APA PRODUCT REPORT®

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LP® SmartSide® Strand Substrate **PR-N124(M)**
Treated-Engineered-Wood Lap, Panel, and Vertical Siding
Louisiana-Pacific Corporation Revised July 2, 2021

Product: LP® SmartSide® Strand Substrate Treated-Engineered-Wood Lap, Panel, and Vertical Siding
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www.lpcorp.com

1. Basis of the product report:
   - 2021, 2018, 2015, and 2012 International Building Code: Section 104.11 Alternative materials
   - 2021, 2018, 2015, and 2012 International Residential Code: Section R104.11 Alternative materials
   - 2021, 2015, and 2008 ANSI/AWC Special Design Provisions for Wind and Seismic (SDPWS) recognized in the 2021, 2018 and 2015, and 2012 IBC, respectively.
   - ASCE 7-16, ASCE 7-10, and ASCE 7-05 Minimum Design Loads for Buildings and Other Structures
   - APA PRP-108 Performance Standards and Qualification Policy for Structural-Use Panels
   - NES Evaluation Protocol for Determination of Flood-Resistance Properties of Building Elements
   - APA Reports R&D 87Q-1, T87Q-45, T91Q-11, T91Q-20, T97Q-4, T97Q-10, T98Q-13, T98Q-17, T99Q-23, T2008Q-12, T2008P-73, T2008P-74, T2009Q-54, T2011Q-59, T2012P-22, T2015Q-38, T2015Q-39, T2017P-03, and T2018P-05, and other qualification data.

2. Product description:
   Louisiana-Pacific Corporation (LP®) SmartSide® Strand Substrate Treated-Engineered-Wood Lap, Panel, and Vertical Siding is overlaid with a resin treated paper and is available with either a smooth or embossed surface texture. The siding is treated with Zinc Borate for decay and insect resistance. The efficacy of the preservative treatment of the LP SmartSide siding is outside the scope of this report and the APA certification program. All edges are factory sealed with a primer.

   LP SmartSide lap siding is available in 3/8 and 7/16 Performance Categories (nominal thicknesses of 9.5 and 11 mm, respectively), in nominal widths of 130, 150, 180, 205, 240, and 305 mm and in lengths up to 4.9 m. The lap siding may be installed horizontally or vertically.

   LP SmartSide panel siding is available in 3/8, 7/16 and 19/32 Performance Categories (nominal thicknesses of 9.5, 11, and 15 mm respectively), 1,220 mm in width and up to 5.5 m in length. The 3/8 Performance Category (nominal 9.5 mm) panels are available without grooves or with grooves spaced 205 mm on center. The 7/16 and 19/32 Performance Category (nominal 11 mm and 15 mm, respectively) panels are available without grooves or with grooves spaced either 100 or 205 mm on center. Minimum thicknesses at the groove and shiplap are documented in the plant Quality Manual.

   LP SmartSide Vertical Siding is a narrow width panel siding and is available in 3/8 Performance Category (nominal 9.5 mm), nominal width of 405 mm, and in 4.9-m lengths. The vertical siding can only be installed vertically.

3. Design properties:
Allowable racking shear values for LP SmartSide Strand Substrate panel siding are listed in Table 1. For 3/8 Performance Category (nominal 9.5 mm) panels nailed at shiplap edges, use 5/16 Performance Category (nominal 8 mm) shear values. For 7/16 and 19/32 Performance Category (11 mm and 15 mm, respectively) panel sidings nailed at shiplap edges, use 3/8 Performance Category (nominal 9.5 mm) shear values. Design wind loads for LP SmartSide Strand Substrate lap and panel siding are listed in Tables 2 and 3, respectively. Design wind loads for LP SmartSide Strand Substrate lap and panel siding when installed over the facer of structural insulated panels (SIPs) are listed in Tables 4 and 5, respectively. Design wind loads for LP SmartSide Strand Substrate Vertical Siding and lap siding applied vertically are listed in Table 6.

4. Product installation:
LP SmartSide Strand Substrate Treated-Engineered-Wood Lap, Panel, and Vertical Siding shall be installed in accordance with recommendations provided by the manufacturer (www.lpcorp.com/products/siding/lp-smartside-trim-siding/) and APA *Engineered Wood Construction Guide*, Form E30 (www.apawood.org/resource-library), as applicable. The maximum span shall be in accordance with the Span Rating shown in the trademark. The LP SmartSide Strand Substrate lap and panel siding shall be permitted to be installed over the facer of structural insulated panels (SIPs) in accordance with Tables 4 and 5, respectively.

LP SmartSide lap siding, when installed vertically, shall be installed over a minimum 7/16 Performance Category (nominal 11 mm) wood structural panel sheathing meeting DOC PS 1 or DOC PS 2 requirements, and shall be covered by a batten at the siding joint or shall be overlapped with another vertical lap siding in accordance with the recommendations provided by the manufacturer, as shown in Figures 1 through 4. Lap siding installed vertically can only span one floor plate-to-plate. Each vertical application shall not span beyond one floor to ceiling distance, or one floor to top of gable distance.

LP SmartSide Vertical Siding shall be installed over a minimum 7/16 Performance Category (nominal 11 mm) wood structural sheathing meeting DOC PS 1 or DOC PS 2 requirements, and shall be covered by a batten at the panel joint in accordance with the recommendations provided by the manufacturer, as shown in Figures 2, 5, and 6. Vertical Siding can only span one floor plate-to-plate. Each vertical application shall not span beyond one floor to ceiling distance, or one floor to top of gable distance.

5. Fire-resistant construction:
Wood structural panels that are not fire-retardant-treated have been shown to meet a Class III (or C) category for flame spread. Unless otherwise specified, fire-resistant construction shall be in accordance with the recommendations in APA *Fire-Rated Systems*, Form W305 (see link above).

6. Flood resistance evaluation:
Selected properties critical to flood resistance of 3/8 and 7/16 Performance Category (nominal 9.5 mm and 11 mm, respectively) panel siding, including uniform loads, concentrated static loads, concentrated hard body and soft body impact loads, fastener performance, wall racking resistance, edge thickness swell, linear expansion, hygroscopicity, exterior bond performance and large panel and small specimen bending properties were evaluated at a 405 mm o.c. Span Rating in accordance with *NES Evaluation Protocol for Determination of Flood-Resistance Properties of Building Elements*. Test results in the dry (as-received) condition and after moisture cycling in accordance with the NES protocol were compared to the requirements specified in ICC Evaluation Service (ICC-ES) *Acceptance Criteria for Treated-Engineered-Wood Siding* (AC321).

7. Limitations:
   a) LP SmartSide Strand Substrate Treated-Engineered-Wood Lap, Panel, and Vertical Siding used outdoors must be finished in accordance with recommendations provided by the manufacturer (see link above) and APA *Engineered Wood Construction Guide*, Form E30 (see link above).
   b) The efficacy of the preservative treatment of the LP SmartSide siding is outside the scope of this report and the APA certification program.
   c) LP SmartSide Strand Substrate Treated-Engineered-Wood panel siding is flood resistant on the properties listed in Section 6. This evaluation applies to 3/8 and 7/16 Performance Category (nominal 9.5 mm and 11mm, respectively) panel siding at a 405 mm o.c. Span Rating.
   d) LP SmartSide Strand Substrate Treated-Engineered-Wood Lap and Panel Siding is produced at Louisiana-Pacific Corporation facilities at Hayward, WI, Newberry, MI, Tomahawk, WI, Two Harbors, MN, and Swan Valley, MB, and LP SmartSide Strand Substrate Treated-Engineered-Wood Vertical Siding is produced at Louisiana-Pacific Corporation facility at Tomahawk, WI, under a quality assurance program audited by APA.
   e) This report is subject to re-examination in one year.

8. Identification:
   LP SmartSide Strand Substrate Treated-Engineered-Wood Lap, Panel, and Vertical Siding described in this report is identified by a label bearing the manufacturer's name (Louisiana-Pacific Corporation) and/or trademark, the APA assigned plant number (357 for the Hayward plant, 416 for the Newberry plant, 435 for the Tomahawk plant, 399 for the Two Harbors plant, or 457 for the Swan Valley plant), the product Performance Category, the Span Rating, the Exposure Rating, the APA logo, the report number PR-N124, and a means of identifying the date of manufacture.

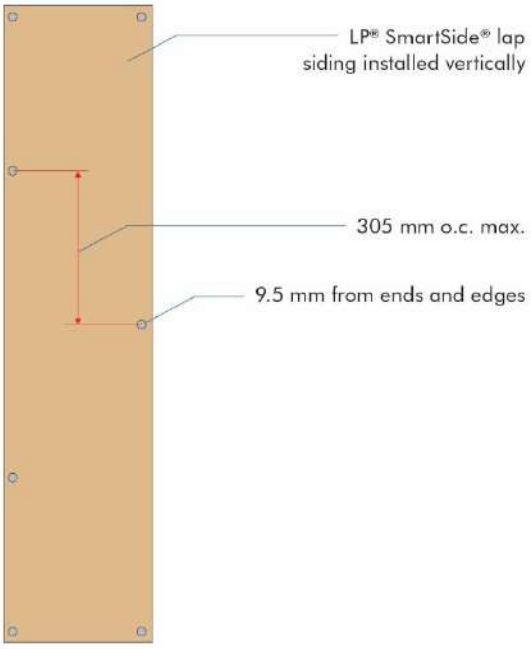

Figure 1. Lap siding installed vertically

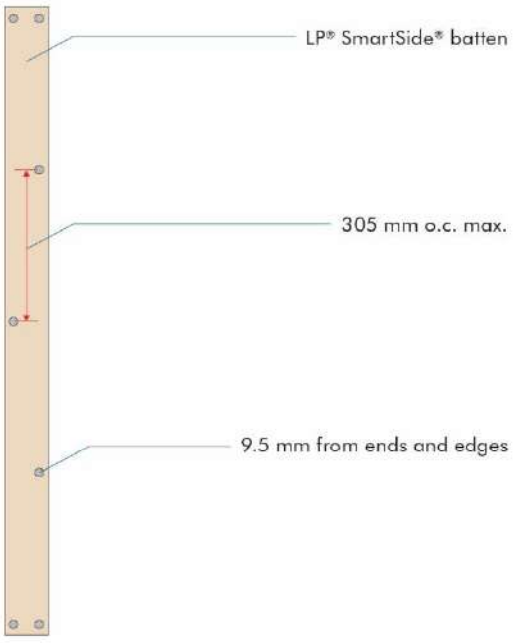

Figure 2. LP® SmartSide® Trim/Batten

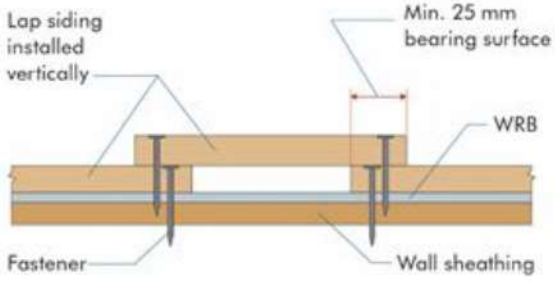

Figure 3. Lap siding attachment detail

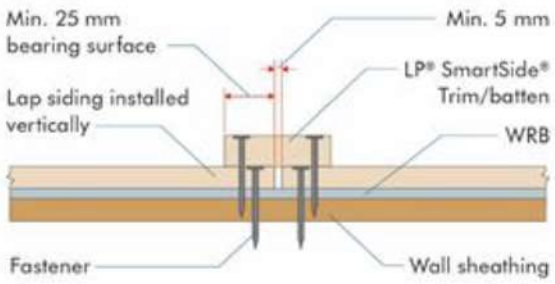

Figure 4. LP® SmartSide® Trim/Batten attachment detail

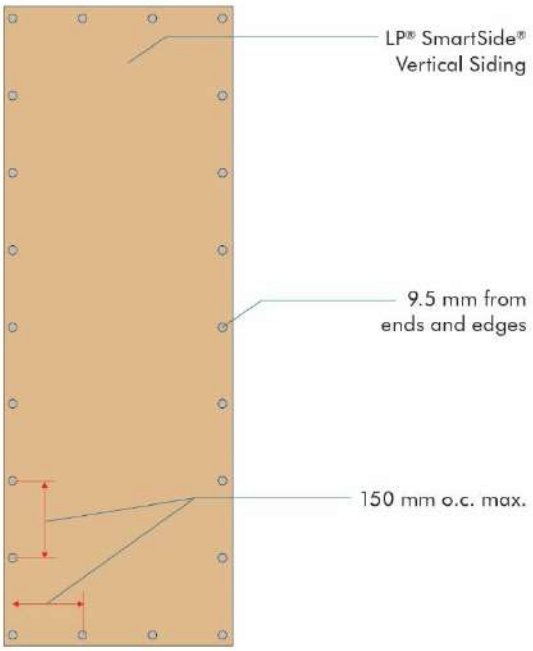

Figure 5. Vertical Siding

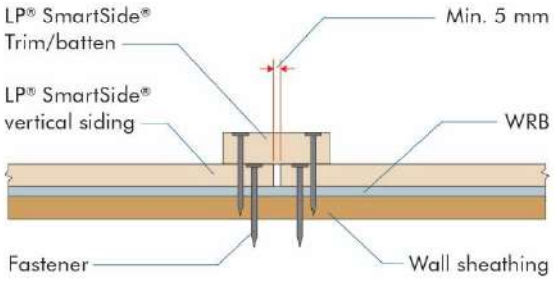

Figure 6. Vertical Siding attachment detail

Table 1. Allowable Racking Shear (N/m) for LP SmartSide Strand Substrate Treated-Engineered-Wood Panel Siding Shear Walls with Framing of Douglas-Fir-Larch or Southern Pine for Wind or Seismic Loading[1,2,3]

Performance Category	Min. Nominal Panel Thickness (mm)	Min. Nail Penetration in Framing (mm)	Panels Applied Directly to Framing					Panels Applied Over Max. 16-mm Gypsum Sheathing				
			Nail Size (common or galvanized box)[7,8]	Nail Spacing at Panel Edges (mm)				Nail Size (common or galvanized box)[7,8]	Nail Spacing at Panel Edges (mm)			
				150	100	75	50[4]		150	100	75	50[4]
5/16[5,6]	8	32	6d	2,625	3,940	5,110	6,565	8d	2,625	3,940	5,110	6,565
3/8[5,6]	9.5			2,920	4,380	5,690	7,445		2,920	4,380	5,690	7,445
3/8[5,6]	9.5	38	8d	3,210	4,670	5,985	7,735	10d	3,795	5,545	7,150[4]	9,340
7/16[5]	11			3,505	5,110	6,565	8,535		3,795	5,545	7,150[4]	9,340
19/32[5]	15	41	10d	4,960	7,445	9,705[4]	12,695	-	-	-	-	-

For **imperial units**: 1 mm = 0.039 inch, 1 N/m = 0.068 plf.

(1) For framing of other species: (a) find specific gravity for species of lumber in the National Design Specification for Wood Construction (NDS); (b) find shear value from Table for nails size; (c) multiply value by 0.82 for species with specific gravity greater than or equal to 0.42 but less than 0.49, or 0.65 for species with specific gravity less than 0.42.

(2) All panel edges must be backed with 38 mm or wider framing. Panels must be installed with the long dimension oriented in the vertical direction. Space nails 150 mm o.c. along intermediate framing members for 3/8 and 7/16 Performance Category (nominal 9.5 mm and 11 mm, respectively) panels installed on studs spaced 610 mm o.c. For other conditions and panel performance categories, space nails 305 mm o.c. on intermediate supports.

(3) For shear loads of normal or permanent load duration, the values in the table shall be multiplied by 0.63 or 0.56, respectively. For wind load applications, the values in the table shall be permitted to be multiplied by 1.4.

(4) Framing at panel edges must be 3 mm or wider and nails must be staggered where nails are spaced 50 mm o.c., and where 10d nails having penetration into framing of more than 41 mm are spaced 75 mm or less, o.c. **Exception:** Unless otherwise required, 38 mm framing may be used where full nailing surface is available and nails are staggered.

(5) Except as noted in Footnote 7, panel thickness at point of nailing at panel edges determines applicable shear values, except that 3/8 Performance Category panels nailed at shiplap edges use 5/16 Performance Category (nominal 8 mm) shear values, and 7/16 and 19/32 Performance Category (nominal 11 mm and 15 mm, respectively) panel sidings nailed at shiplap edges use 3/8 Performance Category (nominal 9.5 mm) shear values.

(6) Shiplap edges must be double-nailed; one nail must be placed in the underlap and a second nail must be placed in the overlap at the nail spacing specified for the applicable shear value.

(7) Fasteners must not be installed in panel siding grooves in the field of the panel siding or when the panel siding grooves occur at cut edges of the panel siding.

(8) Fastener dimensions are as specified in ASTM F1667.

Table 2a. Lap Siding Installed Horizontally with 2.9 mm Nails[1] – **Max. Allowable Wind Speed, V_{asd}[2]**

Performance Category	Min. Nominal Siding Thickness (mm)	Max. Wall Stud Spacing[3] (mm)	Siding Width (mm)	Max. Allowable Wind Pressure (Pa)	Max. Allowable Wind Speed, V_{asd}[4] (m/s)		
					Wind Exposure Category		
					B	C	D
3/8	9.5	405	130	3,830	76	67	63
			150	3,830	76	67	63
			180	3,830	76	67	63
			205	3,545	76	65	58
			240	2,920	67	58	54
			305	2,250	58	49	47
7/16	11	405	150	3,830	76	67	63
			180	3,830	76	67	63
			205	3,545	76	65	58
			240	3,110	67	58	56
			305	2,250	58	49	47
		610	150	3,305	67	63	58
			180	2,775	67	58	49
			205	2,345	63	54	49
			240	1,965	56	47	45
			305	1,485	49	40	38

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) Fasteners shall be permitted to be substituted on a one-for-one basis if the fastener has a minimum overall allowable withdrawal capacity and allowable fastener head pull-through capacity of 275 N/fastener or greater based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dipped galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(2) One fastener for each stud located 20 mm from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 25 mm. Fasteners shall be a hot dipped galvanized plain (smooth) shank nail, with a minimum shank diameter of 2.9 mm, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 50 mm. **Lap siding is not a bracing material.**

(3) Wall studs must have a minimum specific gravity of 0.42.

(4) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 6 of ASCE 7-05 and Section R301.2.1 of the 2012 IRC.

Table 2b. Lap Siding Installed Horizontally with 2.9 mm Nails[1] – **Max. Ultimate Wind Speed, V_{ult}[2]**

Performance Category	Min. Nominal Siding Thickness (mm)	Max. Wall Stud Spacing[3] (mm)	Siding Width (mm)	Max. Ultimate Wind Pressure (Pa)	Max. Ultimate Wind Speed, V_{ult}[4] (m/s)		
					Wind Exposure Category		
					B	C	D
3/8	9.5	405	130	6,370	89[5]	80	80
			150	6,370	89[5]	80	80
			180	6,370	89[5]	80	80
			205	5,890	89[5]	80	72
			240	4,885	89[5]	72	67
			305	3,785	80	67	63
7/16	11	405	150	6,370	89[5]	80	80
			180	6,370	89[5]	80	80
			205	5,890	89[5]	80	72
			240	4,885	89[5]	72	67
			305	3,785	80	67	63
		610	150	5,505	89[5]	80	72
			180	4,595	80	72	67
			205	4,070	80	67	63
			240	3,255	63	63	58
			305	2,490	72	54	49

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) Fasteners shall be permitted to be substituted on a one-for-one basis if the fastener has a minimum overall allowable withdrawal capacity and allowable fastener head pull-through capacity of 275 N/fastener or greater based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dipped galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(2) One fastener for each stud located 20 mm from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 25 mm. Fasteners shall be a hot dipped galvanized plain (smooth) shank nail, with a minimum shank diameter of 2.9 mm, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 50 mm. **Lap siding is not a bracing material.**

(3) Wall studs must have a minimum specific gravity of 0.42.

(4) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 26 of ASCE 7-16 and ASCE 7-10, Section R301.2.1 of the 2021, 2018, and 2015 IRC, and Section 1609.1.1 of the 2021 through 2012 IBC.

(5) Table R301.2.1(1) of the 2021 IRC and Table R301.2(2) of the 2015 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 80 m/s (180 mph).

Table 2c. Lap Siding Installed Horizontally with 2.3 mm Nails – **Max. Allowable Wind Speed, V_{asd}[1]**

Performance Category	Min. Nominal Siding Thickness (mm)	Max. Stud Spacing[2] (mm)	Siding Width (mm)	Max. Allowable Wind Pressure (Pa)	Max. Allowable Wind Speed, V_{asd}[3] (m/s)		
					Wind Exposure Category		
					B	C	D
3/8	9.5	405	130	3,735	76	67	58
			150	3,015	67	58	56
			180	2,490	65	54	49
			205	2,155	58	49	47
			240	1,770	54	45	40
			305	1,340	47	40	-
7/16	11	405	150	3,015	67	58	56
			180	2,490	65	54	49
			205	2,155	58	49	47
			240	1,770	54	45	40
			305	1,340	47	40	-
		610	150	2,010	58	49	45
			180	1,675	54	45	40
			205	1,435	49	40	38
			240	1,195	45	38	-
			305	910	38	-	-

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) One fastener for each stud located 20 mm from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 25 mm. Fasteners shall be a hot dipped galvanized plain (smooth) shank nail, with a minimum shank diameter of 2.3 mm, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 50 mm. **Lap siding is not a bracing material.**

(2) Wall studs must have a minimum specific gravity of 0.42.

(3) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 6 of ASCE 7-05 and Section R301.2.1 of the 2012 IRC.

Table 2d. Lap Siding Installed Horizontally with 2.3 mm Nails – **Max. Ultimate Wind Speed, V_{ult}[1]**

Performance Category	Min. Nominal Siding Thickness (mm)	Max. Stud Spacing[2] (mm)	Siding Width (mm)	Max. Ultimate Wind Pressure (Pa)	Max. Ultimate Wind Speed, V_{ult}[3] (m/s)		
					Wind Exposure Category		
					B	C	D
3/8	9.5	405	130	6,270	89[4]	80	80
			150	4,980	89[4]	72	72
			180	4,165	80	72	63
			205	3,590	72	63	58
			240	2,920	67	58	54
			305	2,250	63	51	-
7/16	11	405	150	4,980	89[4]	72	72
			180	4,165	80	72	63
			205	3,590	72	63	58
			240	2,920	67	58	54
			305	2,250	63	51	-
		610	150	3,350	72	63	58
			180	2,775	67	58	54
			205	2,395	63	54	49
			240	1,965	58	49	-
			305	1,530	49	-	-

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) One fastener for each stud located 20 mm from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 25 mm. Fasteners shall be a hot dipped galvanized plain (smooth) shank nail, with a minimum shank diameter of 2.3 mm, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 50 mm. **Lap siding is not a bracing material.**

(2) Wall studs must have a minimum specific gravity of 0.42.

(3) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 26 of ASCE 7-16 and ASCE 7-10, Section R301.2.1 of the 2021, 2018, and 2015 IRC, and Section 1609.1.1 of the 2021 through 2012 IBC.

(4) Table R301.2.1(1) of the 2021 IRC and Table R301.2(2) of the 2018 and 2015 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 80 m/s (180 mph).

Table 3a. Panel Siding Installed Vertically with 2.9 mm Nails – **Max. Allowable Wind Speed, V_{asd}**

Performance Category	Min. Nominal Siding Thickness (mm)	Max. Stud Spacing[2] (mm)	Fastener Spacing[1] (mm o.c.)		Max. Allowable Wind Pressure (Pa)	Max. Allowable Wind Speed, V_{asd}[3] (m/s)		
						Wind Exposure Category		
			Edges	Field		B	C	D
3/8	9.5	405	150	305	2,060	58	49	45
				150	3,830	76	67	63
		610	150	305	1,390	47	40	-
				150	2,775	67	58	49
7/16	11	405	150	305	2,060	58	49	45
				150	3,830	76	67	63
		610	150	305	1,390	47	40	-
				150	2,775	67	58	49
19/32	15	405	150	305	2,060	58	49	45
				150	3,830	76	67	63
		610	150	305	1,390	47	40	-
				150	2,775	67	58	49

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) Fasteners shall be a hot dipped galvanized plain (smooth) shank nail, with a minimum shank diameter of 2.9 mm, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 50 mm.

(2) Wall studs must have a minimum specific gravity of 0.42.

(3) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 6 of ASCE 7-05 and Section R301.2.1 2012 IRC.

Table 3b. Panel Siding Installed Vertically with 2.9 mm Nails – **Max. Ultimate Wind Speed, V_{ult}**

Performance Category	Min. Nominal Siding Thickness (mm)	Max. Stud Spacing[2] (mm)	Fastener Spacing[1] (mm o.c.)		Max. Allowable Wind Pressure (Pa)	Max. Ultimate Wind Speed, V_{ult}[3] (m/s)		
			Edges	Edges		Wind Exposure Category		
						B	C	D
3/8	9.5	405	150	305	3,445	72	63	58
				150	6,370	89[4]	80	80
		610	150	305	2,300	63	51	-
				150	4,595	80	72	67
7/16	11	405	150	305	3,445	72	63	58
				150	6,370	89[4]	80	80
		610	150	305	1,300	63	51	-
				150	4,595	80	72	67
19/32	15	405	150	305	3,445	72	63	58
				150	6,370	89[4]	80	80
		610	150	305	2,300	63	51	-
				150	4,595	80	72	67

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) Fasteners shall be a hot dipped galvanized plain (smooth) shank nail, with a minimum shank diameter of 2.9 mm, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 50 mm.

(2) Wall studs must have a minimum specific gravity of 0.42.

(3) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 26 of ASCE 7-16 and ASCE 7-10, Section R301.2.1 of the 2021, 2018, and 2015 IRC, and Section 1609.1.1 of the 2021 through 2012 IBC.

(4) Table R301.2.1(1) of the 2021 IRC and Table R301.2(2) of the 2018 and 2015 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 80 m/s (180 mph).

Table 3c. Panel Siding Installed Vertically with 2.3 mm Nails – **Max. Allowable Wind Speed, V_{asd}**

Performance Category	Min. Nominal Siding Thickness (mm)	Max. Stud Spacing[2] (mm)	Fastener Spacing[1] (mm o.c.)		Max. Allowable Wind Pressure (Pa)	Max. Allowable Wind Speed, V_{asd}[3] (m/s)		
						Wind Exposure Category		
			Edges	Field		B	C	D
3/8	9.5	405	150	305	1,245	45	38	-
				150	2,490	65	54	49
		610	150	305	815	38	-	-
				150	1,675	54	45	40
7/16	11	405	150	305	1,245	45	38	-
				150	2,490	65	54	49
		610	150	305	815	38	-	-
				150	1,675	54	45	40
19/32	15	405	150	305	1,245	45	38	-
				150	2,490	65	54	49
		610	150	305	815	38	-	-
				150	1,675	54	45	40

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) Fasteners shall be a hot dipped galvanized plain (smooth) shank nail, with a minimum shank diameter of 2.3 mm, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 50 mm. **Configuration cannot be used for lateral bracing due to nail size.**

(2) Wall studs must have a minimum specific gravity of 0.42.

(3) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 6 of ASCE 7-05 and Section R301.2.1 of the 2012 IRC.

Table 3d. Panel Siding Installed Vertically with 2.3 mm Nails – **Max. Ultimate Wind Speed, V_{ult}**

Performance Category	Min. Nominal Siding Thickness (mm)	Max. Stud Spacing[2] (mm)	Fastener Spacing[1] (mm o.c.)		Max. Ultimate Wind Pressure (Pa)	Max. Ultimate Wind Speed, V_{ult}[3] (m/s)		
						Wind Exposure Category		
			Edges	Field		B	C	D
3/8	9.5	405	150	305	2,105	58	49	-
				150	4,165	80	72	63
		610	150	305	1,390	-	-	-
				150	2,775	67	58	54
7/16	11	405	150	305	2,105	58	49	-
				150	4,165	80	72	63
		610	150	305	1,390	-	-	-
				150	2,775	67	58	54
19/32	15	405	150	305	2,105	58	49	-
				150	4,165	80	72	63
		610	150	305	1,390	-	-	-
				150	2,775	67	58	54

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) Fasteners shall be a hot dipped galvanized plain (smooth) shank nail, with a minimum shank diameter of 2.3 mm, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 50 mm. **Configuration cannot be used for lateral bracing due to nail size.**

(2) Wall studs must have a minimum specific gravity of 0.42.

(3) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 26 of ASCE 7-16 and ASCE 7-10, Section R301.2.1 of the 2021, 2018, and 2015 IRC, and Section 1609.1.1 of the 2021 through 2012 IBC.

(4) Table R301.2.1(1) of the 2021 IRC and Table R301.2(2) of the 2018 and 2015 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 80 m/s (180 mph).

Table 4a. Lap Siding Installed Horizontally to SIPs[1] or WSP Sheathing[5] – **Max. Allowable Wind Speed, V_{asd}[2]**

Minimum Performance Category	Min. Nominal Siding Thickness (mm)	Max. Ring Shank Nail Spacing[3] (mm)	Siding Width (mm)	Max. Allowable Wind Pressure (Pa)	Max. Allowable Wind Speed, V_{asd}[4] (m/s)		
					Wind Exposure Category		
					B	C	D
3/8	9.5	205	130	3,830	76	67	63
			150	3,830	76	67	63
			180	3,830	76	67	63
			205	3,830	76	67	63
			240	3,695	76	67	58
			305	2,855	67	58	54
3/8	9.5	305	130	3,830	76	67	63
			150	3,830	76	67	63
			180	3,490	76	65	58
			205	2,990	67	58	56
			240	2,465	65	54	49
			305	1,905	56	47	40

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) The facer of the structural insulated panels (SIPs) shall be 7/16 Performance Category (nominal 11 mm) or thicker OSB sheathing meeting DOC PS 2 requirements.

(2) The tabulated values represent the capacity of the LP Lap Siding installed in accordance with the requirements of this table. **The tabulated wind speed shall not exceed the SIP capacity for wind load resistance**.

(3) Fasteners shall be a hot dipped galvanized ring shank nail, with a minimum shank diameter of 2.3 mm. Length shall be long enough to fully penetrate wood structural facer panel. One ring shank fastener located 20 mm from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 25 mm.

(4) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 6 of ASCE 7-05 and Section R301.2.1 of the 2012 IRC.

(5) Wood structural panel (WSP) sheathing shall be minimum 7/16 Performance Category OSB or Group 1 plywood meeting DOC PS 1 or DOC PS 2 requirements.

Table 4b. Lap Siding Installed Horizontally to SIPs[1] or WSP Sheathing[6] – **Max. Ultimate Wind Speed, V_{ult}[2]**

Minimum Performance Category	Min. Nominal Siding Thickness (mm)	Max. Ring Shank Nail Spacing[3] (mm)	Siding Width (mm)	Max. Ultimate Wind Pressure (Pa)	Max. Ultimate Wind Speed, V_{ult}[4] (m/s)		
					Wind Exposure Category		
					B	C	D
3/8	9.5	205	130	6,385	89[5]	80	80
			150	6,385	89[5]	80	80
			180	6,385	89[5]	80	80
			205	6,385	89[5]	80	80
			240	6,155	89[5]	80	76
			305	4,760	89[5]	76	67
3/8	9.5	305	130	6,385	89[5]	80	80
			150	6,385	89[5]	80	80
			180	5,815	89[5]	80	76
			205	4,985	89[5]	76	72
			240	4,105	80	67	63
			305	3,170	72	63	54

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) The facer of the structural insulated panels (SIPs) shall be 7/16 Performance Category (nominal 11 mm) or thicker OSB sheathing meeting DOC PS 2 requirements.

(2) The tabulated values represent the capacity of the LP Lap Siding installed in accordance with the requirements of this table. **The tabulated wind speed shall not exceed the SIP capacity for wind load resistance**.

(3) Fasteners shall be a hot dipped galvanized ring shank nail, with a minimum shank diameter of 2.3 mm. Length shall be long enough to fully penetrate wood structural facer panel. One ring shank fastener located 20 mm from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 25 mm.

(4) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 26 of ASCE 7-16 and ASCE 7-10, Section R301.2.1 of the 2021, 2018, and 2015 IRC, and Section 1609.1.1 of the 2021 through 2012 IBC.

(5) Table R301.2.1(1) of the 2021 IRC and Table R301.2(2) of the 2018 and 2015 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 80 m/s (180 mph).

(6) Wood structural panel (WSP) sheathing shall be minimum 7/16 Performance Category OSB or Group 1 plywood meeting DOC PS 1 or DOC PS 2 requirements.

Table 5a. Panel Siding Installed Vertically to SIPs[1] or WSP Sheathing[5] – **Max. Allowable Wind Speed, V_{asd}[2]**

Performance Category	Min. Nominal Siding Thickness (mm)	Maximum Ring Shank Nail Spacing[3] (mm o.c.)		Maximum Allowable Wind Pressure (Pa)	Max. Allowable Wind Speed, V_{asd}[4] (m/s)		
					Wind Exposure Category		
		Vertical	Horizontal		B	C	D
3/8	9.5	205	205	3830	76	67	63
		255	255	2510	65	54	49
		305	305	1745	54	45	40
		405	405	980	40	-	-
7/16	11	205	205	3830	76	67	63
		255	255	2510	65	54	49
		305	305	1745	54	45	40
		405	405	980	40	-	-
19/32	15	205	205	3830	76	67	63
		255	255	2510	65	54	49
		305	305	1745	54	45	40
		405	405	980	40	-	-

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) The facer of the structural insulated panels (SIPs) shall be 7/16 Performance Category or thicker OSB sheathing meeting DOC PS 2 requirements.

(2) The tabulated values represent the capacity of the LP Panel Siding installed in accordance with the requirements of this table. **The tabulated wind speed shall not exceed the SIP capacity for wind load resistance**.

(3) Fasteners shall be a hot dipped galvanized ring shank nail, with a minimum shank diameter of 2.3 mm. Length shall be long enough to fully penetrate wood structural facer panel. Ring shank nails fastened in a grid as specified.

(4) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 6 of ASCE 7-05 and Section R301.2.1 of the 2012 IRC.

(5) Wood structural panel (WSP) sheathing shall be minimum 7/16 Performance Category OSB or Group 1 plywood meeting DOC PS 1 or DOC PS 2 requirements.

Table 5b. Panel Siding Installed Vertically to SIPs[1] or WSP Sheathing[6] – **Max. Ultimate Wind Speed, V_{ult}[2]**

Performance Category	Min. Nominal Siding Thickness (mm)	Maximum Ring Shank Nail Spacing[3] (mm o.c.)		Maximum Allowable Wind Pressure (Pa)	Max. Allowable Wind Speed, V_{ult} [4] (m/s)		
					Wind Exposure Category		
		Vertical	Horizontal		B	C	D
3/8	9.5	205	205	6385	89[5]	80	80
		255	255	4185	80	72	63
		305	305	2905	67	58	54
		405	405	1635	54	-	-
7/16	11	205	205	6385	89[5]	80	80
		255	255	4185	80	72	63
		305	305	2905	67	58	54
		405	405	1635	54	-	-
19/32	15	205	205	6385	89[5]	80	80
		255	255	4185	80	72	63
		305	305	2905	67	58	54
		405	405	1635	54	-	-

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) The facer of the structural insulated panels (SIPs) shall be 7/16 Performance Category or thicker OSB sheathing meeting DOC PS 2 requirements.

(2) The tabulated values represent the capacity of the LP Panel Siding installed in accordance with the requirements of this table. **The tabulated wind speed shall not exceed the SIP capacity for wind load resistance**.

(3) Fasteners shall be a hot dipped galvanized ring shank nail, with a minimum shank diameter of 2.3 mm. Length shall be long enough to fully penetrate wood structural facer panel. Ring shank nails fastened in a grid as specified.

(4) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 26 of ASCE 7-16 and ASCE 7-10, Section R301.2.1 of the 2021, 2018, and 2015 IRC, and Section 1609.1.1 of the 2021 through 2012 IBC.

(5) Table R301.2.1(1) of the 2021 IRC and Table R301.2(2) of the 2018 and 2015 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 80 m/s (180 mph).

(6) Wood structural panel (WSP) sheathing shall be minimum 7/16 Performance Category OSB or Group 1 plywood meeting DOC PS 1 or DOC PS 2 requirements.

Table 6a. Vertical Siding or Lap Siding Installed Vertically – **Max. Allowable Wind Speed, V_{asd}**[1]

Performance Category	Min. Nominal Siding Thickness (mm)	Siding Type	Siding Width (mm)	Fastener Edge Spacing (mm o.c.)	Max. Allowable Wind Pressure (Pa)	Max. Allowable Wind Speed, V_{asd}[6] (m/s) Wind Exposure Category		
						B	C	D
3/8	9.5	Vertical Siding	405[2]	150[4]	3,830	76	67	63
		Lap Siding Installed Vertically	130[3]	305[5]	3,830	76	67	63
			150[3]		3,445	76	65	58
			180[3]		2,970	67	58	54
			205[3]		2,585	65	56	49
			240[3]		2,205	58	49	47
			305[3]		1,725	54	45	40
7/16	11	Lap Siding Installed Vertically	150[3]	305[5]	3,445	76	65	58
			180[3]		2,970	67	58	54
			205[3]		2,585	65	56	49
			240[3]		2,205	58	49	47
			305[3]		1,725	54	45	40

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) Siding shall be installed over 7/16 Performance Category (nominal 11 mm) or thicker wood structural panel sheathing meeting DOC PS 1 or DOC PS 2 requirements.

(2) Vertical Siding installed in accordance with Figures 2, 5, and 6.

(3) Lap Siding installed vertically in accordance with Figure 1 through 4.

(4) Fasteners must be ring shank nails with a minimum shank diameter of 2.3 mm. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of 150 mm o.c. along the siding perimeter in accordance with Figures 5 and 6.

(5) Fasteners must be ring shank nails with a minimum shank diameter of 2.3 mm. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of 305 mm o.c. along alternating edges of the length of the trim/batten in accordance with Figures 1 and 4.

(6) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 6 of ASCE 7-05 and Section R301.2.1 of the 2012 IRC.

Table 6b. Vertical Siding or Lap Siding Installed Vertically - **Max. Ultimate Wind Speed, V_{ult}**[1]

Performance Category	Min. Nominal Siding Thickness (mm)	Siding Type	Siding Width (mm)	Fastener Edge Spacing (mm o.c.)	Max. Ultimate Wind Pressure (Pa)	Max. Ultimate Wind Speed, V_{ult}[6] (m/s) Wind Exposure Category		
						B	C	D
3/8	9.5	Vertical Siding	405[2]	150[4]	6,370	89[7]	80	80
		Lap Siding Installed Vertically	130[3]	305[5]	6,370	89[7]	89[7]	89[7]
			150[3]		5,745	89[7]	80	72
			180[3]		4,930	89[7]	72	72
			205[3]		4,310	80	72	67
			240[3]		3,640	72	67	58
			305[3]		2,875	67	58	54
7/16	11	Lap Siding Installed Vertically	150[3]	305[5]	5,745	89[7]	80	72
			180[3]		4,930	89[7]	72	72
			205[3]		4,310	80	72	67
			240[3]		3,640	72	67	58
			305[3]		2,875	67	58	54

For **imperial units**: 1 mm = 0.039 inch, 1 Pa = 0.021 psf, 1 m/s = 2.24 mph.

(1) Siding shall be installed over 7/16 Performance Category or thicker wood structural panel sheathing meeting DOC PS 1 or DOC PS 2 requirements.

(2) Vertical Siding installed in accordance with Figures 2, 5, and 6.

(3) Lap Siding installed vertically in accordance with Figure 1 through 4.

(4) Fasteners must be ring shank nails with a minimum shank diameter of 2.3 mm. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of 150 mm o.c. along the siding perimeter in accordance with Figures 2, 5, and 6.

(5) Fasteners must be ring shank nails with a minimum shank diameter of 2.3 mm. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of 305 mm o.c. along alternating edges of the length of the batten in accordance with Figures 1 and 4.

(6) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 12.2-m height in Zone 5 with smallest effective area in accordance with Chapter 26 of ASCE 7-16 and ASCE 7-10, Section R301.2.1 of the 2021, 2018, and 2015 IRC, and Section 1609.1.1 of the 2021 through 2012 IBC.

(7) Table R301.2.1(1) of the 2021 IRC and Table R301.2(2) of the 2018 and 2015 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 80 m/s (180 mph).

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