EXACOR™

Sound & Fire Assemblies Handbook

Overview

This handbook is intended to provide general information regarding assemblies that have been evaluated for fire-resistance and/or for acoustical attenuation performance. The assemblies presented in this handbook feature EXACOR® panels installed as part of an assembly of materials and tested and evaluated in accordance with the following standards:

Fire-Resistance Testing

- ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials / ANSI UL 263 Fire Tests of Building Construction and Materials

Sound Assembly Testing

- ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
- ASTM E413 Classification for Rating Sound Insulation
- ASTM E492 Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine
- ASTM E989 Classification for Determination of Impact Insulation Class
- ASTM E2235 Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods
- ASTM E3222 Standard Classification for Determination of High-Frequency Impact Sound Ratings

The information contained in this handbook is for guidance and reference only. Please refer to the applicable fire-resistance rated assembly published by Underwriter's Laboratory (UL) or ICC-ES for full assembly details, requirements, and options. Some fire-resistance rated assemblies contain multiple material and installation options that may have an impact on sound performance. Not all the available options in each fire-resistance rated design listing have been tested for STC/IIC ratings. Please see ICC-ES ESL-1365 for more detailed information regarding assemblies tested to ASTM E90 and E492.

Please note that this handbook may also include sound assemblies that have NOT been evaluated for fire-resistance. The level of fire-resistance (if any) for each assembly is presented at the top of the page for each assembly configuration. Follow all local building code requirements for fire-resistance and sound transmission.

Each assembly presents information for the assembly without a floor covering. This information is meant to represent the base level of performance for the given assembly. EXACOR® panels should always be covered by an appropriate finished floor covering. Please see the EXACOR® Sheathing Installation Manual and EXACOR® Underlayment Installation Manual available at www.exacor.com for more information.

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Floor/Ceiling Assemblies

Fire-Resistance & Sound Ratings

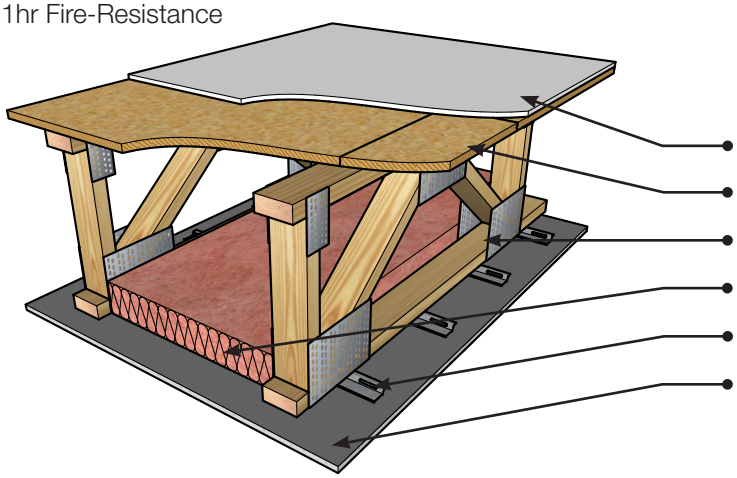
This section contains STC and IIC ratings for floor/ceiling assemblies that are based on designs that have been assessed for fire-resistance in accordance with ASTM E119/ANSI UL 263. See specific fire-resistance rated Design Listing from UL for full assembly details and requirements. Follow all local building code requirements for fire-resistance and sound transmission.

Fire-Resistance Rated Floor/Ceiling Designs	
EXACOR® Underlayment:	
-UL L501 (System No. 23) - 1hr	UL L502 (System No. 24) - 1hr
-UL L511 (System No. 25) - 2hr	-UL L525 (System No. 16) - 1hr
-UL L528 (System No. 22) - 1hr	-UL L546 (System No. 14) - 1hr
-UL L570 (System No. 20) - 1hr	-UL L602 (System No. 2) - 1hr
-UL M500 (System No. 9) - 2hr	

EXACOR® UNDERLAYMENT

Wood Truss

UL L528 - System No. 22
UL L546 - System No. 14
1hr Fire-Resistance



Tested Acoustic Assembly Contains:

- 1/2" (12mm) EXACOR® Underlayment
- 23/32 Wood Structural Panel
- 18" Wood Truss, 24" OC (Min. 12" depth for fire-resistance)
- R-13 Glass Fiber Insulation
- Resilient Channel (See Table Below)
- 5/8" Gypsum Panel (See Table Below)

*See applicable UL Design for full assembly details and requirements.

Acoustical Performance - EXACOR® Underlayment				
Floor Covering	None*	2mm Luxury Vinyl	2mm Luxury Vinyl	5.5mm Luxury Vinyl (Floated)
Sound Attenuation Mat		None	1.4mm Sound Mat	None
Ceiling Option 1				
Furring Type	Resilient Channel (RC-1) Spaced 16” On Center			
Gypsum Panel	5/8 ULIX™Gypsum			
STC/IIC	**57/50**	**58/52**	**58/53**	**59/54**
HIIC	51	54	63	59
Report No.	L9005.01-113-11-R0	L9005.02-113-11-R0	L9005.03-113-11-R0	L9005.04-113-11-R0
Ceiling Option 2				
Furring Type	Resilient Channel (RC-1) Spaced 16” On Center			
Gypsum Panel	5/8” Type C Gypsum (Type AG-C required for fire-resistance rating)			
STC/IIC	**58/51**	**59/54**	**59/55**	**60/56**
HIIC	52	59	68	61
Report No.	L6141.26-113-11-R0	L6141.27-113-11-R0	L6141.28-113-11-R0	L6141.29-113-11-R0
Ceiling Option 3				
Furring Type	Resilient Channel (RC-1) Spaced 12” On Center			
Gypsum Panel	5/8” Type C Gypsum			
STC/IIC	**59/47**	**59/50**	**59/51**	**60/52**
HIIC	49	55	64	57
Report No.	L9602.01-113-11-R0	L9602.02-113-11-R0	L9602.03-113-11-R0	L9602.04-113-11-R0

*Assembly shown without floor covering for information purposes only. EXACOR® panels must be covered by a finish flooring material.

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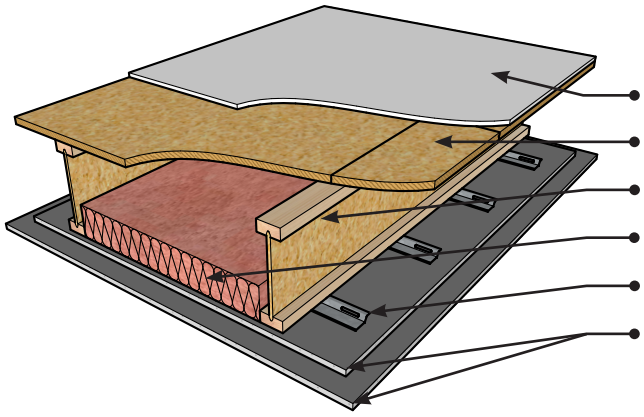
Wood I-Joist

UL L570 - System No. 20
UL L602 - System No. 2
1hr Fire-Resistance



Tested Acoustic Assembly Contains:

- 1/2" (12mm) EXACOR® Underlayment
- 23/32 Wood Structural Panel
- 11-7/8" Wood I-Joist, 24" OC (Min. 9-1/2" depth for fire-resistance)
- R-13 Glass Fiber Insulation
- Resilient Channel (RC-1), 12" OC
- 2 Layers 5/8" Gypsum Panel, Type C (Type X permitted in L570 when insulation is secured to underside of subfloor. See UL design for more details)

*See applicable UL Design for full assembly details and requirements.

Acoustical Performance - EXACOR® Underlayment					
Floor Covering	None*	2mm Luxury Vinyl	5.5mm Luxury Vinyl (Floated)	3/8" Engineered Wood Flooring	Carpet Tile
Sound Attenuation Mat		None	None	None	None
STC/IIC**	**58/50**	**58/55**	**59/57**	**59/57**	**58/58**
HIIC	49	56	59	62	74
Report No.	M2981.01-113-11-R1	M2981.02-113-11-R1	M2981.03-113-11-R1	M2981.04-113-11-R1	M2981.05-113-11-R1

*Assembly shown without floor covering for information purposes only. EXACOR® panels must be covered by a finish flooring material.
**Based on Type C Gypsum Panels

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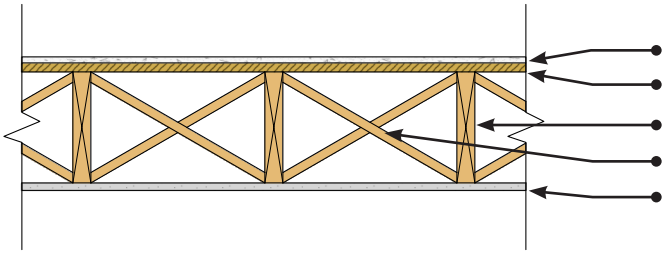
2x10 Joist

UL L501 - System No. 23

1hr Fire-Resistance



Assembly Contains:

- 1/2" (12mm) EXACOR® Underlayment
- 23/32 Wood Structural Panel
- 2x10" Wood Joist, Max 16" OC
- Cross Bridging or Solid Blocking
- 5/8" Gypsum Panel, Type X or C

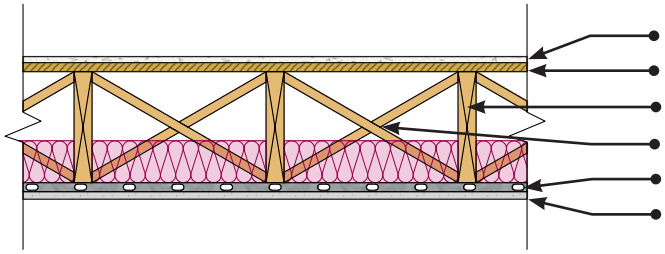
*See applicable UL Design for full assembly details and requirements.

Acoustical Performance - EXACOR® Underlayment
No Data

2x10 Joist

UL L502 - System No. 24

1hr Fire-Resistance



Assembly Contains:

- 1/2" (12mm) EXACOR® Underlayment
- 23/32 Wood Structural Panel
- 2x10" Wood Joist, Max 16" OC
- Cross Bridging or Solid Blocking
- Resilient Channel or Steel Furring
- Gypsum Panel (Various Types and Thicknesses, See UL Design)

*See applicable UL Design for full assembly details and requirements.

Acoustical Performance - EXACOR® Underlayment				
Floor Covering	None*	2mm Luxury Vinyl Tile	2mm Luxury Vinyl Tile	5.5mm Luxury Vinyl Plank (floating)
Sound Attenuation Mat		None	1.4 mm sound mat	None
STC/IIC**	**52/42**	**53/47**	**53/49**	**53/47**
HIIC	43	49	62	51
Report No.	q7353.01-113-11-r0	q7353.02-113-11-r0	q7353.03-113-11-r0	q7353.04-113-11-r0
Floor Covering	6.8mm Luxury Vinyl Plank (floating)	8.4mm Engineered Wood flooring	5.5mm Carpet Tile	8.2mm Carpet Tile
Sound Attenuation Mat	None	None	None	None
STC/IIC**	**54/48**	**53/47**	**52/50**	**52/51**
HIIC	58	53	66	77
Report No.	q7353.05-113-11-r0	q7353.06-113-11-r0	q7353.07-113-11-r0	q7353.08-113-11-r0

*Assembly shown without floor covering for information purposes only. EXACOR® panels must be covered by a finish flooring material.

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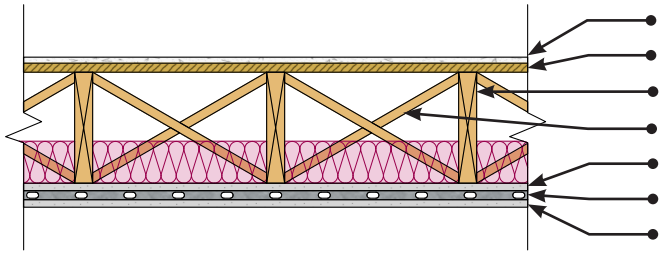
2x10 Joist

UL L511 - System No. 25

2hr Fire-Resistance



Assembly Contains:

- 1/2" (12mm) EXACOR® Underlayment
- 23/32 Wood Structural Panel
- 2x10" Wood Joist, Max 16" OC
- Cross Bridging or Solid Blocking
- 5/8" Gypsum Panel, Type C
- Resilient Channel or Steel Furring
- 5/8" Gypsum Panel, Type C

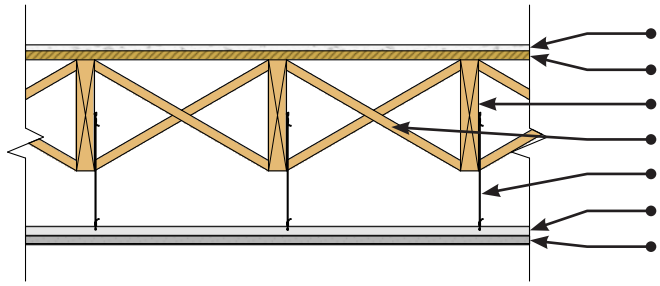
*See applicable UL Design for full assembly details and requirements.

Acoustical Performance - EXACOR® Underlayment
No Data

2x10 Joist

UL L525 - System No. 16

1hr Fire-Resistance



Assembly Contains:

- 1/2" (12mm) EXACOR® Underlayment
- 23/32 Wood Structural Panel
- 2x10" Wood Joist, Max 16" OC
- Cross Bridging or Solid Blocking
- Hanger Wire
- GWB Suspended Ceiling System
- 5/8" Gypsum Panel, Type C

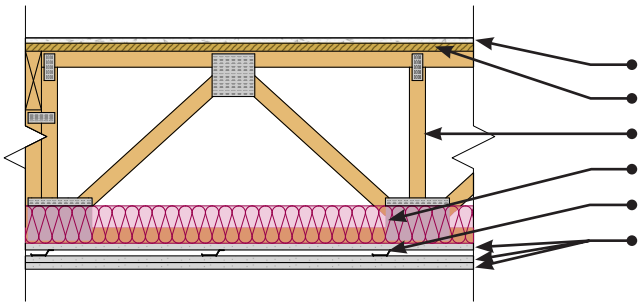
*See applicable UL Design for full assembly details and requirements.

Acoustical Performance - EXACOR® Underlayment
No Data

Wood Truss

UL M500 - System No. 9

2hr Fire-Resistance



Assembly Contains:

- 1/2" (12mm) EXACOR® Underlayment
- 23/32 Wood Structural Panel
- Min. 12" Wood Truss, Max 24" OC
- Glass Fiber Insulation
- Resilient Channel or Steel Furring, 12" OC
- 3 Layers 5/8" Gypsum Panel, Type C or ULIX

*See applicable UL Design for full assembly details and requirements.

Acoustical Performance - EXACOR® Underlayment
No Data

Fire-Resistance Rated Wall Assemblies

Fire-Resistance Ratings

This section contains descriptions of wall assemblies that have been tested in accordance with ASTM E119/ANSI UL 263 for fire-resistance or in accordance with NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components. Calculations for fire-resistance rated load-bearing walls are based on the 2018 National Design Specification for Wood Construction® (NDS®) design procedures and in accordance with ASTM D6513 Standard Practice for Calculating the Superimposed Load on Wood-Frame Walls for Standard Fire-Endurance Tests. Unless otherwise noted, all superimposed wall loads were calculated assuming walls were braced by sheathing.

Applications and Uses

Code-compliance for EXACOR® sheathing is provided in ICC-ES ESR-4635 as an exterior sheathing material suitable for use in Construction Types III and V as defined by the International Building Code (IBC). Fire-resistance rated wall assemblies evaluated for use with EXACOR® sheathing can be found in ICC-ES ESL-1290. Typical applications include load-bearing exterior walls and use as part of an assembly to meet townhome unit separation requirements under the International Residential Code (IRC).

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EXACOR® Wall Sheathing

Typical Applications for EXACOR Fire-Resistance Rated Wall Designs

ICC Design No.	Typical Application & Construction Type	Fire-Resistance Rating	
		Interior Face	Exterior Face
MOS-1290-03	Exterior Walls - Type III	2hr	2hr
MOS-1290-04	Exterior Walls - Type V & IRC	1hr	1hr
MOS-1290-05	NFPA 285 Compliance Table (Type III)		
MOS-1290-06	Exterior Walls - Type III	2hr	1hr
MOS-1290-07A/B	Townhome Separation Walls	2hr	
MOS-1290-08	Townhome Separation Walls	2hr	

Exterior Walls

EXACOR® panels can be used as an exterior sheathing panel in load-bearing exterior wall assemblies that are required to be fire-resistance rated. Due to its fire-resistive nature, EXACOR® sheathing is well suited for applications in fire-rated exterior walls that are near or adjacent to property lines and therefore require additional fire-resistance. Fire-resistance rated exterior wall assemblies with EXACOR® sheathing feature fire-resistance ratings applied to both sides of the wall to simplify meeting code requirements related to Fire Separation Distance (FSD).

In Construction Type III under the IBC, exterior wall assemblies greater than 40ft in height above grade plane trigger requirements to comply with NFPA 285. Select exterior wall assemblies with EXACOR® sheathing have been evaluated for compliance with NFPA 285. Please refer to ESL-1290, ICC Design No. MOS-1290-05, for NFPA 285 compliant assemblies with EXACOR® sheathing.

EXACOR® sheathing is intended to be used as exterior sheathing and should not be used as a replacement for interior gypsum wall board or other interior finish elements.

Townhome Unit Separation

EXACOR® sheathing can be used as part of an assembly to meet the requirements of the IRC for townhome separation by constructing two 1-hour rated walls as detailed in ICC Design No. MOS-1290-04 or by constructing a double wall in accordance with ICC Design No. MOS-1290-07A/B. EXACOR sheathing should be installed to face inward, or toward the non-occupant side of the wall as it should not be used as an interior finish panel. Always follow local code requirements for fire-resistance rated construction and townhouse separation. For more information on the use of EXACOR in townhomes, please see our Technical Tip Townhome Separation Walls with EXACOR® Sheathing.

EXACOR® sheathing is not a direct replacement for gypsum shaft liner products. The use of EXACOR in townhome separation walls is limited to double walls as described in IRC R302.2.1.

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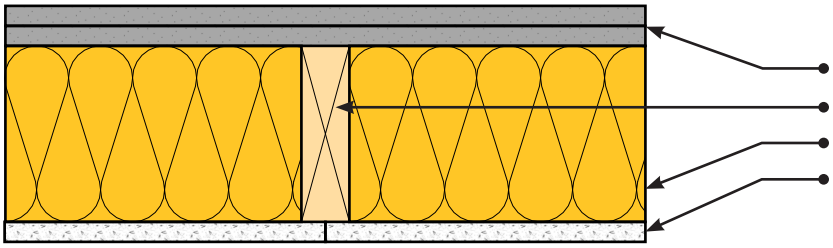
ICC Design No. MOS-1290-03

Load-Bearing - 90% Design Load

2hr Fire-Resistance (From Both Sides)

Interior



Exterior

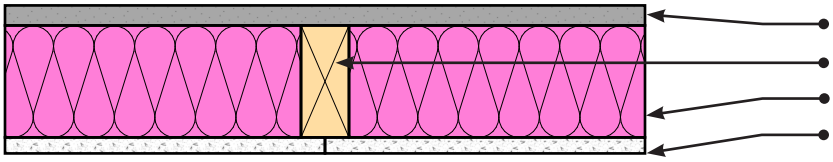
*See applicable ICC-ES Design for full assembly details and requirements.

ICC Design No. MOS-1290-04

Load-Bearing - 90% Design Load

1hr Fire-Resistance (From Both Sides)

Interior



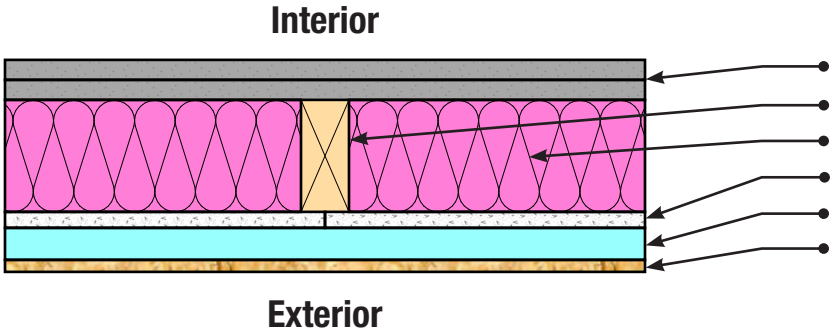
Exterior

*See applicable ICC-ES Design for full assembly details and requirements.

ICC Design No. MOS-1290-06

Load-Bearing - 80% Design Load

2hr Fire-Resistance From Interior (1hr from Exterior)



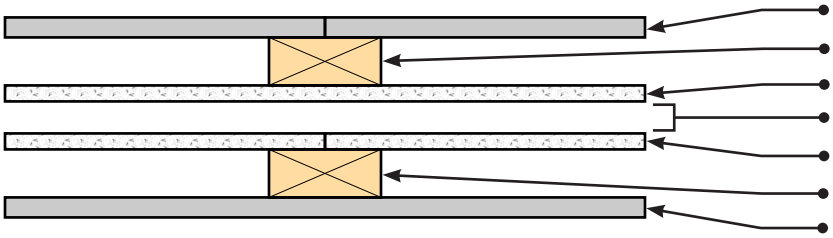
- 2 Layers 5/8" Type X Gypsum
- 2x4 Wood Studs Spaced Max. 16" OC
- Glass Fiber Insulation Batt (R-13)
- 1/2" (12mm) EXACOR® Sheathing
- [Optional] Exterior Insulation
- Siding: Wood, Fiber Cement, Stucco or Brick. See ESL-1290 for more information.

*See applicable ICC-ES Design for full assembly details and requirements.

ICC Design No. MOS-1290-08

Non-Load Bearing

2hr Fire-Resistance (From Both Sides)



- 5/8" Type X Gypsum
- Flat-wise 2x4 Wood Stud Spaced Max. 24" OC
- 1/2" (12mm) EXACOR® Sheathing
- Minimum 1" Air Space
- 1/2" (12mm) EXACOR® Sheathing
- Flat-wise 2x4 Wood Stud Spaced Max. 24" OC
- 5/8" Type X Gypsum

*See applicable ICC-ES Design for full assembly details and requirements.

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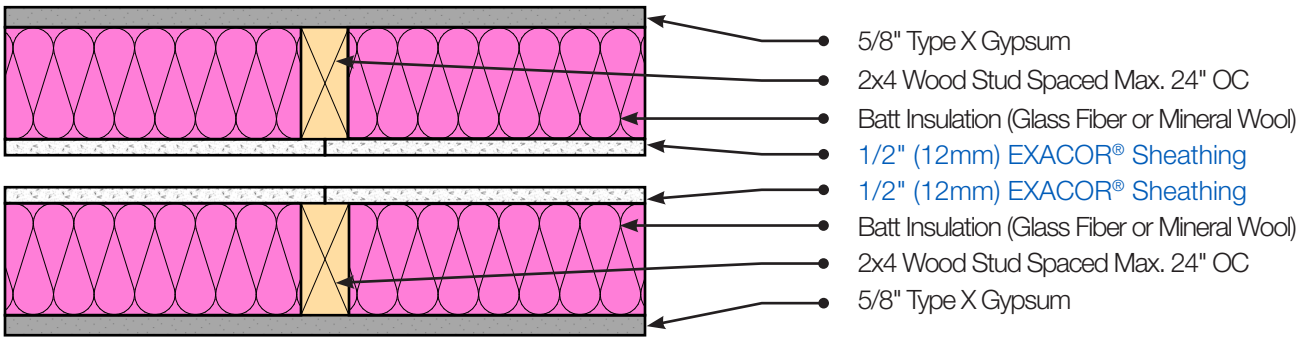
ICC Design No. MOS-1290-07A

Load-Bearing - 90% Design Load

2hr Fire-Resistance (From Both Sides)



*See applicable ICC-ES Design for full assembly details and requirements.

Acoustical Performance - EXACOR Sheathing				
Air Cavity Size	**Insulation Type**	**Resilient Channel***	**STC**	**Report No.**
1"	Glass Fiber Batt	None	44	TL22-223
		Single Side	49	TL22-224
		Both Sides	60	TL22-225
2"	Glass Fiber Batt	None	45	TL22-228
		Single Side	53	TL22-227
		Both Sides	58	TL22-226
	Mineral Wool Batt	None	43	TL22-229
3"	Glass Fiber Batt	None	48	TL22-230
4"	Glass Fiber Batt	None	48	TL22-232
	Mineral Wool Batt	None	48	TL22-233

*Resilient channel attached to studs on occupant side(s) of wall. Gypsum wallboard attached to resilient channel.

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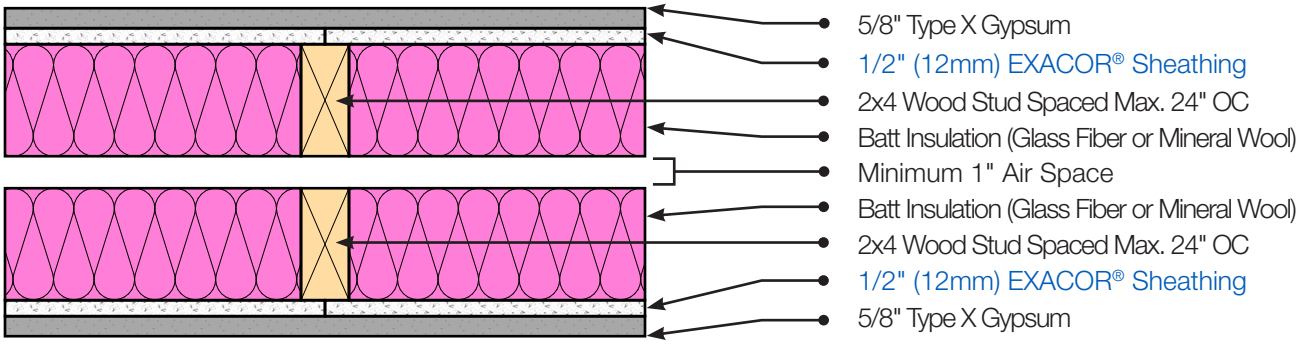
ICC Design No. MOS-1290-07B

Load-Bearing - 90% Design Load

2hr Fire-Resistance (From Both Sides)



*See applicable ICC-ES Design for full assembly details and requirements.

Acoustical Performance - EXACOR® Sheathing				
Air Cavity Size	**Insulation Type**	**Resilient Channel***	**STC**	**Report No.**
1"	Glass Fiber Batt	None	65	TL22-234

EXACOR™

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