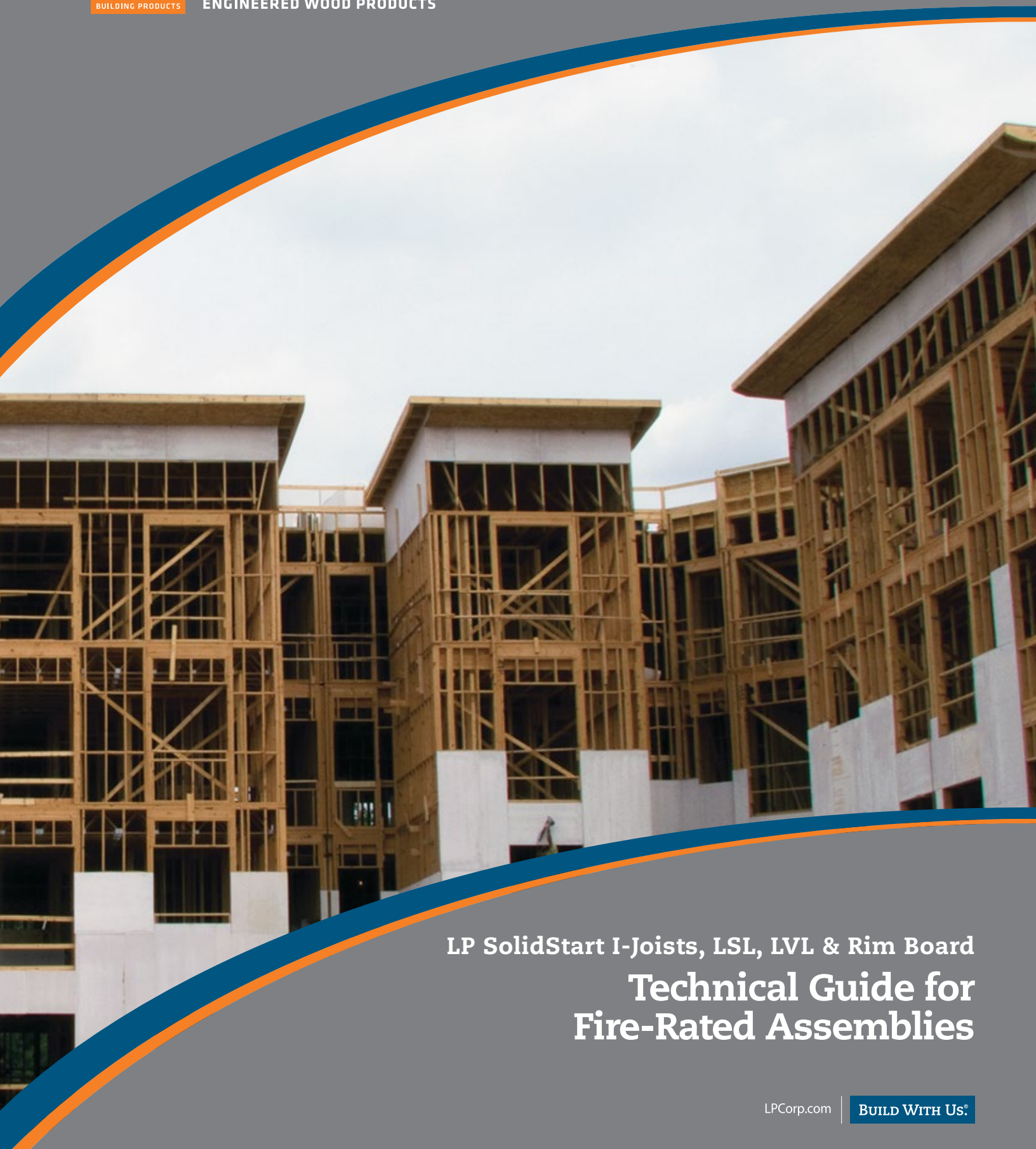
LP SolidStart®
ENGINEERED WOOD PRODUCTS

U.S. Technical Guide



LP SolidStart I-Joists, LSL, LVL & Rim Board

Technical Guide for Fire-Rated Assemblies

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Please verify availability with the LP SolidStart Engineered Wood Products distributor in your area prior to specifying these products.

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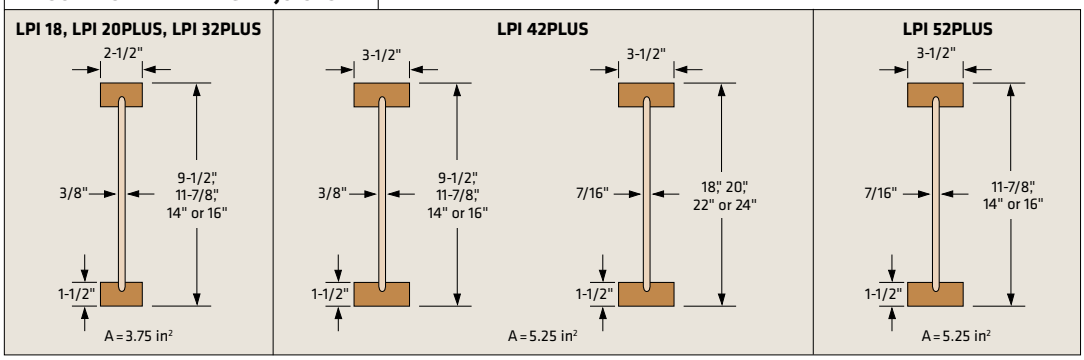
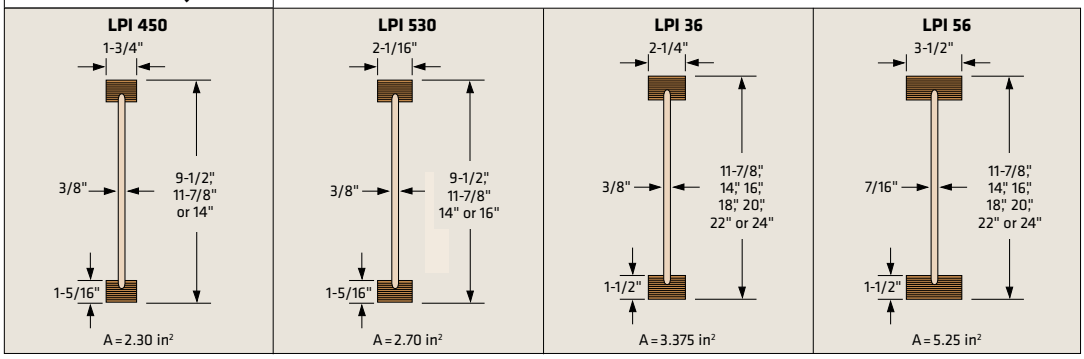
LP SolidStart I-Joist Product Specifications

LP SOLID SAWN FLANGE I-JOISTS



LP LVL FLANGE I-JOISTS



Where A = the cross-sectional area of a flange

Q. What is a fire-resistance rating?

A. A fire-resistance rating refers to the period of time an assembly is able to contain a fire and perform its intended structural function. These ratings are determined by subjecting an assembly to a standard fire exposure as defined in ASTM E119. Commonly designated as one-hour or two-hour, these ratings provide a standardized means for comparing assemblies and are not intended to reflect performance under any other condition.

Q. What is the fire-resistance rating of an individual wood member?

A. Except for large, timber-size wood members, fire-resistance ratings are usually assigned to an assembly, not to an individual wood member. For more information on determining the fire-resistance of large wood members, please refer to Section 722.6.3 of the 2012 IBC.

Q. Can the fire-resistance rating of an assembly be calculated?

A. Yes. For rectangular sections such as LSL and LVL used as joists or studs in floor, roof and wall assemblies, Section 722.6 of the 2012 IBC provides a method for adding the time assigned to the individual components of an assembly. This Component Additive Method (CAM) is limited to a maximum of one hour for the IBC.

Q. What is fire-retardant-treated (FRT) wood?

A. FRT refers to wood that has been impregnated with a chemical to reduce surface-burning characteristics, as defined in Section 2303.2 of the 2012 IBC.

Q. Can LP products be treated or coated with fire retardant?

A. LP has not tested any third-party treatments or coatings to verify their claims. The third-party is solely responsible for the performance of their products. LP assumes no liability for claims made by third-parties. Refer to the LP engineered wood products warranty.

LP does not recommend pressure treatment of its products.

Q. Can I get a copy of your fire test report?

A. LP's proprietary fire-resistance-rated assemblies can be found in ICC-ES evaluation reports ESR-1305 for LP I-Joist floor/ceiling assemblies and ESR-2403 for LP LSL and LVL wall assemblies. Please visit: http://www.icc-es.org.

LP also maintains listings with Intertek, an accredited third-party agency. These listings can be found at: https://whdirectory.intertek.com.

Q. Can one fire-resistant-rated assembly be substituted for another?

A. An assembly is typically specified by the architect or the engineer of the project. While it may be possible to substitute assemblies with equivalent fire-resistance ratings, any substitution must be approved by the specifier due to potential differences in construction (for example, one layer of gypsum wallboard versus two layers).

Q. Can Type C gypsum wallboard be substituted for Type X?

A. Type C of equivalent or greater thickness can replace Type X in a fire-resistance-rated assembly. However, the opposite is not true: Type X cannot be substituted for Type C unless demonstrated through fire assembly test. "Type X" refers to gypsum wallboard meeting special fire-resistance criteria defined in ASTM C1396 Standard Specification for Gypsum Board. While not specifically recognized in ASTM C1396, "Type C" has become a common nickname for proprietary gypsum wallboard that exceeds the fire-resistance requirements of Type X. The Gypsum Association describes this "Improved Type X" as "specially-formulated gypsum board, meeting all the requirements of Type X gypsum board, with additional properties to further enhance the fire-resistive characteristics of the use of the product in some proprietary systems."

References

American Wood Council (AWC)
http://www.awc.org

- Design for Code Acceptance:
  - DCA 1 – Flame Spread Performance of Wood Products
  - DCA 2 – Design of Fire-Resistive Exposed Wood Members
  - DCA 3 – Fire Rated Wood-Frame Wall and Floor/ Ceiling Assemblies
  - DCA 4 – Component Additive Method (CAM) for Calculating and Demonstrating Assembly Fire Endurance
- Chapter 16 of the 2012 National Design Specification for Wood Construction (2012 NDS) – Fire Design of Wood Members
- TR 10 – Calculating the Fire Resistance of Exposed Wood Members

APA - The Engineered Wood Association (APA)
http://www.apawood.org

- TT-015 – Wood I-Joist Floors, Firefighters and Fire
- W305 – Fire-Rated Systems
- J745 – Sprinkler Pipe Installation for APA Performance Rated I-Joists
- H730 – Sprinkler Installation for APA Performance Rated I-Joists
- D350 – APA Rim Board® in Fire Rated Assemblies
- W460 – Noise-Rated Systems

Gypsum Association (GA)
http://www.gypsum.org

- GA-600-12 – Fire Resistance Design Manual

International Code Council (ICC)
http://www.iccsafe.org

- Chapter 7 of the IBC – Fire and Smoke Protection Features
- Section R302 of the IRC – Fire-Resistant Construction
- Section P2904 of the IRC – Dwelling Unit Fire Sprinkler Systems

National Fire Protection Association (NFPA)
http://www.nfpa.org

- Fire Protection Handbook
- NFPA 1 – Fire Code
- NFPA 13 – Automatic Sprinkler Systems Handbook
- NFPA 13 – Standard for the Installation of Sprinkler Systems

NOTE: LP SolidStart LVL was previously branded as Gang-Lam LVL.

Fire-Resistance Design and Equivalencies

FIRE RESISTANCE OF EXPOSED WOOD MEMBERS

Large timber-sized, wood members exposed to fire can be assigned a fire-resistance rating in accordance Section 722.6.3 of the 2012 IBC. While this originally applied to solid wood and glulam beams and columns with a minimum dimension of 6" nominal or greater, tests on structural composite lumber (LSL, LVL and PSL) have demonstrated equivalent char rates making these methods applicable to LP LSL and LVL with a minimum dimension of 5-1/4". Due to the charring that occurs during exposure to fire, the residual capacity of the member must be determined in accordance with Chapter 16 of the NDS to account for the loss of section. The calculated fire resistance is valid only for single-ply members or LP's glue-laminated "billet" beams, and does not apply to mechanically built-up sections.

CONVENTIONAL LIGHT-FRAME WALL CONSTRUCTION

LP SolidStart LSL and LVL may be used as direct replacements for non-fire-retardant treated sawn lumber studs of equivalent-sized No.2 or lower grades in the prescriptive 1-hour fire-resistance-rated wall assemblies listed in Table 721.1(2) of the 2012 IBC, with the additions of wall cavity insulation and finish systems specified in assembly W60-S.1 on page 5 of this document.

PRESCRIPTIVE FIRE-RESISTANCE-RATED FLOOR AND ROOF ASSEMBLIES

LP LSL having a grade of 1.35E or greater, and LP LVL having a grade of 1.5E or greater, can directly replace non-fire-retardant-treated sawn lumber of equivalent size in the assemblies listed in Table 721.1(3) of the 2012 IBC.

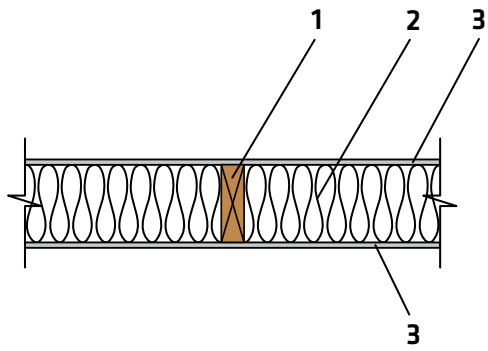
2012 IRC: FIRE PROTECTION OF FLOORS

LP LSL having a grade of 1.35E or greater, and LP LVL having a grade of 1.5E or greater, with minimum thickness of 1-1/2" and depth of 9-1/4" are equivalent to lumber floor joists and therefore do not require membrane protection in accordance with Exception 4 of Section R501.3 of the 2012 IRC.

FIREBLOCKING

LP LSL or LP LVL having a minimum thickness of 1-1/4" can be used as an alternate to 2x lumber fireblocking, and LP LSL, LP LVL or LP OSB Rim Board having a minimum thickness of 1" can be used as an alternate to 23/32" wood structural panel fireblocking, provided the joints are backed accordingly (Section 718.2 of the 2012 IBC, and Section R302.11.1 of the 2012 IRC).

W60-S.1



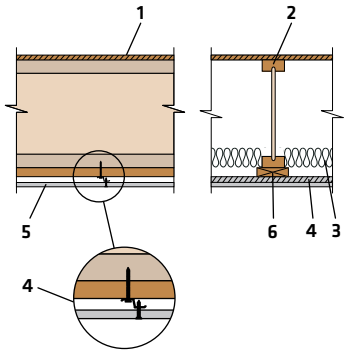
ONE-HOUR ENGINEERED, LOAD-BEARING WALL ASSEMBLY		
Assembly		**W60-S.1**
1. Wall Studs	Grade (min.)	1.35E LP SolidStart LSL or 1.5E LVL
	Thickness (min.)	1-1/2"
	Depth (min.)	3-1/2"
	Spacing (max.)	24" o.c.
2. Insulation	Type/Installation	Mineral wool placed in each stud cavity
	Density (min.)	2.5 pcf
3. Gypsum Wallboard	Thickness & Type	5/8" Type X
	Attachment	2-1/4" Type S drywall screws
	– Spacing	7" o.c. along each stud
	– Edge distance	1"
	Finish system (not shown)	Wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound
References	LP	Intertek Listing LP/MWP 60-01 ICC-ES ESR-2403 Section 4.5.4(2)
	IBC	N/A
	DCA 3	N/A

NOTES:

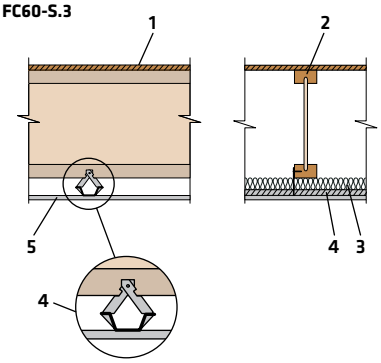
1. The design for studs must not exceed the bearing capacity of the wall plate and the axial compression stress must not exceed the following:
   a. 440 psi for LSL, and 550 psi for LVL
   b. 0.77 F_c' for LSL, and 0.63 F_c' for LVL
   Where: F_c' is the compression design value parallel to grain, adjusted by all applicable adjustment factors in accordance with the NDS, including the Column Stability Factor C_p
   c. 0.77 F_c' for LSL, and 0.63 F_c' for LVL
   Where: F_c' is the compression design value parallel to grain, adjusted by all applicable adjustment factors in accordance with the NDS, and C_p is evaluated at a slenderness ratio of 33

Fire-Rated Floor/Ceiling Assembly: One-Hour, Single Layer

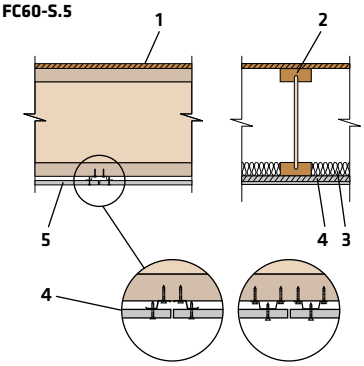
FC60-S.1



FC60-S.2
FC60-S.3



FC60-S.4
FC60-S.5



ONE-HOUR SINGLE LAYER FLOOR/CEILING ASSEMBLIES[1]

Assembly		FC60-S.1	FC60-S.2	FC60-S.3	FC60-S.4	FC60-S.5
1. Floor Sheathing[2]		23/32" T & G wood structural panel, glued and nailed				
2. LP I-Joist	Series	All	18, 20Plus, 32Plus, 36, 42Plus, 52Plus, 56	18, 20Plus, 32Plus, 42Plus, 52Plus, 56	42Plus, 52Plus and 56	42Plus (where d > 16"), 52Plus and 56
	Depth (min.)	9-1/4"	11-1/4"	9-1/4"	9-1/4"	9-1/4"
	Flange depth (min.)	1-5/16"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
	Flange area (min.)	2.25 in^2	2.25 in^2	3.45 in^2	5.25 in^2	5.25 in^2
	Web thickness (min.)	3/8"	3/8"	3/8"	3/8"	7/16"
	Spacing (max.)	24" o.c.	24" o.c.	24" o.c.	24" o.c.	24" o.c.
3. Insulation	Type/ Installation	Mineral wool batts supported by setting strips	Mineral wool batts below bottom flanges and supported by channels	Mineral wool batts below bottom flanges and supported by channels	Mineral wool batts supported by channels	Mineral wool batts supported by channels
	Thickness (min.)	2"	1"	1"	1-1/2"	1-1/2"
	Density (min.)	3.5 pcf	9 pcf	6 pcf	2.5 pcf	2.5 pcf
4. Channels[3]	Galvanized steel type	1/2" deep single leg/ 0.019" thick resilient	No. 26 gauge x 0.838" x 2.636" resilient, supported by CSC clips	0.019" thick hat-shaped supported by CSC clips	0.026" thick hat-shaped doubled at board end joints	0.019" thick resilient doubled at board end joints
	Spacing	16" o.c.	24" o.c.	24" o.c.	16" o.c.	16" o.c.
	Attachment	1-7/8" Type S drywall screw per joist	Simpson CSC clips nailed to side of flange with 6d or 8d common nail	Simpson CSC clips nailed to side of flange with 1-1/2" No. 11 gauge nail	1-5/8" Type S drywall screw per joist	1-5/8" Type S drywall screw per joist
	Tee Section (not shown)[4]		No. 20 gauge x 1-7/8" wide x 1-1/2" short leg attached to channels with one 1" Type S			
5. Gypsum Wallboard[5]	Thickness & Type	5/8" Type C	5/8" Type C	1/2" Type C	5/8" Type C	5/8" Type C
	Attachment (drywall screw)	1-1/8" Type S to channels	1" Type S to channels	1" Type S to channels	1-1/8" Type S to channels	1" Type S to channels
	– Field spacing	7" o.c.	8" o.c. to furring channel	12" o.c.	12" o.c.	12" o.c.
	– Spacing along end and edge of panel	7" o.c.	8" o.c. to furring channel and tee section	6" o.c.	8" o.c.	8" o.c.
	– End/edge distance	3/4"	3/4"	3/4"	3/4"	3/4"
	Finish system (not shown)	Wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound	Optional	Wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound		
6. Wood Setting Strips		1" x 4" attached to bottom flange with 1-1/2" drywall screw at 24" o.c.	none	none	none	none
References	LP		Intertek Listing LP/FCA 60-02(b) (FC-458) ICC-ES ESR-1305 Fig. 4 in Section 4.8			
	IBC[6]	Item No. 23-1.1			Item No. 24-1.1	Item No. 25-1.1
	DCA 3	WIJ-1.3		WIJ-1.4	WIJ-1.1	WIJ-1.2

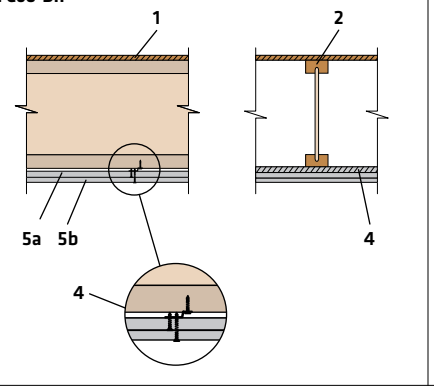
Sound & Impact Rating		STC	IIC	STC	IIC	STC	IIC	STC	IIC	STC	IIC
Without Gypsum	Cushioned Vinyl	51[7]	46[7]	46	40	-	-	-	-	51[7]	46[7]
	Carpet & Pad	52	66	46	68	46	68	-	-	51[7]	64[7]
With Gypsum	Cushioned Vinyl	60[7]	48[7]	51	47	51	47	-	-	60[7]	50[7]
	Carpet & Pad	60[7]	60[7]	50	73	50	73	49[7]	59[7]	60[7]	65[7]

NOTES:

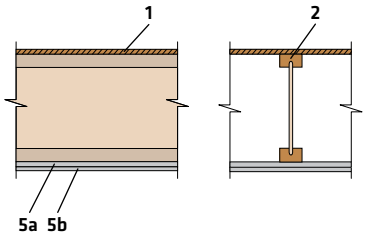
1. Floor/Ceiling assemblies may also be used in a fire-rated Roof/Ceiling application provided they are constructed per specified minimum requirements, except 15/32" square edge panels may be substituted for specified subfloor sheathing.
2. Floor topping such as gypsum, lightweight or normal concrete when present provides better sound and impact rating for the assembly.
3. Resilient or hat-shaped channels are installed perpendicular to I-Joists.
4. Tee sections when present are installed perpendicular to channels at board joint edges.
5. Gypsum wallboard are installed perpendicular to I-Joist, or perpendicular to channels when present.
6. IBC 2012 Table 721.1(3)
7. STC and IIC values estimated by David L. Adams Associates, Inc.

Fire-Rated Floor/Ceiling Assembly: One-Hour, Double Layer

FC60-D.1



FC60-D.2, FC60-D.3, FC60-D.4, FC60-D.5



ONE-HOUR DOUBLE LAYER FLOOR/CEILING ASSEMBLIES[1]

Assembly			FC60-D.1	FC60-D.2	FC60-D.3	FC60-D.4	FC60-D.5
1. Floor Sheathing[2]			23/32" T & G wood structural panel, nailed	23/32" T & G wood structural panel, nailed	23/32" T & G wood structural panel, nailed	23/32" wood structural panel, glued and nailed	1/2" wood structural panel, glued and nailed
2. LP I-Joist	Series		All	18, 20Plus, 32Plus, 36, 42Plus, 52Plus, 56		18, 20Plus, 32Plus, 36, 42Plus, 52Plus, 56	All
	Depth (min.)		9-1/2"	9-1/4"	9-1/4"	9-1/2"	No flange, web and depth requirement
	Flange Depth (min.)		1-5/16"	1-1/2"	1-1/2"	1-1/2"	
	Flange Area (min.)		1.95 in²	2.25 in²	2.25 in²	2.25 in²	
	Web Thickness (min.)		3/8"	3/8"	3/8"	3/8"	
	Spacing (max.)		24" o.c.	24" o.c.	24" o.c.	24" o.c.	24" o.c.
3. Insulation			none	none	none	Optional – 3-1/2" unfaced fiberglass for sound control only	none
4. Channels[3]	Galvanized Steel Type		0.019" thick resilient channels	none	none	Optional – resilient channels installed for sound control only	none
	Spacing		16" o.c.			16" o.c.	
	Attachment		1-5/8" Type S drywall screw per joist[4]				
5. Gypsum Wallboard[5]	5a	Base Layer Thickness (min.) & Type	1/2" Type X	1/2" Type X	1/2" Type C	1/2" Type X	5/8" Type X
		Attachment to joist/ channel (drywall screw)	To channels with 1-1/4" Type S at 12" o.c.	1-5/8" Type S at 12" o.c.	1" Type S at 12" o.c.	1-5/8" Type W at 12" o.c.	1-1/4" Type S or Type W at 24" o.c.
	5b	Face Layer Thickness (min.) & Type	1/2" Type X	1/2" Type X	1/2" Type C	1/2" Type X	5/8" Type X or veneer base
		Attachment to joist/channel (drywall screw)	1-5/8" Type S at 12" o.c. to channels through base layer	2" Type S at 12" in field, 8" o.c. at edges to bottom flange through base layer	1-5/8" Type S at 12" o.c. to bottom flange through base layer on intermediate joists and 8" o.c. at end joints.	2-1/4" Type W 12" o.c. to bottom flange or channels when installed	1-7/8" Type S or Type W at 12" o.c. at joints and intermediate joist
		Attachment to base layer (drywall screw)	1-1/2" Type G screw at 8" o.c. at 1-1/2" from face layer end joints	1-1/2" Type G screw at 8" o.c. at 6" from face layer end joints.	1-1/2" Type G screw at 8" o.c., 6" from end, staggered at 4"	1-1/2" Type G screw at 8" o.c.and 6" from each end joint	1-1/2" Type G screw at 12" o.c.
		Finish system (not shown)	Wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound				
References	LP					Intertek Listing LP/FCA 60-01 (FC-477) ICC-ES ESR-1305 Fig. 3 in Section 4.8	
	IBC[6]		Item No. 27-1.1	Item No. 26-1.1			Item No. 21-1.1
	DCA 3		WIJ-1.6		WIJ-1.5		

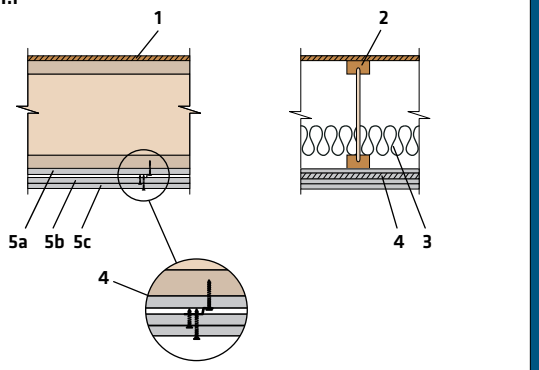
Sound & Impact Rating		With Channels			Without Channels		Without Channels		With Channels	
		STC	IIC		STC	IIC	STC	IIC	STC	IIC
Without Gypsum	Cushioned Vinyl	-	-		-	-	46	40	50	43
	Carpet & Pad	54	68		-	-	47	68	49	73
With Gypsum	Cushioned Vinyl	-	-		-	-	52	43	53	48
	Carpet & Pad	58[7]	59[7]		49[7]	55[7]	51	72	51	77

NOTES:

1. Floor/Ceiling assemblies may also be used in a fire-rated Roof/Ceiling application provided they are constructed per specified minimum requirements, except 15/32" square edge panels may be substituted for specified subfloor sheathing.
2. Floor topping such as gypsum, lightweight or normal concrete when present provides better sound and impact rating for the assembly.
3. Resilient or hat-shaped channels when present are installed perpendicular to I-Joists with drywall screw.
4. Per IBC requirement. DCA-3 WIJ-1.6 requires 1-1/4" screw length.
5. Gypsum wallboard is installed perpendicular to the I-Joist, or perpendicular to channels when present.
6. IBC 2012 Table 721.1(3)
7. STC and IIC values estimated by David L. Adams Associates, Inc.

Fire-Rated Floor/Ceiling Assembly: Two-Hour, Triple Layer

FC120-T.1



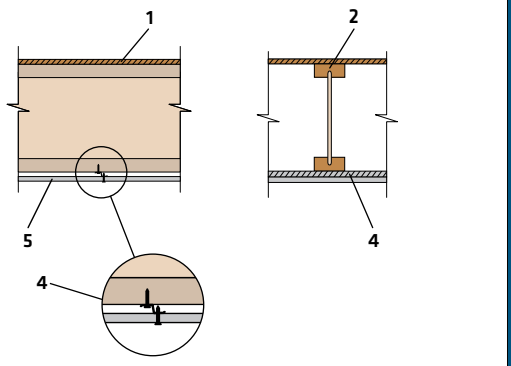
TWO-HOUR TRIPLE LAYER FLOOR/CEILING ASSEMBLY[1]				
Assembly			**FC120-T.1**	
1. Floor Sheathing[2]			23/32" T & G wood structural panel, nailed	
2. LP I-Joist		Series	18, 20Plus, 32Plus, 36, 42Plus, 52Plus, 56	
		Depth (min.)	9-1/4" depth	
		Flange depth (min.)	1-1/2"	
		Flange area (min.)	2.25 in²	
		Web thickness (min.)	3/8"	
		Spacing (max.)	24" o.c.	
3. Insulation			3-1/2" thick (min.) unfaced fiberglass fitted between I-Joists	
4. Channels		Galvanized steel type	0.0179" thick hat-shaped furring channels	
		Spacing	16" o.c.	
		Attachment	To bottom flange through base layer with 1-5/8" drywall screws (furring channels support middle layer and face layer)	
5. Gypsum Wallboard	5a	Base Layer Thickness (min.) & Type	5/8" Type C (installed perpendicular to I-Joists)	
		Attachment to joist (drywall screw)	1-5/8" Type S at 12" o.c. to bottom flange	
	5b	Middle Layer Thickness (min.) & Type	5/8" Type C (installed perpendicular to channels)	
		Attachment to channels (drywall screw)	1" Type S at 12" o.c. to channels	
	5c	Face Layer Thickness (min.) & Type	5/8" Type C (installed perpendicular to channels)	
		Attachment to channels (drywall screw)	1-5/8" Type S at 8" o.c. to channel through middle layer	
		Finish system (not shown)	Wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound	
References		LP	Intertek Listing LP/FCA 120-01, ICC-ES ESR-1305 Fig. 6 in Section 4.8	
		IBC[3]	Item No. 28-1.1	
		DCA 3	WIJ-2.1	
Sound & Impact Rating			**STC**	**IIC**
Without Gypsum		Cushioned Vinyl	-	-
		Carpet & Pad	49[4]	54[4]
With Gypsum		Cushioned Vinyl	52[4]	46[4]
		Carpet & Pad	52[4]	60[4]

NOTES:

1. Floor/Ceiling assemblies may also be used in a fire-rated Roof/Ceiling application provided they are constructed per specified minimum requirements, except 15/32" square edge panels may be substituted for specified subfloor sheathing.
2. Floor topping such as gypsum, lightweight or normal concrete when present provides better sound and impact rating for the assembly.
3. IBC 2012 Table 721.1(3)
4. STC and IIC values estimated by David L. Adams Associates, Inc.

Fire-Rated Floor/Ceiling Assembly: 45-Minute, Single Layer

FC45-S.1

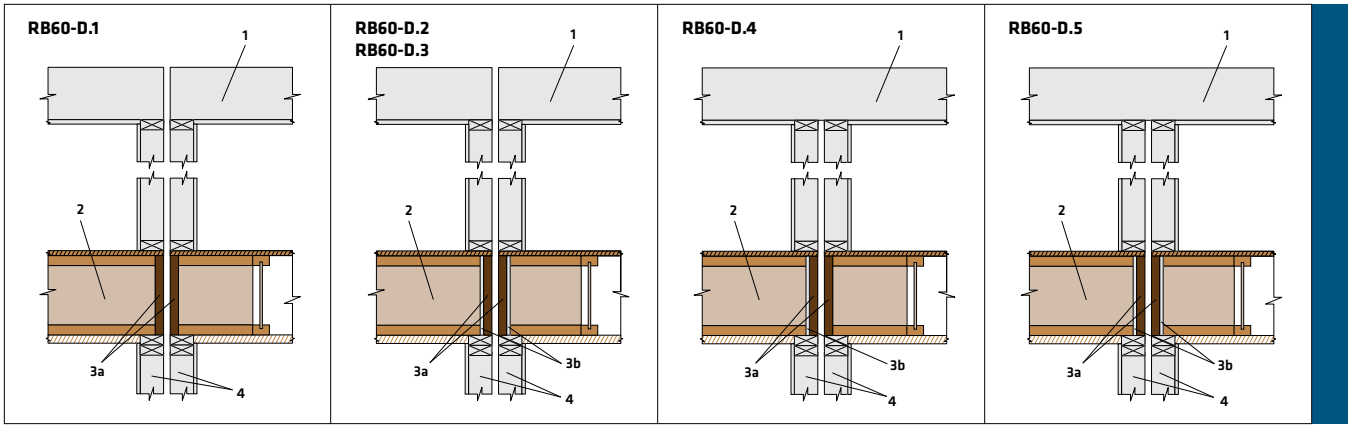


45-MINUTE SINGLE LAYER FLOOR/ CEILING ASSEMBLY[1]			
Assembly		**FC45-S.1**	
1. Floor Sheathing[2]		3/4" T & G wood structural panel or 19/32" for 16" or 19.2" joist spacing	
2. LP I-Joist	Series	18, 20Plus, 32Plus, 36, 42Plus, 52Plus, 56	
	Depth (min.)	9-1/2"	
	Flange depth (min.)	1-1/2"	
	Flange area (min.)	2.625 in^2	
	Web thickness (min.)	3/8"	
	Spacing (max.)	24" o.c.	
3. Insulation		Optional – 3-1/2" thick friction fit between flanges	
4. Channels	Galvanized steel type	Nominal 1/2" offset 24-gauge resilient channels	
	Spacing	16" o.c.	
	Attachment	Perpendicular to bottom flange with 1/2" Type S at joist intersections	
5. Gypsum Wallboard	Thickness (min.) & Type	5/8" Type X (installed perpendicular to channels)	
	Attachment (drywall screw)	1" screws to channels at 8" o.c. in field areas, at 6" o.c. in board edges at 1-1/2" edge distance, 3/4" edge distance	
	Finish system (not shown)	Wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound	
References	LP	Intertek Listing LP/FCA 45-01	
	IBC	N/A	
	DCA 3	N/A	
Sound & Impact Rating		**STC**	**IIC**
Without Gypsum		50	45
With Gypsum		57	-

NOTES:

1. Floor/Ceiling assemblies may also be used in a fire-rated Roof/Ceiling application provided they are constructed per specified minimum requirements, except 15/32" square edge panels may be substituted for specified subfloor sheathing.
2. Floor topping such as gypsum, lightweight or normal concrete when present provides better sound and impact rating for the assembly.

Fire-Rated Rim Board Assembly: One-Hour

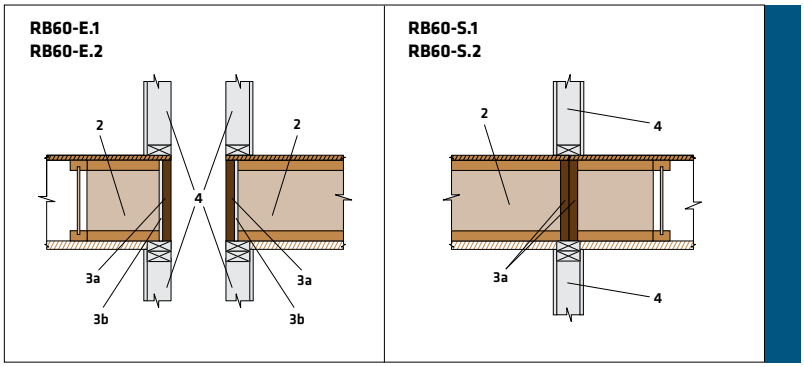


DOUBLE CENTER WALL CONSTRUCTION

Assembly			RB60-D.1	RB60-D.2	RB60-D.3	RB60-D.4	RB60-D.5
1. Upper Level Framing			Non-Continuous			Continuous	
2. Floor/Ceiling Assembly Fire Rating			1-Hour	45-Minute	Unrated, with or without ceiling membrane	Unrated with gypsum board taped and filled	Unrated with no ceiling membrane
3. Rim Board Assembly	3a	Continuous rim board	Min. 1" LP OSB or 1-1/4" LVL or LSL				
	3b	Continuous gypsum wallboard	Not required	1/2" conventional at occupancy sides	5/8" Type X at occupancy sides	1/2" Type X at one cavity side	1/2" conventional at cavity sides (shown) or occupancy sides
		Attachment to rim board		1-1/2" Type W screws at 12" o.c.			
4. Wall Assembly Fire Rating			1-Hour				
References		LP	Intertek Design No. 5	Intertek Design No. 4	Intertek Design No. 3	Intertek Design No. 1	Intertek Design No. 2
		IBC	N/A				
		DCA 3	N/A				

NOTES:

1. LPI I-Joists may be oriented either parallel or perpendicular to the rim.
2. When I-Joists are oriented parallel to the rim, blocking spaced 24" o.c. max. is required in the first bay.
3. When I-Joists are perpendicular to the rim board, I-joists spacing must not be more than 24" o.c.



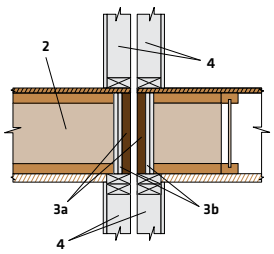
END WALL AND SINGLE CENTER WALL CONSTRUCTION[1]

Assembly			RB60-E.1	RB60-E.2	RB60-S.1	RB60-S.2
1. Upper Level Framing			Continuous or Non-Continuous			
2. Floor/Ceiling Assembly Fire Rating			Unrated	1-Hour	45-Minute or 1-Hour	
3. Rim Board Assembly	3a	Continuous rim board	Min. 1" LP OSB or 1-1/4" LVL or LSL	Min. 1" LP OSB or 1-1/4" LVL or LSL	2-ply 1" LP OSB or 1-ply 1-1/8" OSB or 1-ply 1-1/4" LVL or LSL	
	3b	Continuous gypsum wallboard	5/8" Type X at occup. sides	Not Required		
		Attachment to rim board	1-1/2" Type W screws at 12" o.c.			
4. Wall Assembly Fire Rating			1-Hour			
References		LP	End wall only of Intertek Assembly A or Assembly B	End wall only of Intertek Assembly A or Assembly B	Intertek Design No. 6	Intertek Design No. 7
		IBC	N/A			
		DCA 3	N/A			

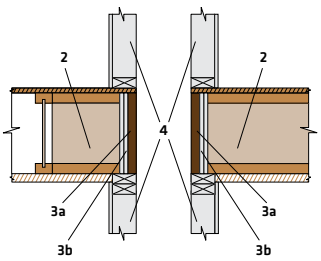
NOTES:

1. LPI I-Joists may be oriented either parallel or perpendicular to the rim.
2. When I-Joists are oriented parallel to the rim, blocking spaced 24" o.c. max. is required in the first bay.
3. When I-Joists are perpendicular to the rim board, I-Joists spacing must not be more than 24" o.c.

RB120-D.1



RB120-E.1



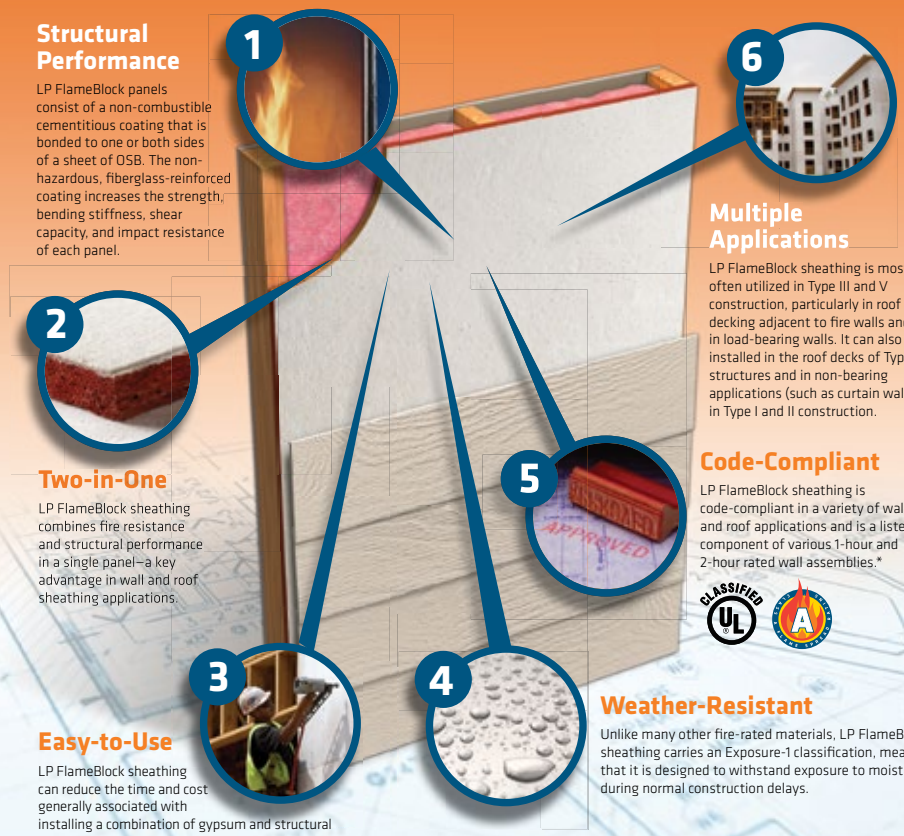
DOUBLE CENTER WALL AND END WALL CONSTRUCTION				
Assembly			**RB120-D.1 or RB120-E.1**	
1. Upper Level Framing			Continuous or Non-Continuous	
2. Floor/Ceiling Assembly Fire Rating			Less than 2-Hour	2-Hour
3. Rim Board Assembly	**3a**	Continuous rim board	Min. 1" LP OSB or 1-1/4" LVL or LSL	
	3b	Continuous gypsum wallboard	2 layers 1/2" Type X at occupancy sides	1 layer 5/8" Type X or 2 layers 1/2" Type X at occupancy sides
		Attachment to rim board	2" Type W screws at 12" o.c.	1-1/2" Type W screws at 12" o.c.
4. Wall Assembly Fire Rating			2-Hour	
References		LP	Intertek Assembly C or Assembly D	
		IBC	N/A	
		DCA 3	N/A	

NOTES:

1. LPI I-Joists may be oriented either parallel or perpendicular to the rim.
2. When I-Joists are oriented parallel to the rim, blocking spaced 24" o.c. max. is required in the first bay.
3. When I-Joists are perpendicular to the rim board, I-Joists spacing must not be more than 24" o.c.

Six Reasons to Use LP® FlameBlock® Fire-Rated OSB Sheathing to Help Meet Fire Codes

Fire-resistant construction is used to preserve the structural integrity of a building in the event of a fire and help prevent the collapse of key load-bearing elements. Using LP® FlameBlock® Fire-Rated OSB Sheathing can offer a cost-effective means of meeting fire-related structural code requirements.



Structural Performance

LP FlameBlock panels consist of a non-combustible cementitious coating that is bonded to one or both sides of a sheet of OSB. The non-hazardous, fiberglass-reinforced coating increases the strength, bending stiffness, shear capacity, and impact resistance of each panel.

Two-in-One

LP FlameBlock sheathing combines fire resistance and structural performance in a single panel—a key advantage in wall and roof sheathing applications.

Easy-to-Use

LP FlameBlock sheathing can reduce the time and cost generally associated with installing a combination of gypsum and structural sheathing. The product's proven fastener-holding capability can also simplify the installation of exterior facing materials, potentially providing further savings.

Multiple Applications

LP FlameBlock sheathing is most often utilized in Type III and V construction, particularly in roof decking adjacent to fire walls and in load-bearing walls. It can also be installed in the roof decks of Type II structures and in non-bearing applications (such as curtain walls) in Type I and II construction.

Code-Compliant

LP FlameBlock sheathing is code-compliant in a variety of wall and roof applications and is a listed component of various 1-hour and 2-hour rated wall assemblies.*

Weather-Resistant

Unlike many other fire-rated materials, LP FlameBlock sheathing carries an Exposure-1 classification, meaning that it is designed to withstand exposure to moisture during normal construction delays.

LP® FlameBlock® Fire-Rated OSB Sheathing is created by applying a proprietary non-combustible, fiberglass-reinforced Pyrotite® treatment to LP® OSB panels.

**A full list of applications is covered in Section 4.2 of the code report, ESR-1365. Listed wall assemblies may be accessed at LPCorp.com/FlameBlock.*

LP FLAMEBLOCK® FIRE-RATED OSB SHEATHING

LPCorp.com/FlameBlock

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