

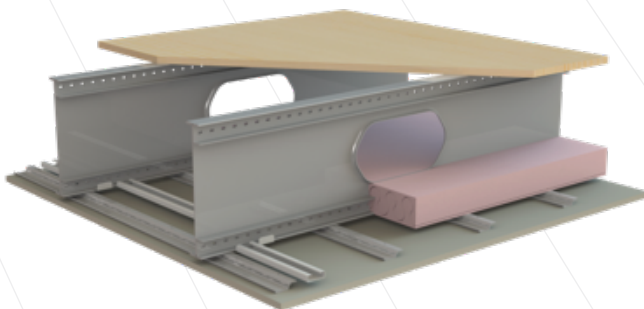
# FIRE & ACOUSTIC GUIDE



## ABOUT TOTALJOIST

**TotalJoist** is a light gauge steel floor joist designed, manufactured, and distributed exclusively by iSPAN Systems LP, as a response to the challenges and limitations currently faced by those in the Multi-Residential construction industry using engineered wood and precast floors.

With the industry's most accommodating floor system, TotalJoist provides 1 HR fire resistance (UL) and premium acoustic performance using only a single layer of 5/8" Type C gypsum; this lowers the overall cost of construction and reduces time to build. TotalJoist was designed to integrate easily with wood framing and ICF. Within an hour of introducing TotalJoist to installers, new on-site crews say our joist system is easy to install. iSPAN Systems LP utilizes state-of-the-art REVIT based design tools and engineering tools to provide efficiencies in design while ensuring the most efficient drawing procurement methods.



- UL/ULC 1-HOUR Fire Rated and STC 50 Acoustic Rated, plywood/OSB sheathed system using a single layer of gypsum board.
- The only framing joist with an adjustable end connector to suit site tolerances. TOTALJOIST connections are always easy with steel framing or wood framing.
- TOTALJOIST Floors are the only bottom chord bearing wood sheathed system with UL/ULC Fire Ratings whose ideal span is from 16 ft to 30 ft (5 m to 9 m) with single joists spaced at 19.2" (490 mm) on center.

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## ABOUT ACOUSTIC RATINGS

Acoustic ratings provide a means to rank a floor's ability to isolate sound. A higher acoustic rating indicates a floor is better able to stop the transmission of sound through it. Helpful planning and construction points on preventing acoustical problems are given in a publication by the National Association of Home Builders Research Foundation titled *Acoustical Manual—*

*Apartment and Home Construction*. Another reference is *Sound, Noise, and Vibration Control* by Lyle Yerges, 1969, Van Nostrand-Reinhold. Sound transmission class (STC) ratings describe a floor's ability to isolate airborne sounds such as speech. The significance of STC numbers is illustrated in the following chart from the Acoustical and Insulation Materials Association.

## STC RATINGS

STC	Description of Potential Sound Transfer
25	Normal Speech can be understood quite clearly.
30	Loud speech can be understood fairly well.
35	Loud speech audible but not intelligible.
42	Loud speech audible as a murmur.
45	Must strain to hear loud speech.
48	Some loud speech barely audible.
50	Loud speech not audible.

In addition to being rated for airborne sound transmission, floors are also rated by IIC (Impact Insulation Class).

IIC values rate the capacity of floor assemblies to control impact noise such as a person's heel hitting the floor.

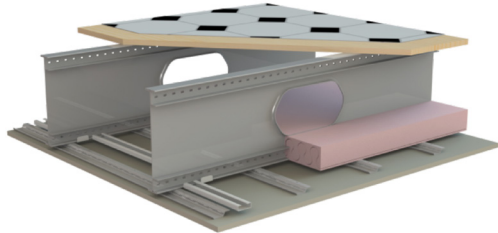
Use of light-frame construction systems challenges designers to insulate against noise rather than simply relying on the massiveness of heavy walls and floors.

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## TOTALJOIST™ BASE SYSTEMS

	Assembly and Approval Designation	Assembly Breakdown	FFR	STC	IIC
Plywood Sub-Floor	iSPAN Rated Floor UL M511 / ULC M521  	<ul style="list-style-type: none"> <li>• 3/16" Vinyl Flooring</li> <li>• 3/4" [19 mm] OSB or Plywood</li> <li>• TotalJoist™</li> <li>• TotalJoist™ Bridging</li> <li>• TotalJoist™ Blocking</li> <li>• 3-1/2" Glass Fiber Insulation</li> <li>• 1/2" [12.7 mm] Resilient Channel at 12" o.c.</li> <li>• 5/8" Type C Gypsum Board</li> </ul>	1 HR	50'	40'

<sup>1</sup> Denotes values based on lab tests    <sup>2</sup> Denotes values based on field tests

1. 'FRR' is the UL / ULC Approved Fire Resistance Rating tested as per CAN ULC S101/UL 263
2. 'STC' is the Sound Transmission Class
3. 'IIC' is the Impact Insulation Class
4. See below for ratings specific to floor finishes
5. All topping thicknesses are measured from top of deck

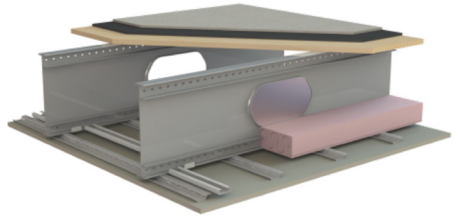
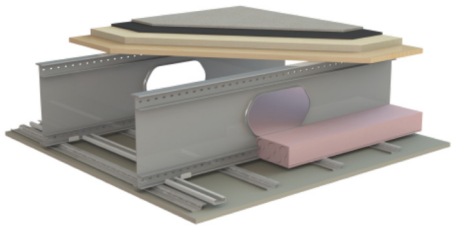
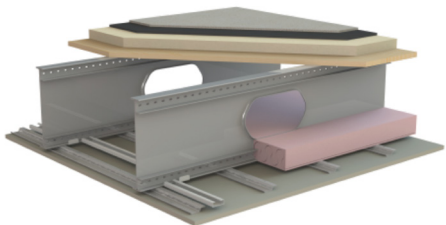
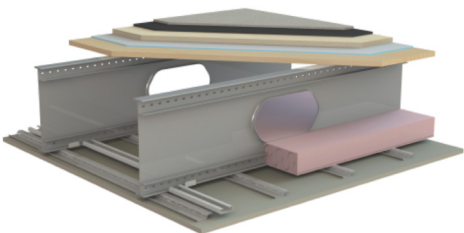
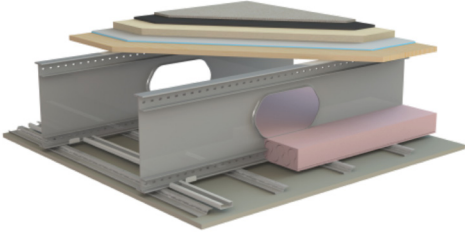
### NOTES

**Fire resistance ratings** are based on CAN/ULC S101 tests (in Canada) or UL263 (in the US). Full scale floors are built and tested by subjecting them to a standard fire up to a temperature of 1,260°C. The floor must withstand this sustained fire for the duration of the test.

**Acoustic test** are based on ASTM E90 (STC) and ASTM E492 (IIC). Sound loss and sound transmission are measured by a series of instruments from which the ratings are calculated for design.

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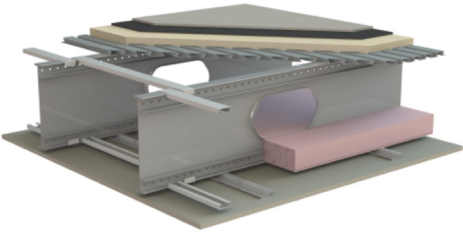
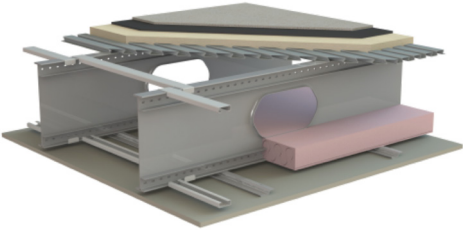
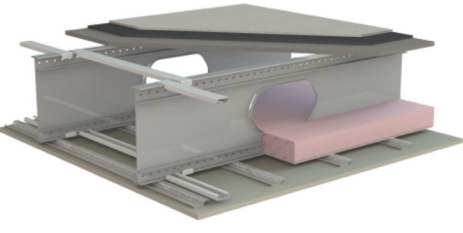
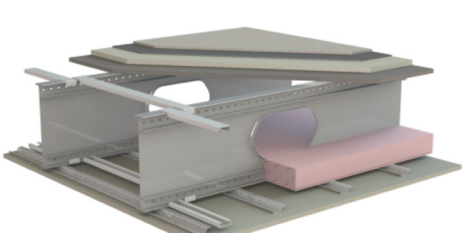
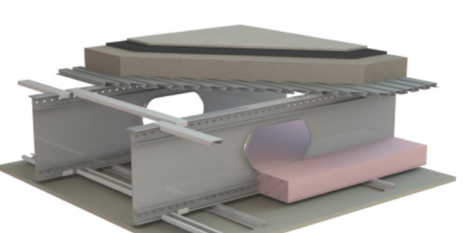
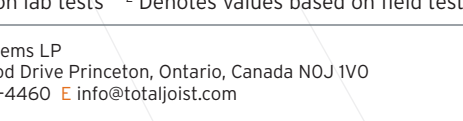
## CARPET FINISH COMBUSTIBLE OPTIONS

		Assembly and Approval Designation	Assembly Breakdown	FFR	STC	IIC
1C	Basic Plywood	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> • TotalJoist™ • 3/4" Plywood / OSB Sheathed <b>Topping:</b> • None <b>Finished Floor:</b> • 5/16" Underpad • Carpet <b>Ceiling:</b> • 3-1/2" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	50 <sup>2</sup>	73 <sup>2</sup>
		Plywood & 1" Gypsum Concrete Unrestrained UL M515 / ULC M521 	<b>Structure:</b> • TotalJoist™ • 3/4" Plywood / OSB Sheathed <b>Topping:</b> • 1" Gypsum Concrete <b>Finished Floor:</b> • Carpet <b>Ceiling:</b> • 3-1/2" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	54 <sup>2</sup>	72 <sup>1</sup>
3C	Plywood & 1-1/2"	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> • TotalJoist™ • 3/4" Plywood / OSB Sheathed <b>Topping:</b> • 1-1/2" Gypsum Concrete <b>Finished Floor:</b> • 5/16" Underpad • Carpet <b>Ceiling:</b> • 3-1/2" Fiberglass Insulation • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	63 <sup>1</sup>	72 <sup>1</sup>
		Plywood & 3/4" Gypsum Concrete With Acousti-Mat I Unrestrained UL M515/ ULC M521 	<b>Structure:</b> • TotalJoist™ • 3/4" Plywood / OSB Sheathed <b>Topping:</b> • Acousti-Mat I • 3/4" Gypsum Concrete <b>Finished Floor:</b> • 5/16" Underpad • Carpet <b>Ceiling:</b> • 3-1/2" Fiberglass Insulation • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	58 <sup>2</sup>	80 <sup>2</sup>
5C	Plywood & 1" Gypsum Concrete With Acousti-Mat II Unrestrained UL M515 / ULC M521 	<b>Structure:</b> • TotalJoist™ • 3/4" Plywood / OSB Sheathed <b>Topping:</b> • Acousti-Mat II • 1" Gypsum Concrete <b>Finished Floor:</b> • Carpet <b>Ceiling:</b> • 3-1/2" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	59 <sup>2</sup>	81 <sup>2</sup>	

<sup>1</sup> Denotes values based on lab tests   <sup>2</sup> Denotes values based on field tests   <sup>3</sup> Denotes values based on opinion

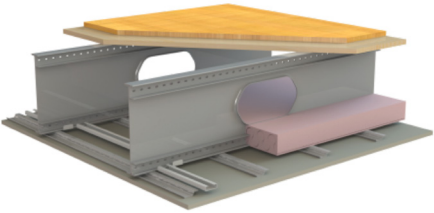
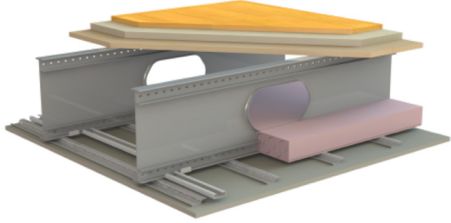
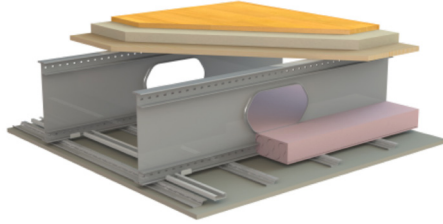
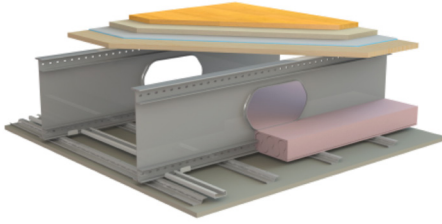
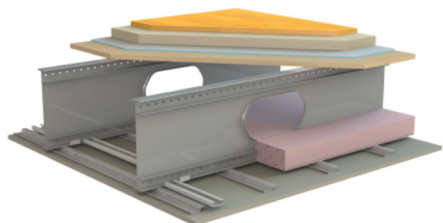
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## CARPET FINISH NON-COMBUSTIBLE OPTIONS

		Assembly and Approval Designation	Assembly Breakdown	FFR	STC	IIC
6C	Steel Deck & Gypsum	Unrestrained UL G587 / ULC I530 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>TotalDeck™</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>1" Gypsum Concrete Above Deck (Total 1-11/16")</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Foam Underpad</li> <li>Carpet</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1.5 HR	61 <sup>3</sup>	65 <sup>3</sup>
		Restrained UL G587 / ULC I530 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>TotalDeck™</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>1" Gypsum Concrete Above Deck (Total 1-11/16")</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Foam Underpad</li> <li>Carpet</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	2 HR	61 <sup>3</sup>	65 <sup>3</sup>
8C	Cement Board	Unrestrained UL G558 / ULC I526 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Cement Fibre Board</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>None</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Foam Underpad</li> <li>Carpet</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-5/8" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	58 <sup>1</sup>	62 <sup>1</sup>
		Restrained UL G558 / ULC I526 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Cement Fibre Board</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>None</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Foam Underpad</li> <li>Carpet</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-5/8" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	58 <sup>1</sup>	62 <sup>1</sup>
9C	Cement Board & Gypsum Concrete	Unrestrained UL G562 / ULC I527 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Cement Board</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>3/4" Gypsum Concrete or 1/2" Type FRX-6 Gypsum Board</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Foam Underpad</li> <li>Carpet</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-5/8" Fiberglass Batts</li> <li>Resilient Channel</li> <li>2 Layers 5/8" Type C Gypsum Board</li> </ul>	2 HR	63 <sup>3</sup>	62 <sup>3</sup>
		Restrained UL G562 / ULC I527 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Cement Board</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>3/4" Gypsum Concrete or 1/2" Type FRX-6 Gypsum Board</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Foam Underpad</li> <li>Carpet</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-5/8" Fiberglass Batts</li> <li>Resilient Channel</li> <li>2 Layers 5/8" Type C Gypsum Board</li> </ul>	2 HR	63 <sup>3</sup>	62 <sup>3</sup>
10C	Steel Deck & Concrete	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>TotalDeck™</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>2-1/4" Concrete Above Deck (Total 3")</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Underpad</li> <li>Carpet</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3" Fiberglass Insulation</li> <li>Hat Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	62 <sup>3</sup>	70 <sup>3</sup>

<sup>1</sup> Denotes values based on lab tests    <sup>2</sup> Denotes values based on field tests    <sup>3</sup> Denotes values based on opinion

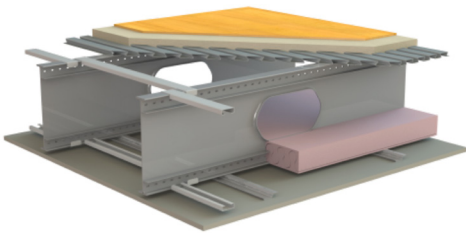
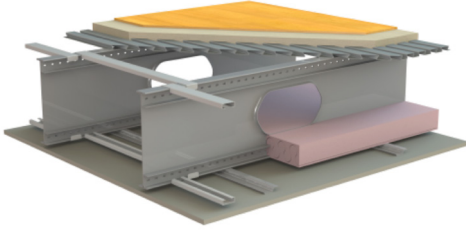
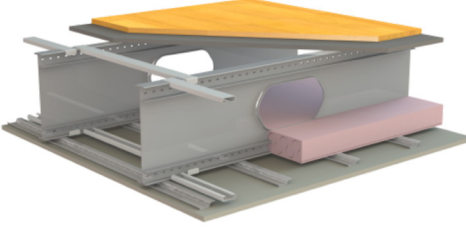
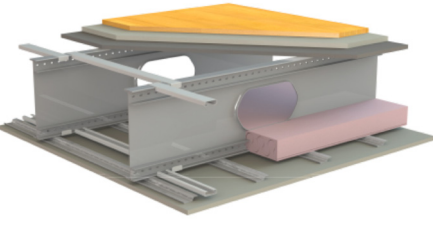
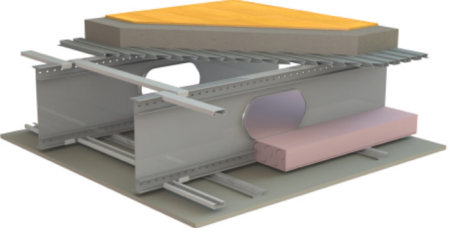
## LAMINATE & HARDWOOD FINISH COMBUSTIBLE OPTIONS

		Assembly and Approval Designation	Assembly Breakdown	FFR	STC	IIC
1LH	Basic Plywood	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Plywood / OSB Sheathed</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>None</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Laminate Flooring</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	53 <sup>2</sup>	44 <sup>2</sup>
			<ul style="list-style-type: none"> <li>With 7 mm Cork Underpad Below Finished Flooring</li> </ul>		55 <sup>2</sup>	50 <sup>2</sup>
2LH	Plywood & Gypsum Concrete	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Plywood / OSB Sheathed</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>1" Gypsum Concrete</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>6 mm Cork Underpad</li> <li>Laminate Flooring</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	54 <sup>2</sup>	53 <sup>2</sup>
3LH	Plywood & Gypsum Concrete	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Plywood / OSB Sheathed</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>1-1/2" Gypsum Concrete</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Laminate Flooring</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type X Gypsum Board</li> </ul>	1 HR	63 <sup>3</sup>	53 <sup>3</sup>
4LH	Plywood, Gypsum Concrete & Acousti-Mat I	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Plywood / OSB Sheathed</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>Acousti-Mat I</li> <li>3/4" Gypsum Concrete</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Laminate Flooring</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	58 <sup>2</sup>	54 <sup>2</sup>
5LH	Plywood, Gypsum Concrete & Acousti-Mat II	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Plywood / OSB Sheathed</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>Acousti-Mat II</li> <li>1" Gypsum Concrete</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Laminate Flooring</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type X Gypsum Board</li> </ul>	1 HR	59 <sup>2</sup>	53 <sup>2</sup>

<sup>1</sup> Denotes values based on lab tests    <sup>2</sup> Denotes values based on field tests    <sup>3</sup> Denotes values based on opinion

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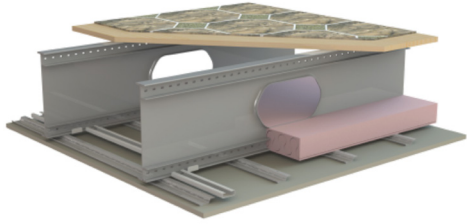
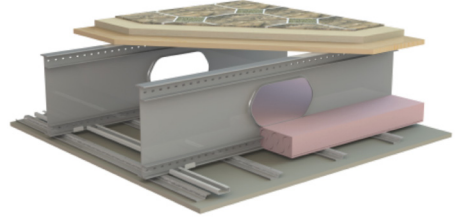
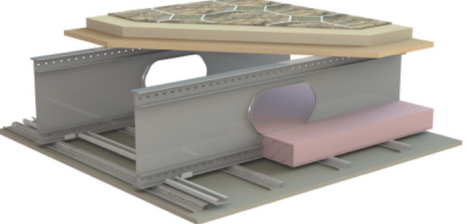
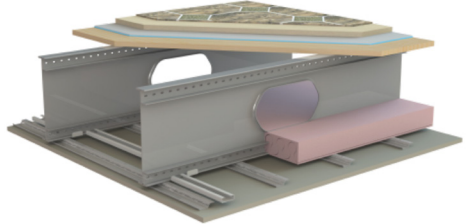
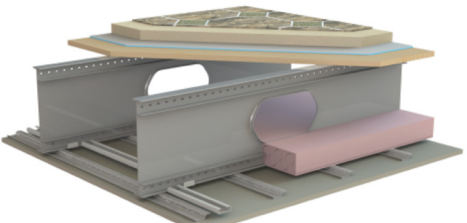
## LAMINATE & HARDWOOD FINISH NON-COMBUSTIBLE OPTIONS

		Assembly and Approval Designation	Assembly Breakdown	FFR	STC	IIC
6LH	Steel Deck & Gypsum	Unrestrained UL G587 / ULC I530 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>TotalDeck™</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>1" Gypsum Concrete Above Deck (Total 1-11/16")</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Laminate or Hardwood</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1.5 HR	59 <sup>3</sup>	46 <sup>3</sup>
		Restrained UL G587 / ULC I530 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>TotalDeck™</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>1" Gypsum Concrete Above Deck (Total 1-11/16")</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Laminate or Hardwood</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	2 HR	59 <sup>3</sup>	46 <sup>3</sup>
8LH	Cement Board	Unrestrained UL G558 / ULC I526 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Cement Board</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>None</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Laminate or Hardwood</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-5/8" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	60 <sup>1</sup>	45 <sup>1</sup>
		Unrestrained UL G562 / ULC I527 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Cement Fibre Board</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>3/4" Gypsum Concrete</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Laminate or Hardwood</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-5/8" Fiberglass Batts</li> <li>Resilient Channel</li> <li>2 Layers 5/8" Type C Gypsum Board</li> </ul>	2 HR	63 <sup>3</sup>	45 <sup>3</sup>
10LH	Steel Deck & Concrete	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>TotalDeck™</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>2-1/4" Concrete Above Deck (Total 3")</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Laminate or Hardwood</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3" Fiberglass Batts</li> <li>Hat Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	2 HR	61 <sup>3</sup>	49 <sup>3</sup>

<sup>1</sup> Denotes values based on lab tests    <sup>2</sup> Denotes values based on field tests    <sup>3</sup> Denotes values based on opinion

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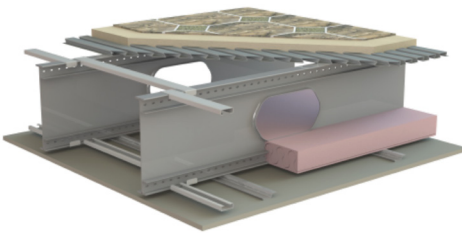
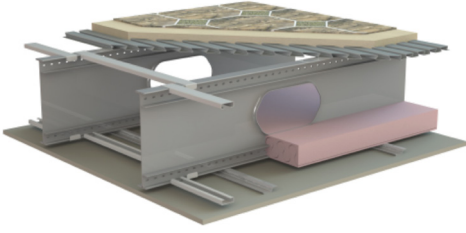
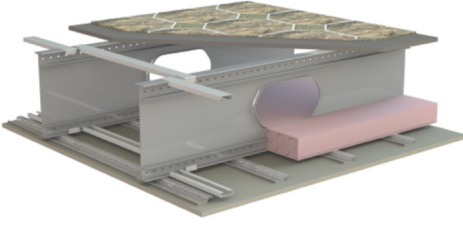
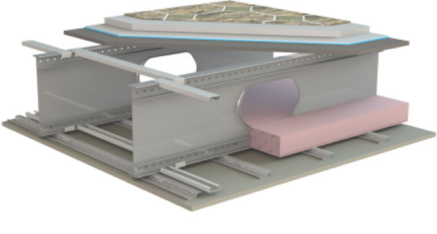
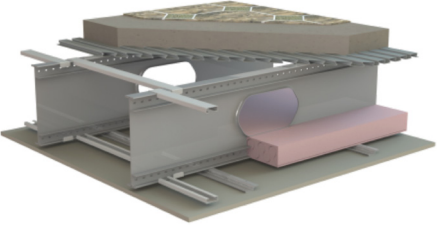
## CERAMIC TILE FINISH COMBUSTIBLE OPTIONS

		Assembly and Approval Designation	Assembly Breakdown	FFR	STC	IIC
1CT	Basic Plywood	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Plywood / OSB Sheathed</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>None</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Ceramic Tile</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	57 <sup>1</sup>	45 <sup>1</sup>
			<ul style="list-style-type: none"> <li>With 5 mm Rubber Underpad Below Finished Flooring</li> </ul>		58 <sup>2</sup>	45 <sup>2</sup>
2CT	Plywood & Gypsum Concrete	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Plywood / OSB Sheathed</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>1" Gypsum Concrete</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>6 mm Cork Underpad</li> <li>Ceramic Tile</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	54 <sup>2</sup>	52 <sup>2</sup>
			<ul style="list-style-type: none"> <li>With 5 mm Rubber Underpad Below Finished Flooring</li> </ul>			
3CT	Plywood & Gypsum Concrete	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Plywood / OSB Sheathed</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>1-1/2" Gypsum Concrete</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Ceramic Tile</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	63 <sup>3</sup>	45 <sup>3</sup>
			<ul style="list-style-type: none"> <li>With 5 mm Rubber Underpad Below Finished Flooring</li> </ul>			
4CT	Plywood, Gypsum Concrete & Acousti-Mat I	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Plywood / OSB Sheathed</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>Acousti-Mat I</li> <li>3/4" Gypsum Concrete</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Ceramic Tile</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	58 <sup>2</sup>	49 <sup>2</sup>
			<ul style="list-style-type: none"> <li>With 5 mm Rubber Underpad Below Finished Flooring</li> </ul>			
5CT	Plywood, Gypsum Concrete & Acousti-Mat II	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Plywood / OSB Sheathed</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>Acousti-Mat II</li> <li>1" Gypsum Concrete</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Ceramic Tile</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	59 <sup>2</sup>	49 <sup>2</sup>
			<ul style="list-style-type: none"> <li>With 5 mm Rubber Underpad Below Finished Flooring</li> </ul>			

<sup>1</sup> Denotes values based on lab tests    <sup>2</sup> Denotes values based on field tests    <sup>3</sup> Denotes values based on opinion

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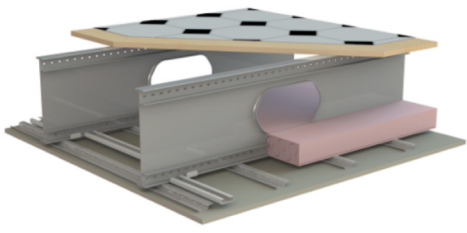
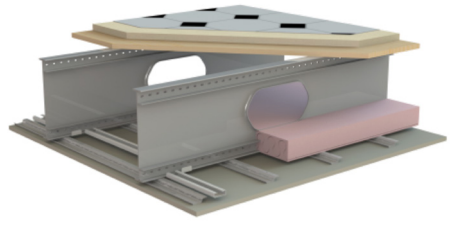
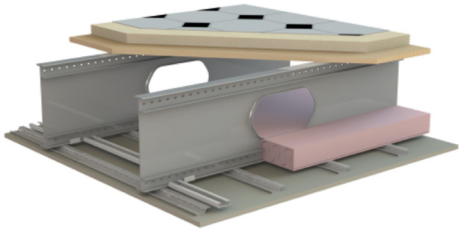
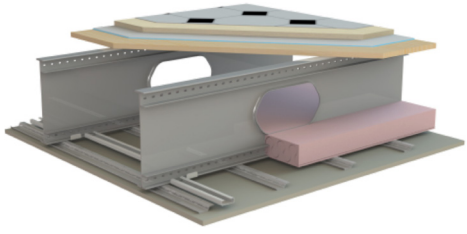
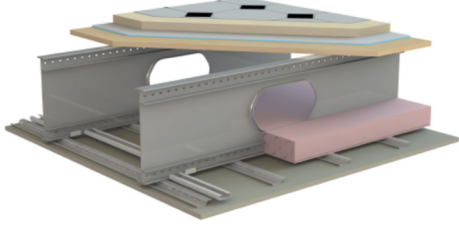
## CERAMIC TILE FINISH NON-COMBUSTIBLE OPTIONS

	Assembly and Approval Designation	Assembly Breakdown	FFR	STC	IIC
6CT	Unrestrained UL G587 / ULC I530 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>TotalDeck™</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>1" Gypsum Concrete Above Deck (Total 1-11/16")</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Tile</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1.5 HR	62 <sup>3</sup>	42 <sup>3</sup>
7CT	Restrained UL G587 / ULC I530 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>TotalDeck™</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>1" Gypsum Concrete Above Deck (Total 1-11/16")</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Tile</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-1/2" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	2 HR	62 <sup>3</sup>	42 <sup>3</sup>
8CT	Unrestrained UL G558 / ULC I526 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Cement Fibre Board</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>None</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Tile</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-5/8" Fiberglass Batts</li> <li>Resilient Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	1 HR	58 <sup>3</sup>	34 <sup>3</sup>
9CT	Unrestrained UL G562 / ULC I527 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>3/4" Cement Fibre Board</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>3/4" Gypsum Concrete</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Tile</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3-5/8" Fiberglass Batts</li> <li>Resilient Channel</li> <li>2 Layers 5/8" Type C Gypsum Board</li> </ul>	2 HR	61 <sup>1</sup>	38 <sup>1</sup>
10CT	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> <ul style="list-style-type: none"> <li>TotalJoist™</li> <li>TotalDeck™</li> </ul> <b>Topping:</b> <ul style="list-style-type: none"> <li>2-1/4" Concrete Above Deck (Total 3")</li> </ul> <b>Finished Floor:</b> <ul style="list-style-type: none"> <li>Tile</li> </ul> <b>Ceiling:</b> <ul style="list-style-type: none"> <li>3" Fiberglass Batts</li> <li>Hat Channel</li> <li>5/8" Type C Gypsum Board</li> </ul>	2 HR	64 <sup>3</sup>	38 <sup>3</sup>

<sup>1</sup> Denotes values based on lab tests    <sup>2</sup> Denotes values based on field tests    <sup>3</sup> Denotes values based on opinion

# FIRE & ACOUSTIC GUIDE

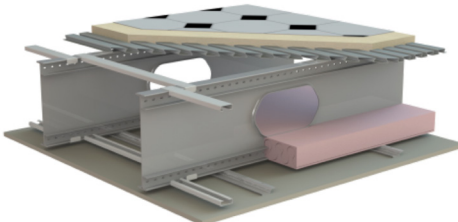
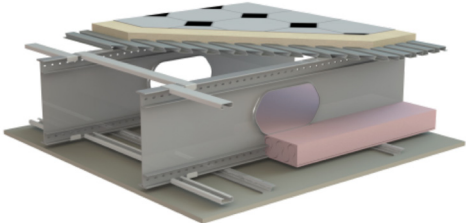
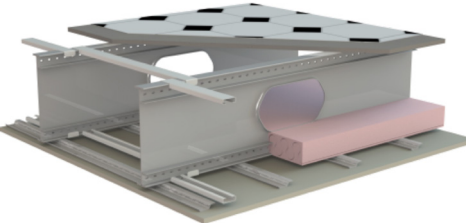
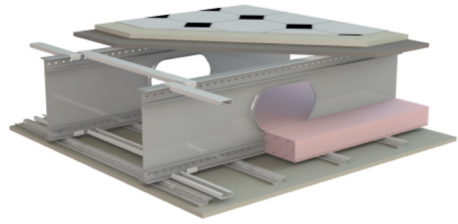
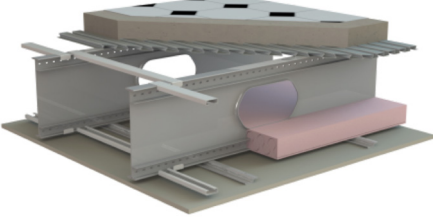
## VINYL FINISH COMBUSTIBLE OPTIONS

	Assembly and Approval Designation	Assembly Breakdown	FFR	STC	IIC
1V	Unrestrained <b>Basic Plywood</b>  UL M515 / ULC M521	<b>Structure:</b> • TotalJoist™ • 3/4" Plywood / OSB Sheathed <b>Topping:</b> • None <b>Finished Floor:</b> • Vinyl <b>Ceiling:</b> • 3-1/2" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	50 <sup>1</sup>	40 <sup>1</sup>
2V	Unrestrained <b>Plywood &amp; Gypsum Concrete</b>  UL M515 / ULC M521	<b>Structure:</b> • TotalJoist™ • 3/4" Plywood / OSB Sheathed <b>Topping:</b> • 1" Gypsum Concrete <b>Finished Floor:</b> • Vinyl <b>Ceiling:</b> • 3-1/2" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	54 <sup>2</sup>	45 <sup>2</sup>
		• With 6 mm Cork Underpad Below Finished Flooring		54 <sup>2</sup>	50 <sup>2</sup>
3V	Unrestrained <b>Plywood &amp; Gypsum Concrete</b>  UL M515 / ULC M521	<b>Structure:</b> • TotalJoist™ • 3/4" Plywood / OSB Sheathed <b>Topping:</b> • 1-1/2" Gypsum Concrete <b>Finished Floor:</b> • Vinyl <b>Ceiling:</b> • 3-1/2" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	63 <sup>3</sup>	50 <sup>3</sup>
4V	Unrestrained <b>Plywood, Gypsum Concrete &amp; Acousti-Mat I</b>  UL M515 / ULC M521	<b>Structure:</b> • TotalJoist™ • 3/4" Plywood / OSB Sheathed <b>Topping:</b> • Acousti-Mat I • 3/4" Gypsum Concrete <b>Finished Floor:</b> • Vinyl <b>Ceiling:</b> • 3-1/2" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	58 <sup>2</sup>	53 <sup>2</sup>
5V	Unrestrained <b>Plywood, Gypsum Concrete &amp; Acousti-Mat II</b>  UL M515 / ULC M521	<b>Structure:</b> • TotalJoist™ • 3/4" Plywood / OSB Sheathed <b>Topping:</b> • Acousti-Mat II • 1" Gypsum Based Concrete <b>Finished Floor:</b> • Vinyl <b>Ceiling:</b> • 3-1/2" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	59 <sup>2</sup>	52 <sup>2</sup>

<sup>1</sup> Denotes values based on lab tests    <sup>2</sup> Denotes values based on field tests    <sup>3</sup> Denotes values based on opinion

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## VINYL FINISH NON-COMBUSTIBLE OPTIONS

	Assembly and Approval Designation	Assembly Breakdown	FFR	STC	IIC
6V	Unrestrained UL G587 / ULC I530 	<b>Structure:</b> • TotalJoist™ • TotalDeck™ <b>Topping:</b> • 1" Gypsum Concrete Above Deck (Total 1-11/16") <b>Finished Floor:</b> • Vinyl <b>Ceiling:</b> • 3-1/2" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	1.5 HR	61 <sup>3</sup>	41 <sup>3</sup>
7V	Restrained UL G587 / ULC I530 	<b>Structure:</b> • TotalJoist™ • TotalDeck™ <b>Topping:</b> • 1" Gypsum Concrete Above Deck (Total 1-11/16") <b>Finished Floor:</b> • Vinyl <b>Ceiling:</b> • 3-1/2" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	2 HR	61 <sup>3</sup>	41 <sup>3</sup>
8V	Unrestrained UL G558 / ULC I526 	<b>Structure:</b> • TotalJoist™ • 3/4" Cement Fibre Board <b>Topping:</b> • None <b>Finished Floor:</b> • Vinyl <b>Ceiling:</b> • 3-5/8" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	1 HR	56 <sup>3</sup>	41 <sup>3</sup>
9V	Unrestrained UL G562 / ULC I527 	<b>Structure:</b> • TotalJoist™ • 3/4" Cement Fibre Board <b>Topping:</b> • 3/4" Gypsum Concrete <b>Finished Floor:</b> • Vinyl <b>Ceiling:</b> • 3-5/8" Fiberglass Batts • Resilient Channel • 5/8" Type C Gypsum Board	2 HR	59 <sup>3</sup>	41 <sup>3</sup>
10V	Unrestrained UL M515 / ULC M521 	<b>Structure:</b> • TotalJoist™ • TotalDeck™ <b>Topping:</b> • 2-1/4" Concrete Above Deck (Total 3") <b>Finished Floor:</b> • Vinyl <b>Ceiling:</b> • 3" Fiberglass Batts • Hat Channel • 5/8" Type C Gypsum Board	2 HR	62 <sup>3</sup>	38 <sup>3</sup>

<sup>1</sup> Denotes values based on lab tests    <sup>2</sup> Denotes values based on field tests    <sup>3</sup> Denotes values based on opinion

# FIRE & ACOUSTIC GUIDE

## NOTES

The acoustic ratings are based on various finished floors. Finished floors can be applied to TOTALJOIST Rated Floor Systems in the same way that they are applied in traditional floors.

There are several methods to install wood flooring products over the TOTALJOIST Floor Systems:

- For installation over Maxxon Gyp-Crete underlayment (see [www.maxxon.com](http://www.maxxon.com)), refer to *Procedures for Attaching Finished Floor Good to Maxxon Underlayments*.
- For installation over plywood or Fortacrete board, refer to the instructions published by The Wood Flooring Manufacturers Association at [www.nofma.org](http://www.nofma.org).

There are also several methods to install ceramic tile on TOTALJOIST Floor Systems. For guidance, refer to the *2009 TCA Handbook for Ceramic Tile Installation* published by The Tile Council of North America, Inc. Visit their website at [www.tileusa.com](http://www.tileusa.com). Inside you will find many approved installation systems suitable for the iSPAN Floor Systems.