at 24" oc, two layers Type X both sides, 6-1/4" FG insulation	55	NOAL 24-05048
	3-5/8" 25ga (18 mil) steel studs at 24" o.c., two layers Type X both sides, 3-1/2" FG insulation	56	NOAL 19-0602
	3-5/8" 20EQ (18 mil) steel studs 24" o.c., resilient channel at 24" o.c. one side, two layers Type X both sides, 3-1/2" FG insulation	60	NOAL 22-0686
	6" 20EQ (18 mil) steel studs at 16" oc, RC at 24" oc, two layers Type X both sides, 6-1/4" FG insulation	62	NOAL 24-05025
	6" 18 ga (43 mil) steel studs at 16" oc, RC at 24" oc, two layers Type X RC side, one layer Type X and one layer SilentFX QC other side, 6-1/4" FG insulation	63	NOAL 24-05050
	6" 20EQ (18 mil) steel studs at 24" oc, RC at 24" oc, two layers Type X both sides, 6-1/4" FG insulation	64	NOAL 24-05044
	6" 20EQ (18 mil) steel studs at 16" oc, RC at 24" oc, two layers Type X RC side, one layer Type X and one layer SilentFX QC other side, 6-1/4" FG insulation	65	NOAL 24-05026
	6" 20EQ (18 mil) steel studs at 24" oc, RC at 24" oc, two layers Type X RC side, one layer Type X and one layer SilentFX QC other side, 6-1/4" FG insulation	67	NOAL 24-05045

STEEL STUD PARTITIONS

2 Hour Fire Rating – Non-loadbearing

UL Design W443

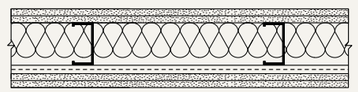
Fire System Details
- 5/8″ CertainTeed Gypsum Panels
- Min. 3-5/8″ 25EQ (15 mil) steel studs at 24″ o.c. max



Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • M2Tech Type X • GlasRoc Interior Type X	4 layers Type X one side, 3-1/2″ FG insulation	43	NOAL 18-0819

UL Design U454

Fire System Details
- 1/2″ CertainTeed Gypsum Panels
- Min. 2-1/2″ 25ga (18 mil) steel studs at 24″ o.c. max
- Resilient channel
- Min. 1″ mineral wool insulation



Gypsum Panel Types	Acoustical Details	STC	Report #
• 1/2″ Type C	3-1/2″ 20ga (33 mil) steel studs at 24″ o.c., RC one side at 24″ o.c., two layers Type C both sides, 3″ MW insulation	60	OL 20-0205

UL Design W442

Fire System Details
- 5/8″ CertainTeed Gypsum Panels
- Min. 3-1/2″ 25ga (18 mil) steel studs at 24″ o.c.max

Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • M2Tech Type X	3-5/8″ 25 ga (18 mil) steel studs at 24″ o.c. one layer Type X one side and three layers Type X other side, 3-1/2″ FG insulation	54	NOAL 19-0606

3 Hour Fire Rating – Non-loadbearing

UL Design W440

Fire System Details
- 1/2″ or 5/8″ CertainTeed Gypsum Panels
- Min. 1-5/8″ 25ga (18 mil) steel studs at 24″ o.c.max

Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • M2Tech Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X • 1/2″ or 5/8″ Type C	1-5/8″ 25ga (18 mil) steel studs at 24″ o.c., 3 layers 1/2″ Type C both sides, 1-1/2″ FG insulation	53	NOAL 18-0704
	3-5/8″ 25ga (18 mil) steel studs at 24″ o.c., three layers Type X both sides, 3-1/2″ FG insulation	56	NOAL 19-0706

STEEL STUD PARTITIONS

4 Hour Fire Rating – Non-loadbearing

UL Design W440

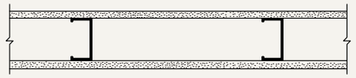
Fire System Details
- 1/2″ or 5/8″ CertainTeed Gypsum Panels
- Min. 1-5/8″ 25ga (18 mil) steel studs at 24″ o.c. max

Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • M2Tech Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X • 1/2″ or 5/8″ Type C	1-5/8″ 25ga (18 mil) steel studs at 24″ o.c., four layers 1/2″ Type C both sides, 1-1/2″ FG insulation	55	NOAL 18-0703
	1-5/8″ 25ga (18 mil) steel studs at 24″ o.c., four layers Type X both sides, 1-1/2″ FG insulation	57	NOAL 18-0706

1 Hour Fire Rating – Loadbearing

UL Design U425

Fire System Details
- 1/2″ or 5/8″ CertainTeed Gypsum Panels
- Min. 3-1/2″ 20ga (33 mil) steel studs at 24″ o.c. max



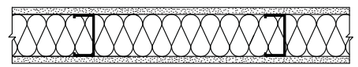
Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • 1/2″ or 5/8″ Type C • M2Tech Type X • Extreme Abuse Type X • SilentFX QuickCut Type X • GlasRoc Sheathing Type X • GlasRoc Interior Type X • GlasRoc Tile Backer Type X	6″ 20 ga (33 mil) steel studs at 16″ o.c., Extreme Abuse one side, Type X other side, 6″ FG insulation	45	NGC 2018017
	3-5/8″ 16 ga (54 mil) steel studs at 16″ o.c., SilentFX QC one side, Type X other side, 3-1/2″ FG insulation	48	OL 17-0324
	3-5/8″ 20ga (33 mil) steel studs at 16″ oc, RC at 24″ oc, one layer Type X both sides, 3-1/2″ FG insulation	50	NOAL 14-10005
	3-5/8″ 20ga (33 mil) steel studs at 16″ oc, RC at 24″ oc, one layer Type X RC side, one layer GlasRoc Sheathing other side, 3-1/2″ FG insulation	51	NOAL 24-10009
	3-5/8″ 20ga (33 mil) steel studs at 16″ oc, RC at 24″ oc, one layer Type X RC side, two layers Type X other side, 3-1/2″ FG insulation	55	NOAL 24-10006
	6″ 18ga (43 mil) steel studs at 16″ oc, RC at 24′ oc, two layers Type X RC side and one layer Type X other side, 6-1/4″ FG insulation	55	NOAL 24-05048
	3-5/8″ 20 ga (33 mil) steel studs at 24″ o.c., SilentFX QC one side, Type X other side, 3-1/2″ FG insulation	56	OL 17-0229
	3-5/8″ 20 ga (33 mil) steel studs at 16″ o.c., SilentFX QC both sides, 3-1/2″ FG insulation	56	OL 17-0301
	6″ 18ga (43 mil) steel studs at 16″ oc, RC at 24″ oc, one layer Type X RC side, one layer SilentFX QC other side, 6-1/4″ FG insulation	56	NOAL 24-05052
	3-5/8″ 20 ga (33 mil) steel studs at 24″ o.c., SilentFX QC both sides, 3-1/2″ FG insulation	58	OL 17-0228
	6″ 18ga (43 mil) steel studs at 16″ oc, RC at 24″ oc, two layers Type X RC side, one layer SilentFX QC other side, 6-1/4″ FG insulation	61	NOAL 24-05053

STEEL STUD PARTITIONS

1 Hour Fire Rating – Loadbearing

UL Design W445

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 3-1/2" 20ga (33 mil) steel studs at 24" o.c.max
- Min. 3" mineral wool insulation



Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X • Extreme Abuse Type X • Extreme Impact Type X	3-1/2" 20ga (33 mil) steel studs at 24" o.c., Type X both sides, 3" MW insulation	45	NOAL 17-1005

2 Hour Fire Rating – Loadbearing

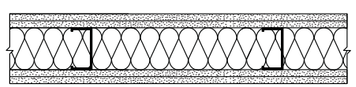
UL Design U425

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 3-1/2" 20ga (33 mil) steel studs at 24" o.c.max

Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X • Extreme Abuse Type X • Extreme Impact Type X • SilentFX QuickCut Type X • GlasRoc Sheathing Type X • GlasRoc Interior Type X • FireLITE Type X	3-5/8" 16ga (54 mil) steel studs at 16" o.c., one layer Type X and one layer SilentFX QC both sides, 3-1/2" FG insulation	45	OL 18-0813
	-3-5/8" 20ga (33 mil) steel studs at 16" oc, two layers Type X both sides, 3-1/2" FG insulation	47	NOAL 24-10019
	6" 16ga (54 mil) steel studs at 16" o.c., two layers Type X both sides, 5-1/2" FG insulation	51	OL 18-1012
	3-1/2" 20ga (33 mil) steel studs at 24" o.c., two layers Type X both sides, 3-1/2" FG insulation	51	OL 19-0712
	3-5/8" 20ga (33 mil) steel studs at 16" o.c., resilient channel at 24" o.c. one side, two layers Type X both sides, 3-1/2" FG insulation	60	OL 18-1015
	6" 20ga (33 mil) steel studs at 16" o.c., resilient channel at 24" o.c. one side, one layer Type X and one layer SilentFX QC both sides, 5" FG insulation	63	OL 18-1228
	-3-5/8" 20ga (33 mil) steel studs at 16" oc, RC at 24" oc, two layers Type X RC side, one layer SilentFX QC and one layer GlasRoc Sheathing other side, 3-1/2" FG insulation	63	NOAL 24-1011

UL Design W445

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 3-1/2" 20ga (33 mil) steel studs at 24" o.c.max
- Min. 3" mineral wool insulation



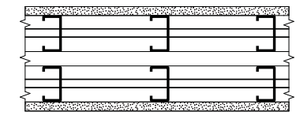
Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X • Extreme Abuse Type X • Extreme Impact Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X	3-1/2" 20ga (33 mil) steel studs at 24" o.c., two layers Type X both sides, 3" MW insulation	52	NGC 2017068

STEEL STUD – CHASE WALLS

1 Hour Fire Rating – Non-loadbearing

UL Design V469

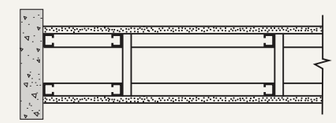
Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25ga (18 mil) steel studs at 24" o.c. max



Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • M2Tech Type X • GlasRoc Interior Type X • SilentFX QuickCut Type X	Double row 2-1/2" 25ga (18 mil) steel studs at 24" o.c., one layer Type X both sides, double row 2-1/2" FG insulation	58	NOAL 18-0651

UL Design U420

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 1-5/8" 25ga (18 mil) steel studs at 24" o.c. max

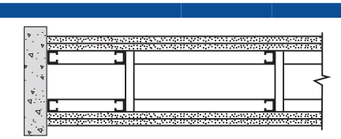


Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X	Double row of 1-5/8" 25ga (18 mil) steel studs at 24" o.c., Type X both sides, double row 1-1/2" FG insulation	53	NOAL 18-0707
	Double row of 2-1/2" 25ga (18 mil) steel studs at 24" o.c., Type X one side, SilentFX QC other side, double row 2-1/2" FG insulation	61	OL 18-1003

2 Hour Fire Rating – Non-loadbearing

UL Design U420

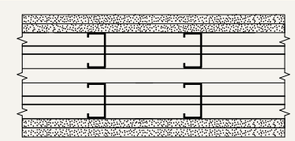
Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 1-5/8" 25ga (18 mil) steel studs at 24" o.c. max



Gypsum Panel Types		
• Type X • Type C	• GlasRoc Interior Type X • SilentFX QuickCut Type X	• M2Tech Type X

UL Design V469

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25EQ (15 mil) steel studs at 24" o.c. max



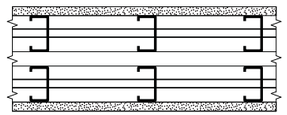
Gypsum Panel Types	Acoustical Details	STC	Report #
• Type X • M2Tech Type X • FireLITE Type X • GlasRoc Interior Type X • SilentFX QuickCut Type X	Double row 2-1/2" 25EQ (15 mil) steel studs at 24" o.c., two layers Type X both sides, double row 2-1/2" FG insulation	65	NOAL 18-0643

STEEL STUD – CHASE WALLS

1 Hour Fire Rating – Loadbearing

UL Design
W484

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Double row min. 3-1/2" 20ga (33 mil) steel studs at 24" o.c. max
- 3-1/2" FG insulation



Gypsum Panel Types

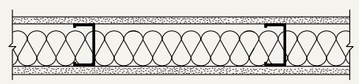
- Type X
- M2Tech Type X
- GlasRoc Interior Type X
- Type C

STEEL STUD PARTITIONS – EXTERIOR

1 Hour Fire Rating – Non-loadbearing

UL Design
W440

Fire System Details
- 1/2" or 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25ga (18 mil) steel studs at 24" o.c.max
- 1-1/2" Mineral wool insulation

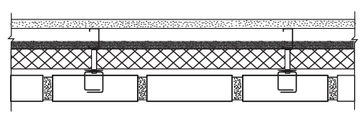


Gypsum Panel Types

- Type X
- 1/2" or 5/8" Type C
- GlasRoc Sheathing Type X
- SilentFX QuickCut Type X
- M2Tech Type X
- Extreme Abuse Type X
- GlasRoc Interior Type X

UL Design
V482

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- 3-5/8" 18ga (43 mil) steel studs at 16" o.c. max
- 1/2" – 3" (max.) rigid polyisocyanurate insulation
- Exterior facing



Gypsum Panel Types

- Type X
- Type C
- M2Tech Type X
- SilentFX QuickCut Type X
- Extreme Abuse Type X
- GlasRoc Sheathing Type X
- GlasRoc Interior Type X

UL Design
U465

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- 3-5/8" 25ga (18 mil) steel studs at 24" o.c. max

Gypsum Panel Types

- Type X
- Type C
- M2Tech Type X
- FireLITE Type X
- SilentFX QuickCut Type X
- Extreme Abuse Type X
- Extreme Impact Type X
- GlasRoc Sheathing Type X
- Sheathing TC Type X
- GlasRoc Interior Type X

Gypsum Panel Systems Manual

ASSEMBLIES

STEEL STUD PARTITIONS – EXTERIOR

2 Hour Fire Rating – Non-Loadbearing

UL Design
W440

Fire System Details
- 1/2" or 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25ga (18 mil) steel studs at 24" o.c. max

Gypsum Panel Types

- Type X
- 1/2" or 5/8" Type C
- M2Tech Type X
- SilentFX QuickCut Type X
- GlasRoc Interior Type X

UL Design
U474

Fire System Details
- 1/2" or 5/8" CertainTeed Gypsum Panels
- 3-5/8" 20ga (33 mil) steel studs at 16" o.c. max
- 1/2" Cement Board

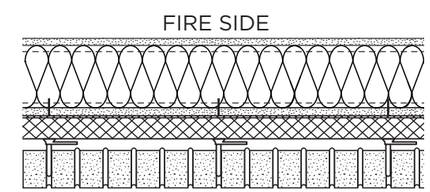
Gypsum Panel Types

- Type C
- GlasRoc Sheathing Type X

3 Hour Fire Rating – Non-loadbearing

UL Design
W429

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 3-5/8" 20ga (33 mil) steel studs at 24" o.c.max
- 3-1/2" FG insulation
- 35 mil air and weather barrier
- 4" (max.) foamed plastic insulation
- 4" wide brick and accessories



Gypsum Panel Types

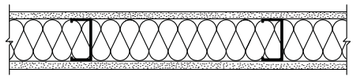
- Type C
- Type X
- M2Tech Type X
- SilentFX QuickCut Type X
- GlasRoc Interior Type X

STEEL STUD PARTITIONS – EXTERIOR

1 Hour Fire Rating – Loadbearing

UL Design U425

Fire System Details
- 1/2″ or 5/8″ CertainTeed Gypsum Panels
- Min. 3-1/2″ 20ga (33 mil) steel studs at 24″ o.c. max
- 3-1/2″ FG insulation



Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X • 1/2″ or 5/8″ Type C • GlasRoc Sheathing Type X • FireLITE Type X	• SilentFX QuickCut Type X • M2Tech Type X • Extreme Abuse Type X	6″ 20ga (33mil) steel studs at 16″ o.c., GlasRoc Sheathing one side, Type X other side, 6″ FG insulation	41	NGC 2018020
		3-5/8″ 20ga (33 mil) steel studs, GlasRoc Sheathing one side, Type X other side, 3-1/2″ FG insulation	45	NOAL 21-0662
		3-5/8″ 20ga (33 mil) steel studs, GlasRoc Sheathing one side, Type X and SilentFX QC other side, 3-1/2″ FG insulation	54	NOAL 21-0663

UL Design V454

Fire System Details
- 5/8″ CertainTeed Gypsum Panels
- 3-1/2″ 20ga (33 mil) steel studs at 24″ o.c. max
- 4″ rigid polyisocyanurate insulation
- Exterior facing

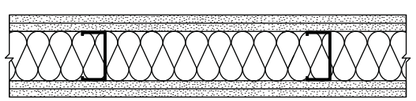
Gypsum Panel Types

• Type X • Type C	• M2Tech Type X • GlasRoc Sheathing Type X • Sheathing TC Type X	• SilentFX QuickCut Type X • Extreme Abuse Type X • Extreme Impact Type X

2 Hour Fire Rating – Loadbearing

UL Design U425, W488

Fire System Details
- 1/2″ or 5/8″ CertainTeed Gypsum Panels
- Min. 3-1/2″ 20ga (33 mil) steel studs at 24″ o.c.max
- 3″ mineral wool insulation



Gypsum Panel Types

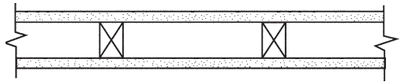
• Type X • 1/2″ or 5/8″ Type C	• GlasRoc Sheathing Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X	• M2Tech Type X • Extreme Abuse Type X • FireLITE Type X

WOOD STUD PARTITIONS

1 Hour Fire Rating – Loadbearing

UL Design U305, V346

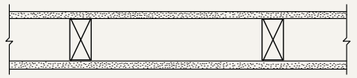
Fire System Details
- 5/8″ CertainTeed Gypsum Panels
- Nominal 2x4 wood studs at 16″ o.c. max



Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X	• SilentFX QuickCut Type X • GlasRoc Interior Type X • FireLITE Type X	Resilient channel at 24″ o.c. one side, Type X both sides, 3-1/2″ FG insulation	50	OL 18-1233
		Resilient channel at 24″ o.c. one side, one layer Type X and one layer SilentFX QC over RC, one layer Type X other side, 3-1/2″ FG insulation	55	OL 18-0820

UL Design U309, V342

Fire System Details
- 5/8″ CertainTeed Gypsum Panels
- Nominal 2x4 wood studs at 24″ o.c. max



Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X	• SilentFX QuickCut Type X • GlasRoc Interior Type X • FireLITE Type X	Resilient channel at 24″ o.c. one side, one layer Type X both sides, 3-1/2″ FG insulation	52	OL 18-1018
		One layer SilentFX QC both sides, 3-1/2″ FG insulation	52	OL 18-0821
		Resilient channel at 24″ o.c. one side, one layer SilentFX QC both sides, 3-1/2″ FG insulation	55	NOAL 21-0657

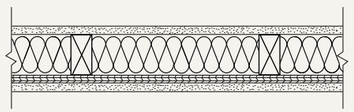
UL Design U311

Fire System Details
- 5/8″ CertainTeed Gypsum Panels
- Nominal 2x4 wood studs at 24″ o.c. max

Gypsum Panel Types	Acoustical Details	STC	Report #
• Type C	Studs at 16″ o.c., resilient channel one side, one layer Type C both sides, 3-1/2″ FG insulation	50	NOAL 17-1139

UL Design U344

Fire System Details
- 5/8″ CertainTeed Gypsum Panels
- Nominal 2x4 wood studs at 24″ o.c. max
- 15/32″ plywood one side
- 3-1/2″ FG insulation



Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X	• SilentFX QuickCut Type X • GlasRoc Interior Type X	Studs at 16″ o.c., one layer Type X over plywood, one layer SilentFX QC other side	45	NOAL 18-0315
		One layer Type X over plywood, one layer SilentFX QC other side	51	NOAL 18-0316

WOOD STUD PARTITIONS

1 Hour Fire Rating – Loadbearing

UL Design W306

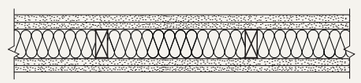
Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Nominal 2x4 wood studs at 16" o.c. max

Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X	• M2Tech Type X	Three layers Type X one side, 3-1/2" FG insulation	41	OL 19-0715

2 Hour Fire Rating – Loadbearing

UL Design V342

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Nominal 2x4 wood studs at 16" o.c. max
- 3-1/2 fiber glass insulation



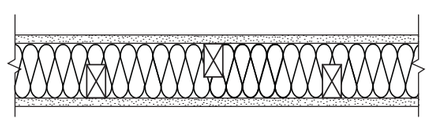
Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X	• SilentFX QuickCut Type X • GlasRoc Interior Type X • FireLITE Type X	Resilient channel at 24" o.c. one side, two layers of Type X both sides, 3-1/2" FG insulation	56	NOAL 18-0713

WOOD STUD – CHASE WALLS

1 Hour Fire Rating – Loadbearing

UL Design U340, V342

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Nominal 2x4 staggered wood studs at 24" o.c. max
- 3-1/2" fiber glass insulation



Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X	• SilentFX QuickCut Type X • GlasRoc Interior Type X • FireLITE Type X	One layer Type X both sides, 5-1/2" FG insulation	51	OL 18-1017
		Resilient channel at 16" o.c. one side, one layer Type X both sides	55	NOAL 22-0724

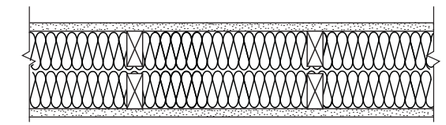
Gypsum Panel Systems Manual
ASSEMBLIES

WOOD STUD PARTITIONS

1 Hour Fire Rating – Loadbearing

UL Design U341, V342

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Double row nominal 2x4 wood studs at 24" o.c. max
- 3-1/2" FG insulation max.

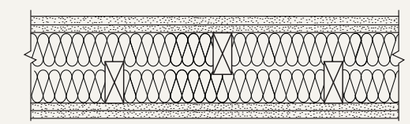


Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X • Type C • FireLITE Type X	• SilentFX QuickCut Type X • M2Tech Type X	One layer Type X both sides	58	NOAL 18-0714
		One layer Type X one side, one layer SilentFX QC other side	60	NGC 2019097
		Two layers Type X one side, one layer Type X other side	65	NOAL 18-0715

2 Hour Fire Rating – Loadbearing

UL Design V342

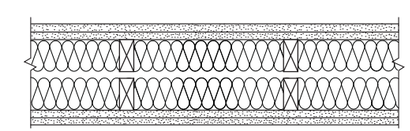
Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Nominal 2x4 staggered wood studs at 16" o.c. max
- 3-1/2" FG insulation



Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X • Type C • FireLITE Type X	• M2Tech Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X	Two layers Type X one side, one layer Type X and one layer SilentFX QC other side	54	NOAL 22-0745
		One layer Type X and one layer SilentFX QC both sides	57	NOAL 22-0746
		Resilient channel at 24" o.c. one side, two layers Type X both sides	63	NOAL 22-0725

UL Design V342

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Double row nominal 2x4 wood studs at 24" o.c. max
- 3-1/2" FG insulation max



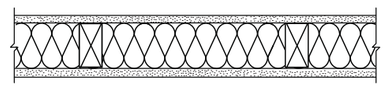
Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X • Type C • FireLITE Type X	• GlasRoc Interior Type X • M2Tech Type X	Two layers Type X both sides	69	TL-93-283

WOOD STUD PARTITIONS – EXTERIOR

1 Hour Fire Rating – Loadbearing

UL Design V346, U305

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Nominal 2x4 wood studs at 16" o.c. max
- 3-1/2" FG insulation

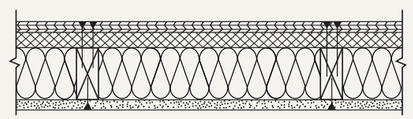


Gypsum Panel Types

- Type X
- Type C
- GlasRoc Sheathing Type X
- SilentFX QuickCut Type X
- M2Tech Type X
- GlasRoc Interior Type X

UL Design U330

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Nominal 2x4 wood studs at 16" o.c. max
- 3-1/2" MW insulation
- 1" rigid polystyrene insulation
- 1/2" plywood

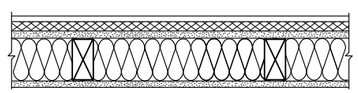


Gypsum Panel Types

- Type X
- Type C
- M2Tech Type X
- SilentFX QuickCut Type X
- Extreme Abuse Type X
- Extreme Impact Type X
- GlasRoc Sheathing Type X
- GlasRoc Interior Type X

UL Design U354

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Nominal 2x4 wood studs at 16" o.c.
- Min. 3-1/2" FG insulation
- 1-1/2" (max.) Foamed plastic product
- Exterior facing



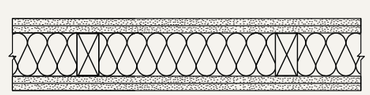
Gypsum Panel Types

- Type X
- Type C
- GlasRoc Sheathing Type X
- GlasRoc Interior Type X
- SilentFX QuickCut Type X
- M2Tech Type X

2 Hour Fire Rating – Loadbearing

UL Design U301, V346

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Nominal 2x4 wood studs at 16" o.c. max
- Min. 3-1/2" FG insulation



Gypsum Panel Types

- Type X
- Type C
- GlasRoc Sheathing Type X
- SilentFX QuickCut Type X
- M2Tech Type X
- FireLITE Type X
- GlasRoc Interior Type X

Gypsum Panel Systems Manual

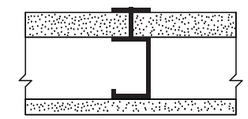
ASSEMBLIES

SHAFT WALLS – NON-LOADBEARING

1 Hour Fire Rating – Non-loadbearing

UL Design U417

Fire System Details
- 1" CertainTeed Gypsum Panels
- 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25ga (18 mil) I, C-H, or C-T steel studs at 24" o.c.max



Gypsum Panel Types		Acoustical Details	STC	Report #
• Type X • Type C • M2Tech Type X	• GlasRoc Shaftliner • M2Tech Shaftliner • SilentFX QuickCut Type X • GlasRoc Interior Type X	2-1/2" 25ga (18 mil) C-T steel studs at 24" o.c., GlasRoc Shaftliner inserted in the studs, SilentFX QC attached to one side of studs	40	NOAL 19-0614
		2-1/2" 25 ga (18 mil) C-H steel studs at 24" o.c., M2Tech Shaftliner inserted in the studs, Type X attached to one side of studs, 1-1/2" FG insulation	45	NOAL 19-0705
		2-1/2" 25ga (18 mil) C-T steel studs at 24" o.c., GlasRoc Shaftliner inserted in the studs, SilentFX QC attached to one side of studs, 1-1/2" FG insulation	49	NOAL 17-1140

UL Design W453

Fire System Details
- 1" CertainTeed Gypsum Panels
- 5/8" CertainTeed Gypsum Panels
- Min. 4" 20ga (33 mil) C-H steel studs oriented horizontally at 24" o.c.max

Gypsum Panel Types

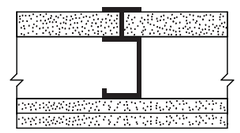
- Type X
- M2Tech Type X
- GlasRoc Shaftliner
- M2Tech Shaftliner

SHAFT WALLS – NON-LOADBEARING

2 Hour Fire Rating – Non-loadbearing

UL Design U417

Fire System Details
- 1" CertainTeed Gypsum Panels
- 1/2" or 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25ga (18 mil) I, C-H, or C-T steel studs at 24" o.c.max



Gypsum Panel Types	Acoustical Details	STC	Report #
• GlasRoc Shaftliner • M2Tech Shaftliner • Type X • 1/2" or 5/8" Type C • M2Tech Type X • SilentFX QuickCut Type X • GlasRoc Interior Type X	2-1/2" 25 ga (18 mil) I steel studs at 24" o.c., GlasRoc Shaftliner inserted in studs, two layers Type X attached to one side of studs, 2-1/2" FG insulation	48	NGC 2017158
	2-1/2" 25 ga (18 mil) C-T steel studs at 24" o.c., GlasRoc Shaftliner inserted in studs, two layers 1/2" Type C attached to one side of studs, 1-1/2" FG insulation	51	NOAL 18-0808
	2-1/2" 25 ga (18 mil) C-T steel studs at 24" o.c., GlasRoc Shaftliner inserted in the studs, resilient channel attached to one side of studs at 24" o.c., two layers Type X attached to RC, 1-1/2" FG insulation	53	NOAL 18-0811
	4" 20 ga (33 mil) C-T steel studs at 24" o.c., GlasRoc Shaftliner inserted in the studs, two layers 1/2" Type C applied to one side of studs, 3-1/2" FG insulation	53	NOAL 19-0945
	2-1/2" 25 ga (18 mil) C-T steel studs at 24" o.c., GlasRoc Shaftliner inserted in the studs, resilient channel attached to one side of studs at 24" o.c., two layers 1/2" Type C attached to RC, 1-1/2" FG insulation	54	NOAL 18-0809
	4" 20 ga (33 mil) C-T steel studs at 24" o.c., GlasRoc Shaftliner inserted in the studs, two layers Type X applied to one side of studs, 3-1/2" FG insulation	54	NOAL 18-0816
	2-1/2" 25 ga (18 mil) C-T steel studs at 24" o.c., GlasRoc Shaftliner inserted in the studs, one layer Type X and one layer SilentFX QC attached to one side of studs, 1-1/2" FG insulation	55	NOAL 17-1141
	4" 20 ga (33 mil) C-T steel studs at 24" o.c., GlasRoc Shaftliner inserted in the studs, one layer Type X and one layer SilentFX QC attached to one side of studs, 3-1/2" FG insulation	58	NOAL 18-0815

UL Design W453

Fire System Details
- 1" CertainTeed Gypsum Panels
- 5/8" CertainTeed Gypsum Panels
- Min. 4" 20ga (33 mil) C-H steel studs oriented horizontally at 24" o.c.max

Gypsum Panel Types	Acoustical Details	STC	Report #
• GlasRoc Shaftliner • M2Tech Shaftliner • M2Tech Type X • Type X	4" 20ga (33 mil) C-H steel studs oriented horizontally at 24" o.c., GlasRoc Shaftliner inserted in the studs, 2 layers Type X attached to one side of studs, 2- 1/2" FG insulation	54	NOAL 17-1202

Gypsum Panel Systems Manual

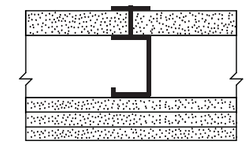
ASSEMBLIES

SHAFT WALLS – NON-LOADBEARING

3 Hour Fire Rating – Non-loadbearing

UL Design U417

Fire System Details
- 1" CertainTeed Gypsum Panels
- 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25ga (18 mil) I, C-H, or C-T steel studs at 24" o.c.max

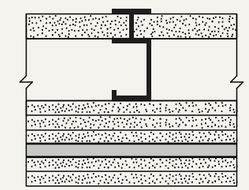


Gypsum Panel Types	Acoustical Details	STC	Report #
• GlasRoc Shaftliner • Type C • M2Tech Shaftliner	RC one side at 24" o.c., two layers Type C attached to RC, one layer Type C direct attached one side	55	NGC 2017079

4 Hour Fire Rating – Non-loadbearing

UL Design W471

Fire System Details
- 1" CertainTeed Gypsum Panels
- 5/8" CertainTeed Gypsum Panels
- Min. 4" 25ga (18 mil) I, C-H, or C-T steel studs at 24" o.c. max
- Furring channels at 16" o.c. max



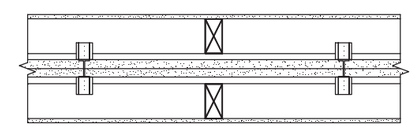
Gypsum Panel Types	Acoustical Details	STC	Report #
• GlasRoc Shaftliner • Type C • M2Tech Shaftliner	4" 25ga (18 mil) C-T steel studs at 24" o.c., 3 layers Type C attached to studs one side, furring channel attached between 3rd and 4th layers of Type C at 16" o.c., 2 layers Type C attached to furring channel, 2-1/2" FG insulation	54	NGC 2019098

AREA SEPARATION FIREWALLS

2 Hour Fire Rating – Loadbearing or Non-loadbearing

UL Design U366

Fire System Details
- 1" CertainTeed Gypsum Panels
- Min. 2" 25ga (18 mil) steel H studs at 24" o.c. max
- Nominal 2x4 wood studs at 24" o.c. max
- 3/4" air gap between wood studs and area separation wall
- 70' max height



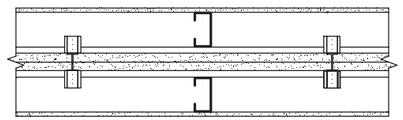
Gypsum Panel Types	Acoustical Details	STC	Report #
• GlasRoc Shaftliner • M2Tech Shaftliner	2" 25ga (18 mil) steel H studs at 24" o.c., GlasRoc Shaftliner inserted in H studs, nominal 2x4 wood studs at 24" o.c. each side of H studs with 3/4" air gap, 1/2" SilentFX QC attached to both sides of studs	51	NGC 2017131
	2" 25ga (18 mil) steel H studs at 24" o.c., GlasRoc Shaftliner inserted in H studs,nominal 2x4 wood studs at 24" o.c. each side of H studs with 3/4" air gap, 3-1/2" FG insulation in both stud cavities, 1/2" Easi-Lite attached to both sides of studs	66	NOAL 19-0709
	2" 25ga (18 mil) steel H studs at 24" o.c., GlasRoc Shaftliner inserted in H studs, nominal 2x4 wood studs at 16" o.c. each side of H studs with 3/4" air gap, 3-1/2" FG insulation in both stud cavities, 1/2" Easi-Lite attached to one side of studs, 1/2" SilentFX QC attached to other side of studs	70	NOAL 17-1134

AREA SEPARATION FIREWALLS

2 Hour Fire Rating – Loadbearing or Non-loadbearing

UL Design
U366

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 2" 25ga (18 mil) steel H studs at 24" o.c. max
- Min. 3-1/2" 25ga (18 mil) steel studs at 24" o.c. max (NLB)
- 3/4" air gap between wood studs and area separation wall
- 70' max height

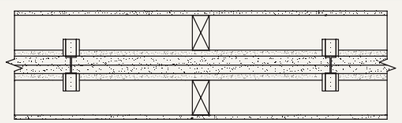


Gypsum Panel Types	Acoustical Details	STC	Report #
• GlasRoc Shaftliner • M2Tech Shaftliner	2" 25ga (18 mil) steel H studs at 24" o.c., GlasRoc Shaftliner inserted in H studs, 3-5/8" 25ga (18 mil) steel studs at 24" o.c. each side of H studs with 3/4" air gap, 1/2" Easi-Lite attached to one side of studs, 1/2" SilentFX QC attached to other side of studs	49	NGC 2017122
	2" 25ga (18 mil) steel H studs at 24" o.c., GlasRoc Shaftliner inserted in H studs, 3-5/8" 25ga (18 mil) steel studs at 24" o.c. each side of H studs with 3/4" air gap, 1/2" SilentFX QC attached to each side of studs	52	NGC 2017123
	2" 25ga (18 mil) steel H studs at 24" o.c., GlasRoc Shaftliner inserted in H studs, 3-5/8" 25 ga (18 mil) steel studs at 24" o.c. each side of H studs with 3/4" air gap, 3-1/2" FG insulation in both stud cavities, 1/2" Easi-Lite attached to one side of studs, 1/2" SilentFX QC attached to other side of studs	71	NGC 2017121

3 Hour Fire Rating – Loadbearing or Non-loadbearing

UL Design
W467

Fire System Details
- 1" CertainTeed Gypsum Panels
- 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25ga (18 mil) I, C-H, or C-T steel studs at 24" o.c.max
- Furring channels at 16" o.c. max



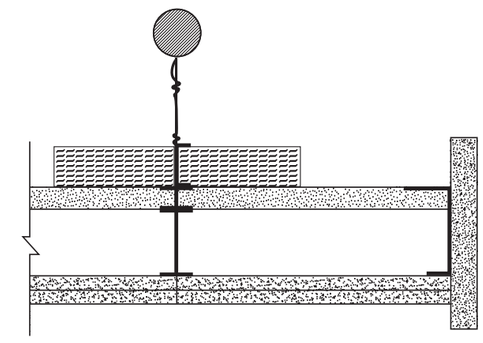
Gypsum Panel Types	Acoustical Details	STC	Report #
• GlasRoc Shaftliner • M2Tech Shaftliner • Type C	2" 25ga (18 mil) steel H studs at 24" o.c., GlasRoc Shaftliner inserted in H studs, one layer 5/8" Type C attached to both sides of H studs, nominal 2x4 wood studs at 16" o.c. each side of H studs with 3/4" air gap, 3-1/2" FG insulation in both stud cavities, layer of Type X applied to both sides of studs	70	NOAL 19-0947

HORIZONTAL MEMBRANE SYSTEMS

1 Hour Fire Rating

UL Design
I515

Fire System Details
- 1" CertainTeed Gypsum Panels
- 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 25ga (18 mil) I, C-H,or C-T steel studs at 24" o.c. max
- 8' max unsupported span

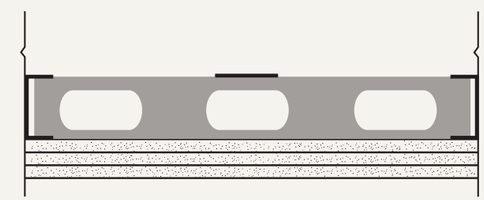


Gypsum Panel Types

• GlasRoc Shaftliner • M2Tech Shaftliner • Type X • M2Tech Type X • GlasRoc Interior Type X

UL Design
I507

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 6" 20ga (33 mil) steel studs at 16" o.c.max

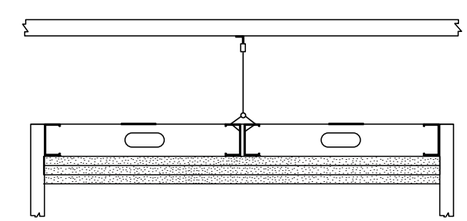


Gypsum Panel Types

• Type X • M2Tech Type X • GlasRoc Interior Type X

UL Design
I518

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 6" 20ga (33 mil) steel studs at 16" o.c.max



Gypsum Panel Types

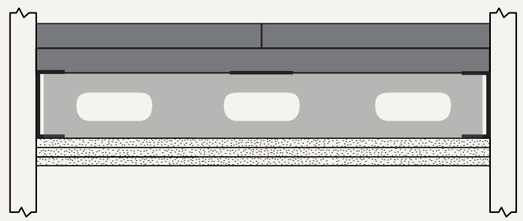
• Type X • M2Tech Type X • Type C • GlasRoc Interior Type X • FireLITE Type X

HORIZONTAL MEMBRANE SYSTEMS

1 Hour Fire Rating

UL Design
I519

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 6" 20ga (33 mil) steel studs at 16" o.c. max
- 2 layers 1-1/2" MW insulation



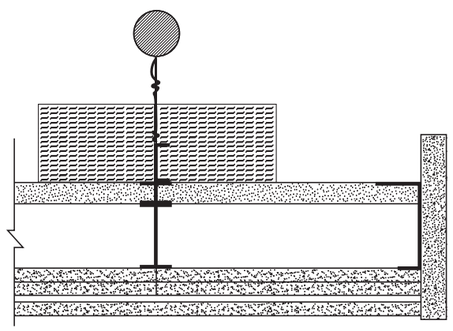
Gypsum Panel Types

- Type X
- FireLITE Type X
- M2Tech Type X
- GlasRoc Interior Type X

2 Hour Fire Rating

UL Design
I515

Fire System Details
- 1" CertainTeed Gypsum Panels
- 5/8" CertainTeed Gypsum Panels
- Min. 2-1/2" 20ga (33 mil) I, C-H, or C-T steel studs at 24" o.c.max
- Resilient channel between 2nd and 3rd layers of Type C
- 8' max unsupported span
- 4" MW insulation placed over top of studs

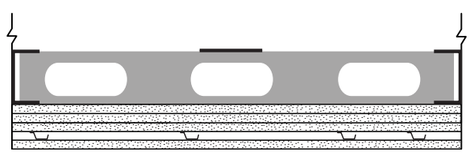


Gypsum Panel Types

- GlasRoc Shaftliner
- M2Tech Shaftliner
- Type C

UL Design
I514

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 6" 20ga (33 mil) steel studs at 24" o.c.max
- Resilient channel between 3rd and 4th layers of Type C



Gypsum Panel Types

- Type C

Gypsum Panel Systems Manual

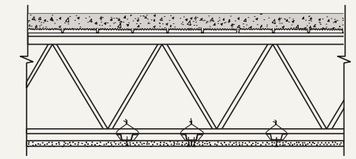
ASSEMBLIES

STEEL JOIST FLOORS AND CEILINGS

1 Hour Fire Rating

UL Design
G502

Fire System Details
- 1/2" CertainTeed Gypsum Panels
- Furring channels perpendicular to joists at 24" o.c.
- Open web steel joists at 24" o.c.
- 3/8" rib metal lath or 9/16" 28 ga corrugated steel
- 2" concrete slab

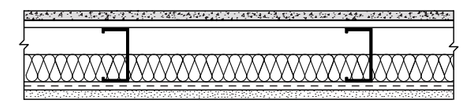


Gypsum Panel Types

- Type C

UL Design
G568

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channels perpendicular to joists at 12" o.c.
- 3-1/2" fiberglass insulation
- Min. 9-1/4" 54 mil galvanized steel joists at 24" o.c.
- 9/16" 22 ga corrugated steel deck
- 1" gypsum floor topping

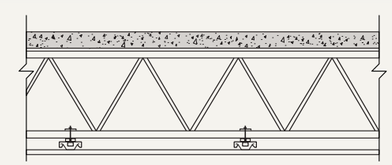


Gypsum Panel Types

- Type C

UL Design
G501

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Furring channels perpendicular to joists at 24" o.c.
- Open web steel joists at 24" o.c.
- 3/8" rib metal lath
- 2" concrete slab



Gypsum Panel Types

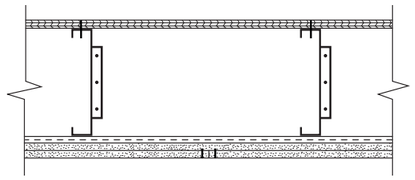
- GlasRoc Sheathing Type X
- Type C
- Type X
- M2Tech Type X
- GlasRoc Interior Type X

STEEL JOIST FLOORS AND CEILINGS

1-1/2 Hour Fire Rating

UL Design L527

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 9-3/8" 16 ga (54 mil) steel joists at 24" o.c.max
- Resilient channel perpendicular to joists at 16" o.c.
- 3/4" plywood deck

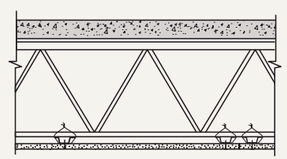


Gypsum Panel Types	Acoustical Details	STC / IIC	Report #
• Type C	10" 16ga (54 mil) steel joists at 24" o.c., RC perpendicular to joists at 16" o.c., 2 layers Type C attached to RC, 3/4" plywood deck attached to joists	46 / 37	NGC 5020086 / NGC 7020104
	10" 16ga (54 mil) steel joists at 24" o.c., RC perpendicular to joists at 16" o.c., 2 layers Type C attached to RC, 3/4" plywood deck, 1" gypcrete topping, 1/4" sound mat, 3/16" LVT over underlayment	56 / 51	NGC 5020084 / NGC 7020102
	10" 16ga (54 mil) steel joists at 24" o.c., RC perpendicular to joists at 16" o.c., 2 layers Type C attached to RC, 3/4" plywood deck, 1" gypcrete topping, 1/4" sound mat, 3/8" engineered hardwood over underlayment	56 / 52	NGC 5020085 / NGC 7020103
	10" 16ga (54 mil) steel joists at 24" o.c., RC perpendicular to joists at 16" o.c., 2 layers Type C attached to RC, 3/4" plywood deck, 1" gypcrete topping, 1/4" sound mat, carpet and pad	57 / 75	NGC 5020082 / NGC 7020100

2 Hour Fire Rating

UL Design G504

Fire System Details
- 1/2" CertainTeed Gypsum Panels
- Open web steel joists at 24" o.c.max
- Furring channel perpendicular to joists at 24" o.c.
- 2-1/2" concrete slab

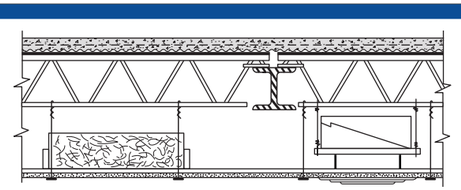


Gypsum Panel Types

- Type C

UL Design G222

Fire System Details
- 1/2" CertainTeed Gypsum Panels – cut down to 2'x2' panels
- Ceiling grid
- Open web steel joists at 24" o.c.
- 2-1/2" concrete slab



Gypsum Panel Types

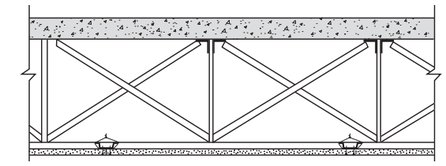
- Type C

STEEL JOIST FLOORS AND CEILINGS

2 Hour Fire Rating

UL Design G503

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Open web steel joists at 24" o.c.
- Furring channels attached to joists at 12" o.c.
- 2-1/2" concrete slab

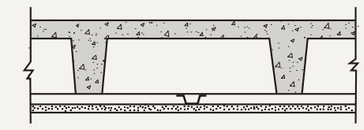


Gypsum Panel Types

- Type X

UL Design J503

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Furring channels attached to concrete at 24" o.c.
- 2" concrete slab



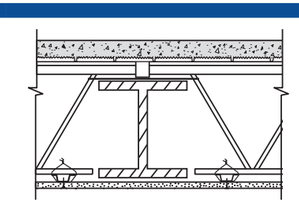
Gypsum Panel Types

- Type C

3 Hour Fire Rating

UL Design G512

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Open web steel joists at 24" o.c.max
- Furring channel perpendicular to joists at 24" o.c.
- 2-1/2" concrete slab

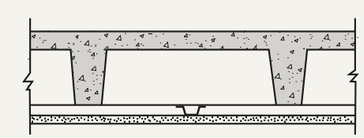


Gypsum Panel Types

- Type C

UL Design J503

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Furring channels attached to concrete at 24" o.c.
- 2-1/2" concrete slab



Gypsum Panel Types

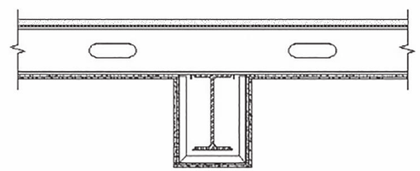
- Type C

STEEL FRAMED, WOOD FLOOR - FLOOR AND CEILINGS

1 Hour Fire Rating

UL Design L524

Fire System Details
- 1/2" CertainTeed Gypsum Panels
- Min. 7" 43 mil steel joists at 24" o.c.
- 5/8" T&G plywood attached perpendicular to joists

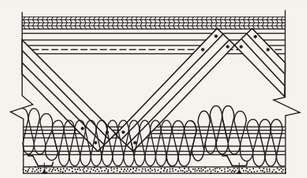


Gypsum Panel Types

- Type C

UL Design M536

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channels perpendicular to steel trusses at 16" o.c. max
- Light gauge steel trusses at 48" o.c. max
- 23/32" plywood deck applied perpendicular to trusses
- 15/32" plywood applied perpendicular to trusses



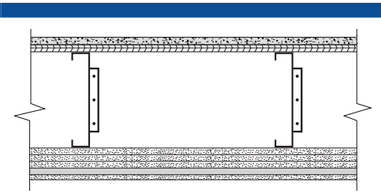
Gypsum Panel Types

- Type C

2 Hour Fire Rating

UL Design L556

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Hat channel perpendicular to joists between 3rd and 4th layers of gypsum panel at 24" o.c.
- Min. 8" 43 mil steel joists at 24" o.c.
- Minimum 23/32" wood structural panels
- Min. 3/4" floor topping



Gypsum Panel Types

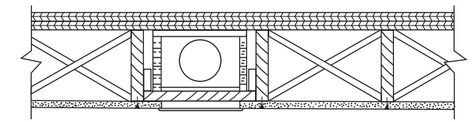
- Type C • Type X • M2Tech Type X

WOOD JOIST FLOOR AND CEILINGS

1 Hour Fire Rating

UL Design L501

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Min. 2x10 wood joists at 16" o.c.
- 15/32" plywood
- 19/32" T&G plywood

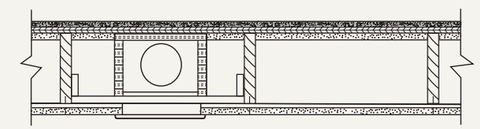


Gypsum Panel Types

- Type C • Type X • M2Tech Type X • FireLITE Type X

UL Design L513

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channel perpendicular to joists at 16" o.c.
- Min. 2x10 wood joists at 24" o.c.
- 3/4" plywood
- 3/4" floor topping

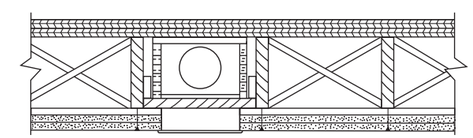


Gypsum Panel Types

- Type C

UL Design M568

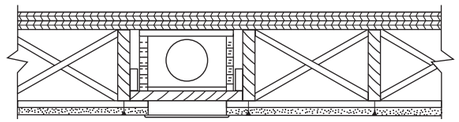
Fire System Details
- 2 layers 5/8" CertainTeed Gypsum Panels
- Min. 2x10 wood joists at 16" o.c.
- 19/32" plywood



Gypsum Panel Types	Acoustical Details	STC / IIC	Report #
• Type X • FireLITE Type X • Type C	Nominal 2x10 wood joists at 16" o.c., RC at 16" o.c., 3-1/2" FG insulation, two layers of 5/8" Type X, 19/32" plywood deck, 3/8" engineered hardwood over underlayment	46 / 46	NGC 5024012 / NGC 7024020
	Nominal 2x10 wood joists at 16" o.c., RC at 16" o.c., 3-1/2" FG insulation, two layers of 5/8" Type X, 19/32" plywood deck, 3/16" LVT over underlayment	46 / 48	NGC 5024013 / NGC 7024021
	Nominal 2x10 wood joists at 16" o.c., RC at 16" o.c., 3-1/2" FG insulation, two layers of 5/8" Type X, 19/32" plywood deck, carpet and pad	48 / 63	NGC 5024014 / NGC 7024022

UL Design L502

Fire System Details
- 1/2" CertainTeed Gypsum Panels
- Nominal 2x10 wood joists at 16" o.c.
- Resilient channel at 24" o.c.
- 15/32" plywood
- 19/32" T&G plywood



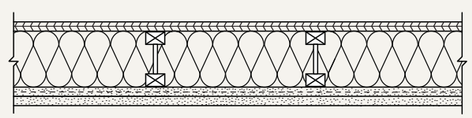
Gypsum Panel Types	Acoustical Details	STC / IIC	Report #
• Type C	Nominal 2x10 wood joists at 16" o.c., RC at 24" o.c., 3-1/2" FG insulation, 5/8" Type C, 15/32" plywood deck, 19/32" T&G plywood deck, carpet and pad	46 / 62	NGC 5019032 / NGC 7019050
	Nominal 2x10 wood joists at 16" o.c., 1-1/2" CT ceiling grid, 3-1/2" FG insulation, 5/8" Type C, 15/32" plywood deck, 19/32" T&G plywood deck, carpet and pad	49 / 72	NGC 5019033 / NGC 7019051
	Nominal 2x10 wood joists at 16" o.c., RC at 12" o.c., 3-1/2" FG insulation, 5/8" Type C, 15/32" plywood deck, 3/4" floor topping, 1/8" sound mat, carpet and pad	52 / 67	NGC 5019110 / NGC 7019145
	Nominal 2x10 wood joists at 16" o.c., RC at 12" o.c., 3-1/2" FG insulation, 5/8" Type C, 15/32" plywood deck, 3/4" floor topping, 1/8" sound mat, 3/8" engineered hardwood over underlayment	54 / 47	NGC 5019113 / NGC 7019148
	Nominal 2x10 wood joists at 16" o.c., RC at 12" o.c., 3-1/2" FG insulation, 5/8" Type C, 15/32" plywood deck, 3/4" floor topping, 1/8" sound mat, 3/16" LVT over underlayment	54 / 49	NGC 5019112 / NGC 7019147

WOOD JOIST FLOOR AND CEILINGS

1 Hour Fire Rating

UL Design M535

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- 1/2" CertainTeed Gypsum Panels
- Resilient channel perpendicular to joists at 24" o.c.
- Min. 9-1/2" wood I-joists at 24" o.c.
- 19/32" plywood



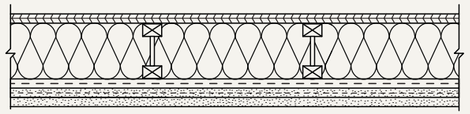
Gypsum Panel Types	Acoustical Details	STC / IIC	Report #
• SilentFX QuickCut Type X • Type X • 5/8" Type C • 1/2" Type C • M2Tech Type X	9-1/2" I-joists at 24" o.c., RC at 12" o.c., 9-1/2"CT loose fill insulation, base layer of Type X, face layer of 1/2" Type C, 19/32" plywood	53 / 44	NGC 5017059 / NGC 7017090
	9-1/2" I-joists at 24" o.c., RC at 12" o.c., 9-1/2"CT loose fill insulation, base layer of SilentFX QC, face layer of 1/2" Type C, 19/32" plywood	54 / 46	NGC 5017060 / NGC 7017091
	9-1/2" I-joists at 24" o.c., RC at 12" o.c., 9-1/2"CT loose fill insulation, base layer of SilentFX QC, face layer of 1/2" Type C, 19/32" plywood, 3/4" floor topping, 3/8" sound mat, 3/8" engineered hardwood	60 / 58	NGC 5017072 / NGC 7017113
	9-1/2" I-joists at 24" o.c., RC at 12" o.c., 9-1/2"CT loose fill insulation, base layer of SilentFX QC, face layer of 1/2" Type C, 19/32" plywood, 3/4" floor topping, 3/8" sound mat, carpet and pad	60 / 78	NGC 5017069 / NGC 7017110
	9-1/2" I-joists at 24" o.c., RC at 12" o.c., 9-1/2"CT loose fill insulation, base layer of SilentFX QC, face layer of 1/2" Type C, 19/32" plywood, 3/4" floor topping, 3/8" sound mat, 3/16" LVT over underlayment	62 / 58	NGC 5017071 / NGC 7017112

Gypsum Panel Systems Manual

ASSEMBLIES

UL Design L570

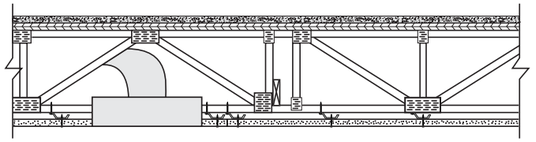
Fire System Details
- 1/2" CertainTeed Gypsum Panels
- Min. 9-1/2" wood I-joists at 24" o.c.
- Resilient channel at 24" o.c.
- 19/32" plywood
- 15/32" plywood



Gypsum Panel Types	Acoustical Details	STC / IIC	Report #
• Type C	9-1/2" wood I-joists at 24" o.c., RC at 12" o.c., 3-1/2" FG insulation, two layers 1/2" Type C, 23/32" T&G plywood, 15/32" plywood, carpet and pad	49 / 67	NGC 5024020 / NGC 7024028
	9-1/2" wood I-joists at 24" o.c., RC at 12" o.c., 3-1/2" FG insulation, two layers 1/2" Type C, 23/32" T&G plywood, 15/32" plywood, 3/8" engineered hardwood over underlayment	50 / 46	NGC 5024018 / NGC 7024026
	9-1/2" wood I-joists at 24" o.c., RC at 12" o.c., 3-1/2" FG insulation, two layers 1/2" Type C, 23/32" T&G plywood, 15/32" plywood, 3/16" LVT over underlayment	50 / 45	NGC 5024018 / NGC 7024026
	9-1/2" wood I-joists at 24" o.c., RC at 12" o.c., 3-1/2" FG insulation, two layers 1/2" Type C, 23/32" T&G plywood, carpet and pad	55 / 71	NGC 5024015 / NGC 7024023

UL Design L562

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channel at 16" o.c.
- Min. 18" wood trusses at 24" o.c.
- 15/32" plywood
- 3/4" floor topping



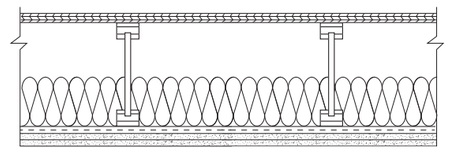
Gypsum Panel Types	Acoustical Details	STC / IIC	Report #
• Type C	18" wood trusses at 24" o.c., RC at 16" o.c., 3-1/2" FG insulation, 5/8" Type C, 15/32" plywood, 1" floor topping, 1/4" sound mat, carpet and pad	56 / 75	NGC 5019081 / NGC 7019107
	18" wood trusses at 24" o.c., RC at 16" o.c., 3-1/2" FG insulation, 5/8" Type C, 15/32" plywood, 1" floor topping, 1/4" sound mat, 3/16" LVT over underlayment	56 / 56	NGC 5019083 / NGC 7019109
	18" wood trusses at 24" o.c., RC at 16" o.c., 3-1/2" FG insulation, 5/8" Type C, 15/32" plywood, 1" floor topping, 1/4" sound mat, 3/8" engineered hardwood over underlayment	56 / 54	NGC 5019084 / NGC 7019110

WOOD JOIST FLOOR AND CEILINGS

1 Hour Fire Rating

UL Design M544

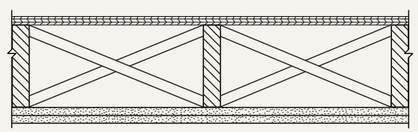
Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channel perpendicular to joists at 16" o.c.
- Min. 9-1/2" wood I-joists at 24" o.c.
- Min. 3-1/2" fiberglass insulation draped over RC
- 23/32" plywood



Gypsum Panel Types	Acoustical Details	STC / IIC	Report #
• Type X • M2Tech Type X • FireLITE Type X	9-1/2" I-joists at 24" o.c., RC at 16" o.c., 3-1/2" FG insulation draped over RC, two layers Type X, 23/32" plywood	50 / 43	NGC 5019080 / NGC 7019106
	9-1/2" I-joists at 24" o.c., RC at 16" o.c., 3-1/2" FG insulation draped over RC, two layers Type X, 23/32" plywood, 1" floor topping, 1/4" sound mat, carpet and pad	57 / 82	NGC 5019095 / NGC 7019125
	9-1/2" I-joists at 24" o.c., RC at 16" o.c., 3-1/2" FG insulation draped over RC, two layers Type X, 23/32" plywood, 1" floor topping, 1/4" sound mat, 3/16" LVT over underlayment	58 / 62	NGC 5019094 / NGC 7019124
	9-1/2" I-joists at 24" o.c., RC at 16" o.c., 3-1/2" FG insulation draped over RC, two layers Type X, 23/32" plywood, 1" floor topping, 1/4" sound mat, 3/8" engineered hardwood over underlayment	59 / 61	NGC 5019093 / NGC 7019123

UL Design M561

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Nominal 2x8 wood joists at 16" o.c.
- 15/32" plywood

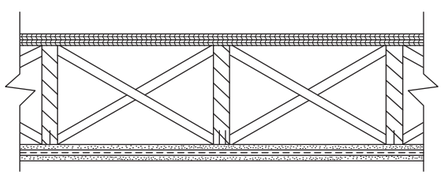


Gypsum Panel Types	Acoustical Details	STC / IIC	Report #
• Type X • Type C • SilentFX QuickCut	2x8 wood joists at 16" o.c., 15/32" plywood, 1" floor topping, 1/4" sound mat	42	NGC 5021036
	2x8 wood joists at 16" o.c., 15/32" plywood, 1" floor topping, 1/4" sound mat, 3/16" LVT over underlayment	42	NGC 5021035
	2x8 wood joists at 16" o.c., 15/32" plywood, 1" floor topping, 1/4" sound mat, carpet and pad	43 / 64	NGC 5021037 / NGC 7021046
	2x8 wood joists at 16" o.c., 15/32" plywood, 1" floor topping, 1/4" sound mat, 3/8" engineered hardwood over underlayment	44	NGC 5021034

2 Hour Fire Rating

UL Design L505

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channel at 24" o.c.
- Min. 2x10 wood joists at 16" o.c.
- 15/32" plywood
- 19/32" plywood



Gypsum Panel Types

- Type C

Gypsum Panel Systems Manual

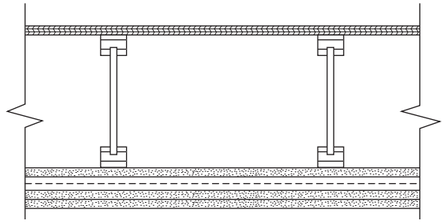
ASSEMBLIES

WOOD JOIST FLOOR AND CEILINGS

2 Hour Fire Rating

UL Design L538

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channel at 24" o.c.
- Min. 9-1/2" wood I-joists at 19.2" o.c.
- 5/8" plywood

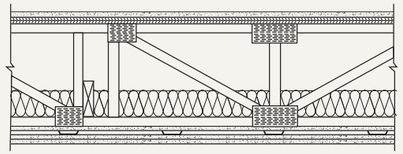


Gypsum Panel Types

- Type C

UL Design M500

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channel perpendicular to joists at 12" o.c.
- Min 12" deep parallel chord wood trusses at 24" o.c.
- 23"32" plywood
- 3/4" floor topping



Gypsum Panel Types

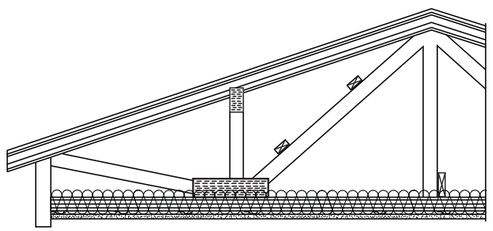
- Type C

ROOF-CEILING SYSTEMS

1 Hour Fire Rating

UL Design P538

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channels perpendicular to trusses at 16" o.c.
- Wood trusses at 24" o.c.
- 15/32" plywood
- Optional insulation
- Optional ceiling damper



Gypsum Panel Types

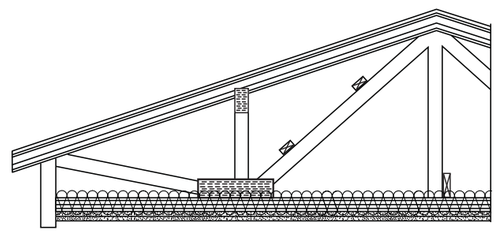
- Type C

ROOF-CEILING SYSTEMS

1 Hour Fire Rating

UL Design
P583

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channels perpendicular to trusses at 16" o.c.
- Wood trusses at 24" o.c.
- 15/32" plywood
- Optional insulation
- Optional ceiling damper

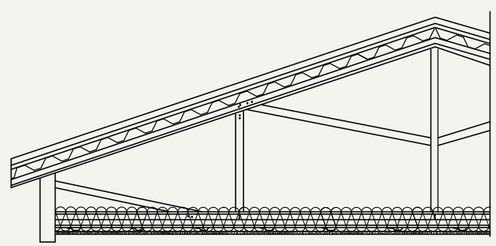


Gypsum Panel Types

- Type X
- Type C

UL Design
P567

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channels perpendicular to trusses at 16" o.c.
- Min. 12" deep pre-fabricated light gauge steel trusses at 48" o.c.
- Min. 1-1/2" metal roof deck panels
- 1/2" gypsum panel
- Optional insulation



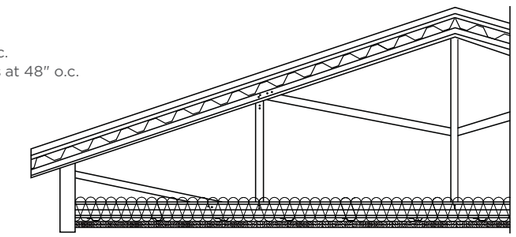
Gypsum Panel Types

- Type C

2 Hour Fire Rating

UL Design
P567

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channels perpendicular to trusses at 16" o.c.
- Min. 12" deep pre-fabricated light gauge steel trusses at 48" o.c.
- Min. 1-1/2" metal roof deck panels
- 1/2" gypsum panel
- Optional insulation

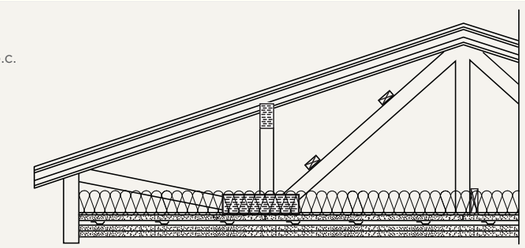


Gypsum Panel Types

- Type C

UL Design
P584

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Resilient channels perpendicular to trusses at 12" o.c.
- FG insulation
- Wood trusses at 24" o.c.
- 15/32" plywood



Gypsum Panel Types

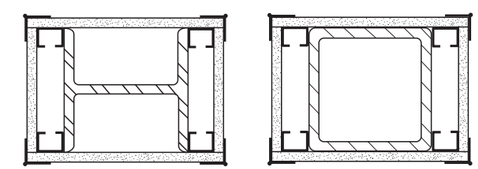
- Type C

COLUMNS AND BEAM PROTECTION

1 Hour Fire Rating

UL Design
X528

Fire System Details
- Min. 1/2" combined thickness of CertainTeed Gypsum Panels
- Min. 1-5/8" 25 ga (18 mil) steel studs
- W10x49 column
- NO-COAT® or metal cornerbead

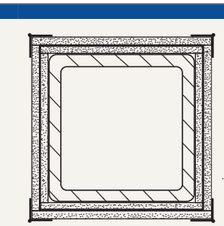


Gypsum Panel Types

- Type C
- Type X
- M2Tech Type X
- GlasRoc Interior Type X
- FireLITE Type X

UL Design
X526

Fire System Details
- Min. 1" combined thickness of CertainTeed Gypsum Panels
- TS4x4x0.188 tube steel column
- Min. 24 ga steel column cover
- NO-COAT® or metal cornerbead



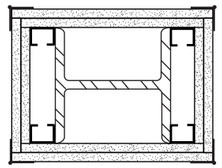
Gypsum Panel Types

- Type C
- Type X
- M2Tech Type X
- GlasRoc Interior Type X
- FireLITE Type X

2 Hour Fire Rating

UL Design
X528

Fire System Details
- Min. 1-1/8" combined thickness of CertainTeed Gypsum Panels
- Min. 1-5/8" 25 ga (18 mil) steel studs
- W10x49 column
- NO-COAT® or metal cornerbead



Gypsum Panel Types

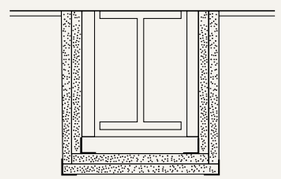
• Type X • Type C • M2Tech Type X • GlasRoc Interior Type X • FireLITE Type X

COLUMNS AND BEAM PROTECTION

2 Hour Fire Rating

UL Design
N501

Fire System Details
- 5/8" CertainTeed Gypsum Panels
- Beam cage fabricated from 25 ga steel
- W8x24 steel beam
- Metal cornerbead

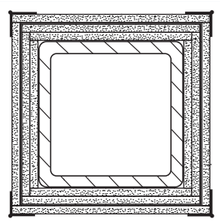


Gypsum Panel Types

• Type X • M2Tech Type X • Type C • GlasRoc Interior Type X

UL Design
X526

Fire System Details
- Min. 1-3/4" combined thickness of CertainTeed Gypsum Panels
- Min. 24 ga steel column cover
- TS4x4x0.188 tube steel column
- NO-COAT® or metal cornerbead



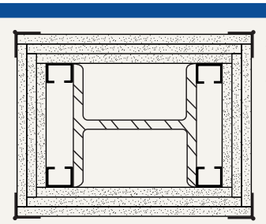
Gypsum Panel Types

• Type X • Type C • M2Tech Type X • GlasRoc Interior Type X • FireLITE Type X

3 Hour Fire Rating

UL Design
X528

Fire System Details
- Min. 1-7/8" combined thickness of CertainTeed Gypsum Panels
- Min. 1-5/8" 25 ga (18 mil) steel studs
- W10x49 column
- NO-COAT® or metal cornerbead



Gypsum Panel Types

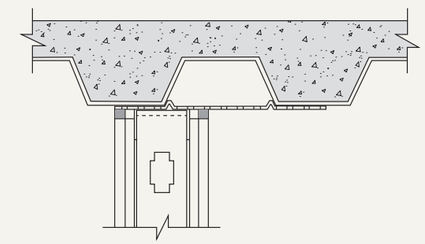
• Type X • Type C • M2Tech Type X • GlasRoc Interior Type X • FireLITE Type X

OTHER FIRE DETAILS

1-2 Hour Fire Rating

UL Design
HW-D-0633
(1 or 2 Hr)

Head of Wall System Details
- 5/8" CertainTeed Gypsum Panels
- Steel runners
- Steel studs
- Drywall trim
- Flexible sealant

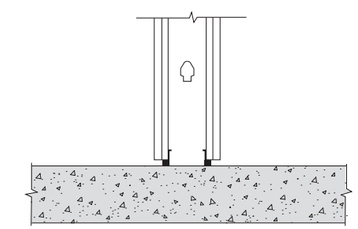


Gypsum Panel Types

• Based on UL Design

UL Design
BW-S-0013
(1 or 2 Hr)

Base of Wall System Details
- 5/8" CertainTeed Gypsum Panels
- Steel runners
- Steel studs
- Drywall trim
- Flexible sealant

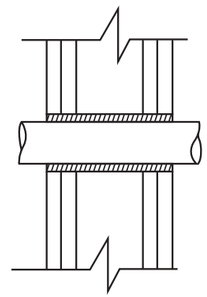


Gypsum Panel Types

• Based on UL Design

UL Design
W-L-1042
(1 or 2 Hr)

Through Pentration Details
- 1/2" or 5/8" CertainTeed Gypsum Panels
- Nominal 2x4 wood studs
- Through penetrant
- Fire stop system



Gypsum Panel Types

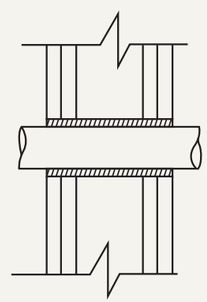
- Based on UL Design

OTHER FIRE DETAILS

1-2 Hour Fire Rating

UL Design
W-L-1049
(1 or 2 Hr)

Through Pentration Details
- 5/8" CertainTeed Gypsum Panels
- Wood or steel studs
- Through penetrant
- Fire stop system

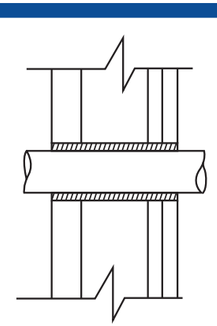


Gypsum Panel Types

- Based on UL Design

UL Design
W-L-2417
(1 or 2 Hr)

Through Pentration Details
- 1/2" and 1" CertainTeed Gypsum Panels
- Steel studs
- Through penetrant
- Fire stop system



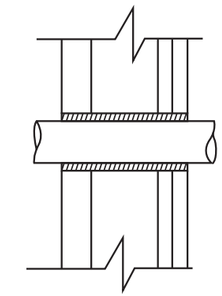
Gypsum Panel Types

- Based on UL Design

Gypsum Panel Systems Manual
JOINT AND FIRESTOP SYSTEMS

UL Design
W-L-2356
(2 Hr)

Through Pentration Details
- 5/8" and 1" CertainTeed Gypsum Panels
- Steel studs
- Steel sleeve
- Through penetrant
- Fire stop system



Gypsum Panel Types

- Based on UL Design

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CertainTeed provides innovative building products and systems for commercial, institutional and residential designs. With over 80 years of experience manufacturing and marketing in North America, CertainTeed Gypsum is committed to focusing on quality, service, and safety to provide a superior experience to its customers.

TEST STANDARDS

Fire resistance and sound tests are conducted in accordance with ASTM E119 (UL 263, CAN/ULC-S101) and ASTM E90, respectively, and no warranty is made other than conformance to the standard under which the assembly was tested. Minor discrepancies may exist in the values of ratings, attributable to changes in materials and standards, as well as differences between testing facilities. Assemblies are listed as "combustible" (wood framing) and "noncombustible" (concrete and/or steel construction).

COMBUSTIBLE ASSEMBLIES

These include all wood stud walls, wood joist or truss ceilings and floors consisting of tongue-and-groove, plywood, or OSB sub-flooring and finish flooring or a poured gypsum floor underlayment over wood structural panel sub-flooring. Floor assembly may be used over the wood joists with ceilings as detailed in GA and UL/cUL/ULC references.

NONCOMBUSTIBLE ASSEMBLIES

These include steel studs, bar joist ceilings with poured concrete floors over metal lath or steel. Also included are steel beams and steel columns. Ceilings for all 1-hour, 1-1/2-hour, and 2-hour noncombustible floor and ceiling assemblies with 2" (51 mm) or 2 1/2" (63.5 mm) concrete floor or metal lath over steel bar joists, unless otherwise specified, may be directly attached or suspended as detailed in GA and UL/cUL/ULC references.

FIRE RESISTANCE

CertainTeed® Type X, CertainTeed® Type C, M2Tech® Type X, SilentFX® QuickCut™ Type X, FireLITE® Type X, GlasRoc® Tile Backer Type X, GlasRoc® Shaftliner Type X, GlasRoc® Interior Type X and GlasRoc® Sheathing Type X products are Classified by Underwriters Laboratories Inc. and Listed by Underwriters Laboratories of Canada and carries the UL/cUL/ULC Label for 1, 2, 3 and 4-hour Fire Resistance in various designs. Underwriters Laboratories Inc. tests have proven that joint finishing is not required for the rating in certain assemblies using Type X and Type C products. For fire resistance ratings, refer to the Gypsum Association GA-600, *Fire Resistance and Sound Control Design Manual*, and the UL, cUL and ULC Fire Resistance Directories.

SURFACE BURNING CHARACTERISTICS

CertainTeed® Gypsum Panels have Flame Spread ratings of 0 to 15 and Smoke Developed ratings of 0 to 5, and GlasRoc® products have Flame Spread Ratings of 0 and Smoke Developed Ratings of 0 in accordance with ASTM E84 (UL 723, CAN/ULC-S102).

SOUND CHARACTERISTICS

The degree to which assemblies block the passage of sound is measured by Sound Transmission Class (STC) per ASTM E90 and E413, which is a single figure rating derived from the sound transmission loss values over a range of sound frequencies. All sound-rated assemblies require acoustical sealant at assembly perimeters and penetrations, and other locations where sound leaks may develop. For sound characteristics, refer to the Gypsum Association GA-600, *Fire Resistance and Sound Control Design Manual.*

STORAGE

Gypsum panels must be stored in an area that protects it from adverse weather conditions, condensation and other forms of moisture and direct sunlight. Panels should be neatly stacked flat with care taken to prevent sagging or damage to edges, ends, and surfaces. Storing panels lengthwise leaning against the framing is not recommended. Panels should be carried, not dragged, to place of installation to prevent damaging finished edges. Refer to the Gypsum Association GA-801, *Handing and Storage of Gypsum Panel Proucts.*

MORE INFORMATION

Consult the Gypsum Association GA-216, *Recommended Specifications for the Application and Finishing of Gypsum Panel Products,* for detailed application and finishing procedures. For full details of fire and sound ratings, consult test references listed for system assemblies.

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Drywall Products

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SMART EPD CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION

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20 Moores Road, Malvern, PA 19355 800-233-8990 certainteed.com

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