



FLAMEBLOCK

FIRE-RATED OSB SHEATHING

LP® FLAMEBLOCK FIRE-RATED OSB SHEATHING

MATERIALS AND FABRICATION

- LP FlameBlock Fire-Rated OSB Sheathing panels are made of oriented strand board (OSB) with a fire-resistant, cementitious coating (Pyrotite™) bonded to one or both sides. The coating consists of a highly hydrated, magnesium oxychloride cement reinforced with fiberglass. The LP OSB substrate is manufactured to be consistent and free of knots, grain defects, core voids, splits and other irregularities. The wood strands are mixed with resins, arranged in layers for strength and stability and bonded under heat and pressure. The panels are sealed on all four edges for added moisture resistance and dimensional stability.
- LP FlameBlock Fire-Rated OSB Sheathing roof panels have a coarse-textured top surface that helps provide safe footing on pitched roofs.
- The panels should be fastened with conventional nailing techniques. Consult your local building authorities regarding acceptability of fastenings techniques.
- The panels may be sawn cleanly, and may be routed or drilled with standard woodworking tools.

SIZES

- LP FlameBlock Fire-Rated OSB Sheathing panels are fabricated in standard 3 ft. 11-7/8 in. x 7 ft. 11-7/8 in. size (products are undersized 1/8 in. to allow for proper spacing during installation). Extended length panels are available.

LIMITATIONS

- LP FLAMEBLOCK FIRE-RATED OSB SHEATHING PANELS ARE NOT FOR UNPROTECTED EXTERIOR USE. They must be covered with siding panels or other types of exterior wall cladding or roofing material. Normal exposure to weather during ordinary construction delays will not damage the panels. ADDITIONAL PROTECTIVE MEASURES ARE RECOMMENDED FOR EXTENDED ADVERSE WEATHER CONDITIONS. EXCEPTION: Panels identified as Exposure 1 may be used for roof sheathing where exposed on the underside, such as on eaves.
- Slight surface flaking or thickness swell caused by moisture exposure will not affect structural performance.

FIRE PERFORMANCE

- LP FlameBlock Fire-Rated OSB Sheathing panels are certified to meet the requirements of a Class A Flame Spread Rated material as defined in ASTM E-84 (Intertek Listing 1532-4), as well as Class A and Class C roof deck as defined in ASTM E-108 (verified by Underwriters Laboratories).
- LP FlameBlock Fire-Rated OSB Sheathing is an approved component in fire-rated wall assemblies. Find more information at www.lpcorp.com/flameblock and in our ICC Evaluation Report, ESR-1365.

PHYSICAL PROPERTIES

- LP FlameBlock Fire-Rated OSB Sheathing wall panels provide sufficient racking strength to meet corner bracing requirements.
- Panels are stiff and strong and have a low coefficient of lineal expansion.
- For additional technical and engineering information and Material Safety Data Sheets, contact your LP sales representative or visit www.lpcorp.com/flameblock.

ENVIRONMENTAL IMPACT

LP products are manufactured in accordance with the company's policy on protection of the environment which includes:

- Use of environmental control technology and energy efficient equipment to conserve resources.
- Use of wood by-products to produce energy, thereby conserving nonrenewable resources.
- Use of SFI®-certified forest management and procurement systems, which help ensure that wood comes from well-managed forests.
- Efficient use of raw material to produce engineered wood products that offer more consistent performance and strength than non-strand-based products.
- For more information, see our LP FlameBlock Fire-Rated OSB Sheathing Green Brief.

INSTALLATION - GENERAL REQUIREMENTS

- Comply with local safety regulations when installing roof, wall, or subfloor sheathing.
- Comply with the following manufacturer's instructions and with APA's Engineered Wood Construction Guide Form E30U (September 2007) or the current equivalent.

STORAGE AND HANDLING

- Store panels in clean, dry areas off the ground. If possible, store indoors. If stored outside, cover with plastic sheets, tarps or the LP FlameBlock Fire-Rated OSB Sheathing unit cover. Keep cover open and away from the sides and bottom of panels to allow for air circulation.
- Additional protective measures may be necessary during extended adverse weather conditions.

ROOF INSTALLATION

- Place the skid-resistant side up with the white fire-resistant surface facing down and wear skid-resistant shoes when installing LP FlameBlock Fire-Rated OSB Sheathing as roof sheathing on either side of a partition wall in multi-family residential buildings, or in any application where reducing the spread rate of an interior fire is the intent of the code requirement. Install LP FlameBlock Fire-Rated OSB Sheathing with the white Pyrotite™ side facing upwards when used under EPDM roof membranes and in other applications where reducing the spread rate of fire from an exterior source is the intent.

- Install with the long dimension or strength axis of the panel across supports and with the panel continuous over two or more spans.
- Provide 1/8 in. space at panel ends and edges. Use a spacer tool (i.e. 10d box nail) to ensure accurate and consistent spacing.
- Panel end joints shall occur over framing. Stagger end joints in each succeeding row.
- For panels in the 7/16 and 15/32 category and thinner, provide additional panel stiffness by installing panel edge clips mid-span on all un-supported edges.
- Nail 6 in. o.c. along supported panel ends and edges and 12 in. o.c. at intermediate supports. Fasten panels 3/8 in. from panel edges. Use 8d common nails for panels up to 1 in. thickness. For panels over 1 in. use 8d ring-shank or 10d common nails. Other code-approved fasteners may be used.
- Cover roof sheathing as soon as possible with roofing felt or shingle underlayment for protection against excessive moisture prior to roofing. If any edge swelling occurs prior to roof underlayment installation, all raised joints should be sanded flat.
- Remove wrinkles and flatten surface of shingle underlayment before installing shingles. High performance shingle underlayment is recommended for better results.
- Heavier weight and/or textured shingles are recommended to better mask imperfections in roofing assembly.

NOTE: Check with your local building department before deciding on an installation method.

WALL INSTALLATION

- LP FlameBlock Fire-Rated OSB Sheathing panels may be installed vertically or horizontally. In horizontal installations, stagger joints a minimum of one stud space.
- When installing LP FlameBlock Fire-Rated OSB Sheathing in walls, consult approved construction plans to determine the proper orientation of the white, fire-resistant panel surface.
- Provide 1/8 in. space between panel ends and edges. Use a spacer tool (i.e. 10d box nail) to ensure accurate and consistent spacing.
- At minimum, nail 6 in. o.c. along supported panel ends and edges and 12 in. o.c. at intermediate supports. Fasten panels 3/8 in. from panel edges. Use 6d common nails for panels up to 1 in. thickness. For panels over 1 in. use 8d ring-shank or 8d common nails. Other code-approved fasteners may be used. For additional fastening requirements, refer to Figure 3. NOTE: For sheer walls, use the fastener spacing specified in approved construction documents.

LP FLAMEBLOCK FIRE-RATED SHEATHING

PRODUCT DESCRIPTION

LP FlameBlock Fire-Rated OSB Sheathing panels are designed for use in roof, wall and subfloor systems in commercial and residential projects, maintenance, remodeling or new construction.

STANDARDS & CERTIFICATIONS

LP FlameBlock Fire-Rated OSB Sheathing panels comply with the following industry standards and certifications:

- LP FlameBlock Fire-Rated OSB Sheathing panels are certified to comply with U.S. Voluntary Product Standard PS2, which is recognized in the Uniform Building Code, the International-Building Code and the International Residential Code, and by International Code Council Evaluation service (ICC-ES) Evaluation Report ESR-1365.

- Structural performance is verified by Progressive Engineering, Inc. (Report, PER-06013), www.p-e-i.com.
- Fire performance is verified by Omega Point/Intertek (listing 1532-4). Directory can be referenced at www.opl.com.

FIGURE 1. RECOMMENDED UNIFORM ROOF LIVE LOADS FOR LP FLAMEBLOCK FIRE-RATED SHEATHING^(c) AND RATED SUBFLOOR WITH STRENGTH AXIS PERPENDICULAR TO SUPPORTS^(d)

Panel Span Rating	Performance Category**	Maximum Span (in.)		Allowable Live Loads (psf) ^(b)							
		With Edge Support (a)	Without Edge Support	Spacing of Supports Center-to-Center (in.)							
				12	16	20	24	32	40	48	60
Rated Sheathing^(c)											
24/16	7/16	24	24	190	100	65	40				
32/16	15/32, 1/2	32	28	325	180	120	94	30			
40/20	19/32, 5/8	40	32	-	305	205	151	60	30		
48/24	23/32, 3/4	48	36	-	-	280	175	95	45	35	
60/32	7/8	60	40	-	-	-	305	165	100	70	35
60/48	1-1/8	60	48	-	-	-	305	165	100	70	35
Rated Subfloor^(c)				12	16	20	24	32	40	48	60
16 oc	19/32, 5/8	24	24	185	100	65	40				
20 oc	19/32, 5/8	32	32	270	150	100	60	30			
24 oc	23/32, 3/4	48	36	-	240	160	100	50	30	25	
32 oc	7/8	48	40	-	-	295	185	100	60	40	
48 oc	1-3/32, 1-1/8	60	48	-	-	-	290	160	100	65	40

(a) Tongue and groove edges, panel edge clips (one midway* between each support, except two equally spaced between supports 48 in. on center or greater), lumber blocking, or other.

(b) 10 psf dead load assumed

(c) Applies to panels 24 in. or wider applied over two or more spans.

* No established tolerance.

**Performance Category replaces the fractional nominal thickness used in PS2 and is consistent with the panel thickness used in the U.S. model building codes.

LP FLAMEBLOCK FIRE-RATED STRUCTURAL 1 SHEATHING

PRODUCT DESCRIPTION

- LP FlameBlock Fire-Rated Structural 1 Sheathing panels are designed to perform as roof, sidewall and floor systems, where high wind or earthquake conditions may occur.
- LP FlameBlock Fire-Rated Structural 1 Sheathing panels are equally suited for pitched or flat roof applications.
- LP FlameBlock Fire-Rated Structural 1 Sheathing panels can be used in commercial and residential projects, such as industrial buildings, mobile and modular home construction or in any application requiring high strength, superior shear values, and fire resistance.

STANDARDS & CERTIFICATIONS

LP FlameBlock Fire-Rated OSB Sheathing panels comply with the following industry standards and certifications:

- LP FlameBlock Fire-Rated OSB Sheathing panels are certified to comply with U.S. Voluntary Product Standard PS2, which is recognized in the Uniform Building Code, the International-Building Code and the International Residential Code, and by International Code Council Evaluation Service (ICC-ES) Evaluation Report/ESR-1365.
- Structural performance is verified by Progressive Engineering, Inc. (Report, PER-06013), www.p-e-i.com.
- Fire performance is verified by Omega Point/Intertek (listing 1532-4). Directory can be referenced at www.opl.com.

- LP FlameBlock Fire-Rated Structural 1 Sheathing panels have superior maximum live load over standard OSB when installed with the long axis parallel to the structural supports.

Figure 2. LP FlameBlock Structural 1 Rated Sheathing Roof Panels Parallel to Supports

Performance Category	Span Rating	Max. Live Load for Roofs (lbs)**
7/16	24/16	40
15/32	32/16	70
1/2	32/16	70

** Live load for 24 in. o.c. span conditions. 10 psf dead load assumed.

AVAILABILITY

- LP FlameBlock Fire-Rated OSB Sheathing panels are available directly from LP by railcar, as well as piggyback and truckload shipment.

Call LP customer service or visit our web site for more information on OSB structural panels and other LP products.

Customer Service: 800.648.6893 www.lpcorp.com

Sales Office: 800.964.6310
Conroe, Texas

FIGURE 3. ALLOWABLE SHEAR (POUNDS PER FOOT) FOR PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS-FIR, LARCH, OR SOUTHERN PINE^(a) OR WIND OR SEISMIC LOADING^(b,f, g, h, i) (See also 2006 IBC Table 2306.4.1)

Panel Grade	Performance Category**	Minimum Nail Penetration in Framing (in.)	Panels Applied Direct to Framing				Panels Applied Over 1/2" or 5/8" Gypsum Sheathing					
			Nail Size (Common or Galvanized Box)	Nail Spacing at Panel Edge (in.)				Nail Size (common or Galvanized Box)	Nail Spacing at Panel Edges (in.)			
				6	4	3	2 ^(e)		6	4	3	2 ^{(e)(d)}
Structural 1 Grades	7/16	1-3/8	8d	255	395	505	670 ^(c)	10d	280	430	550 ^(e)	730
	15/32			280	430	550	730		-	-	-	-
	15/32	1-1/2	10d	340	510	665 ^(e)	870	-	-	-	-	
Rated Sheathing	7/16	1-3/8	8d	240	350	450	585 ^(c)	10d	260	380	490 ^(e)	640
	15/32			260	380	490	640		-	-	-	-
	15/32	1-1/2	10d	310	460	600 ^(e)	770	-	-	-	-	
	5/8			340	510	665 ^(e)	870	-	-	-	-	

- (a) For framing of other species: (1) Find specific gravity for species of lumber in the AF&PA National Design Specification. (2) For common or galvanized box nails, find shear value from table above for nail size for actual grade. (3) Multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = $[1 - (0.5 - SG)]$, where SG = specific gravity of the framing. This adjustment shall not be greater than 1.
- (b) All panel edges backed with 2-in. nominal or wider framing. Install panels either horizontally or vertically. Space nails maximum 6 in. o.c. along intermediate framing members for 3/8 Category and 7/16 Category panels installed on studs spaced 24 in. o.c. For other conditions and panel thicknesses, space nails maximum 12 in. o.c. on intermediate supports. Fasteners shall be located 3/8 in. from panel edges.
- (c) Allowable shear values are permitted to be increased to values shown for 15/32 category sheathing with same nailing provided (1) studs are spaced a maximum of 16 in. o.c., or (2) panels are applied with long dimension across studs.
- (d) Framing at adjoining panel edges shall be 3-in. nominal or wider, and nails shall be staggered where nails are spaced 2 in. o.c. Check local code for variations of these requirements.
- (e) Framing at adjoining panel edges shall be 3-in. nominal or wider, and nails shall be staggered where 10d nails (3 in. x 0.148 in.) having penetration into framing of more than 1-1/2 in. are spaced 3 inches o.c. Check local code for variations of these requirements.
- (f) Where panels are applied on both faces of a wall and nail spacing is less than 6 in. o.c. on either side, panel joints should be offset to fall on different framing members. Or framing shall be 3 in. nominal or thicker and nails on each side should be staggered.
- (g) In Seismic Design Category D, E, or F, where shear design values exceed 350 pounds per lineal foot, all framing members receiving edge nailing from abutting panel edges shall not be less than a single 3-in. nominal member, or two 2-in. nominal members fastened together in accordance with 2006 IBC Section 2306.1 to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing shall be staggered in all cases. See 2006 IBC Section 2305.311 for sill plate size and anchorage requirements.
- (h) Galvanized nails should be hot dipped or tumbled.
- (i) For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above should be multiplied by 0.63 or 0.56 respectively.

**Performance Category replaces the fractional nominal thickness used in PS2.

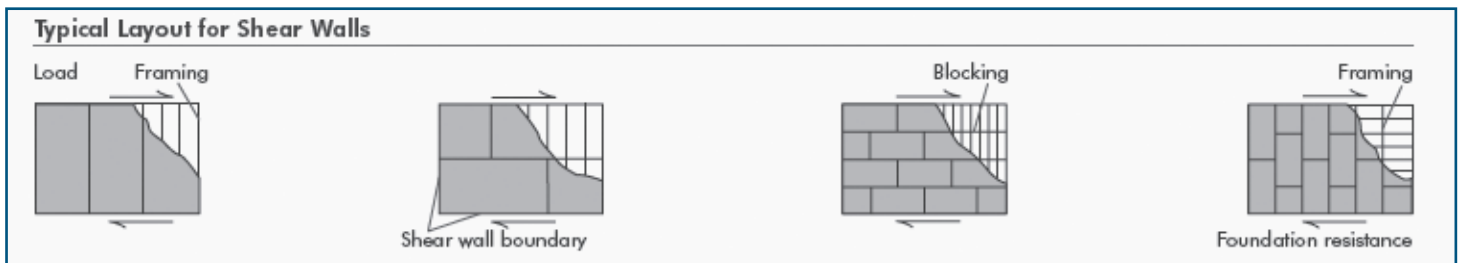


FIGURE 4. ALLOWABLE SHEAR (POUNDS PER FOOT) FOR HORIZONTAL LP PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS-FIR, LARCH OR SOUTHERN PINE^(a) FOR WIND OR SEISMIC LOADING^(b) (See also IBC Table 2306.1)

Panel Grade	Common Nail Size	Minimum Nail Penetration in Framing (in.)	Performance Category**	Minimum Nominal Width of Framing Members at Adjoining Panel Edges and Boundaries ^(e) (in.)	Blocked Diaphragms				Unblocked Diaphragms		
					Nail Spacing (in.) at diaphragm boundaries (all cases), at continuous Panel edges parallel To load (Cases 3 & 4), And at all panel Edges (Cases 5 & 6) ^(c)				Nails Spaced 6" max at Supported Edges ^(c)		
					6	4	2-1/2 ^(d)	2 ^(d)	Case 1 (No unblocked edges or continuous joints parallel to load)		All other Configurations (Case 2, 3, 4, 5 & 6)
					Nail Spacing (in.) at Other Panel Edges (Cases 1, 2, 3 & 4) ^(c)						
LP Structural 1 Grades	10d ^(g)	1-1/2	15/32	2	320	425	640	730	285	215	
				3	360	480	720	820	320	240	
LP Rated Sheathing	8d ^(f)	1-3/8	7/16	2	255	340	505	575	230	170	
				3	285	380	570	645	255	190	
			15/32	2	270	360	530	600	240	180	
	10d ^(g)	1-1/2	15/32	2	290	385	575	655	255	190	
				3	325	430	650	735	290	215	
			5/8	2	320	425	640	730	285	215	
				3	360	480	720	820	320	240	

- (a) For framing of other species: (1) Find specific gravity for species of lumber in the AFPA National Design Specification (2) Find shear value from table above for nail size for actual grade (3) Multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1-(0.5 - SG)], where SG = specific gravity of the framing. This adjustment shall not be greater than 1.
- (b) For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above should be multiplied by 0.63 or 0.56, respectively.
- (c) Space nails maximum 12 in. o.c. along intermediate framing members (6 in. o.c. when supports are spaced 48 in. o.c. or greater). Fasteners shall be located 3/8 in. from panel edges.
- (d) Framing at adjoining panel edges shall be 3 in. nominal or wider, and nails should be staggered where nails are spaced 2 in. o.c. or 2-1/2 in. o.c.
- (e) The minimum normal width of framing members not located at boundaries or adjoining panel edges should be 2 in.
- (f) 8d is recommended minimum for roofs due to negative pressures of high winds.
- (g) Framing at adjoining panel edges should be 3 in. nominal or wider, and nails should be staggered where 10d nails having penetration into framing of more than 1-1/2 in. are spaced 3 inches o.c.

Note: Design for diaphragm stresses depends on direction of continuous panel joints with reference to load, not on direction of long dimension or strength axis of sheet. Continuous framing may be in either direction for blocked diaphragms.

**Performance Category replaces the fractional nominal thickness used in PS2.

