# TECH BULLETIN



## Subject: Engineered Wood Lap Siding from Louisiana-Pacific

## Date: August 2010 (Revised January 2015)

Louisiana-Pacific, a leader in the manufacture of Engineered-Wood lap siding, has examined the use of their Smartside Precision Treated Engineered-Wood lap siding with SIPs. Louisiana-Pacific worked with APA who authored the attached APA Product Report. Louisiana-Pacific has served notice that their products applied directly over R-Control SIPs are acceptable following their recommended attachment patterns. Louisiana-Pacific siding is recommended as a premium Engineered-Wood lap siding product compatible with R-Control SIPs. Information on the attachment requirement for Louisiana-Pacific's Engineered-Wood lap siding is attached to this bulletin (see Tables 4a and 4b). For further information on Louisiana-Pacific siding products, please visit www.lpsmartside.com.



www.thermafoamrcontrol.com

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## LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series Treated-Engineered-Wood Lap & Panel Siding Louisiana-Pacific Corporation Rev

Revised July 2, 2014

**PR-N124** 

Product: LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series Treated-Engineered-Wood Lap and Panel Siding Louisiana-Pacific Corporation, 414 Union Street, Suite 2000, Nashville, TN 37219 (800) 450-6106 www.lpcorp.com

### 1. Basis of the product report:

- 2012 and 2009 International Building Code: Section 104.11 Alternative Materials
- 2012 and 2009 International Residential Code: Section R104.11 Alternative Materials
- ANSI/AF&PA SDPWS-2008 Special Design Provisions for Wind and Seismic
- ASCE 7-10 and ASCE 7-05 Minimum Design Loads for Buildings and Other Structures
- ICC-ES Acceptance Criteria for Treated-Engineered-Wood Siding, AC321
- 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, and other qualification data.
- 2. Product description:

Louisiana-Pacific Corporation (LP<sup>®</sup>) SmartSide<sup>®</sup> Precision Treated-Engineered-Wood Lap and Panel siding is overlaid with a resin treated paper and is available with either a smooth or embossed surface texture. The siding is available as laps or panels. The siding is treated with Zinc Borate for decay and insect resistance. All edges are factory sealed with a primer.

LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series Treated-Engineered-Wood lap siding is available in 3/8 and 7/16 Performance Categories, in nominal widths of 6, 8 and 12 inches and in lengths up to 16 feet.

LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series panel siding is available in 3/8, 7/16 and 19/32 Performance Categories, 4-foot width and in lengths of 8, 9, and 10 feet. The 3/8 Performance Category panels are available without grooves or with grooves spaced 8 inches on center. The 7/16 and 19/32 Performance Category panels are available without grooves or with grooves spaced either 4 or 8 inches on center. Minimum thicknesses at the groove and shiplap are documented in the plant Quality Manual.

3. Design properties:

Allowable racking loads for LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series panel siding are listed in Table 1. For 3/8 Performance Category panels nailed at shiplap edges, use 5/16 Performance Category shear values. For 7/16 and 19/32 Performance Category panel sidings nailed at shiplap edges, use 3/8 Performance Category shear values. Design wind loads LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series lap and panel siding are listed in Tables 2 and 3, respectively.

4. Product installation:

LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series Treated-Engineered-Wood Lap and Panel sidings shall be installed in accordance with recommendations provided by the manufacturer (<u>www.lpcorp.com/smartside/lap/</u> and <u>www.lpcorp.com/smartside/panel/</u>) and APA *Engineered Wood Construction Guide*, Form E30 (<u>www.apawood.org/publications</u>). The

maximum span shall be in accordance with the Span Rating shown in the trademark. The LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series lap siding shall be permitted to be installed over the facer of structural insulated panels (SIPs) in accordance with Table 4.

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 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 16 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<sup>®</sup> SmartSide<sup>®</sup> Precision Series Treated-Engineered-Wood Lap and Panel siding used outdoors must be finished in accordance with recommendations provided by the manufacturer (see links above) and APA *Engineered Wood Construction Guide*, Form E30 (see link above).
  - b) LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series Treated-Engineered-Wood panel siding is flood resistant on the following properties: 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. This evaluation applies to 3/8 and 7/16 Performance Category panel siding at a 16 o.c. Span Rating.
  - c) LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series Treated-Engineered-Wood Lap and Panel siding is produced at Louisiana-Pacific Corporation facilities at Hayward, WI, Newberry, MI, Tomahawk, WI, and Two Harbors, MN under a quality assurance program audited by APA.
  - d) This report is subject to re-examination in one year.
- 8. Identification:

LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series Treated-Engineered-Wood Lap and Panel 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, or 399 for the Two Harbors 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.

## Table 1. Allowable Racking Shear (plf) for LP<sup>®</sup> SmartSide<sup>®</sup> Precision Series Treated-Engineered-Wood Panel Siding – Sheathing Shear Walls with Framing of Douglas-Fir-Larch or Southern Pine for Wind or Seismic Loading<sup>(1,2,3)</sup>

Minimum		Panels Applied Directly to Framing					Panels Applied over 1/2-inch or 5/8-inch Gypsum Sheathing					
Performance Category	Performance Category Penetration Nail Size	(Common or	Nail Spacing at Panel Edges (in.)				Nail Size (Common or	Na		at Panel Edg n.)	es	
	(in.)	Galvanized Box)	6	4	3	2 <sup>(4)</sup>	Galvanized Box)	6	4	3	2 <sup>(4)</sup>	
5/16 <sup>(5,6)</sup>	1-1/4	6d	180	270	350	450	- 8d	180	270	350	450	
3/8 <sup>(5,6)</sup>	1-1/4	ou	200	300	390	510	8u	200	300	390	510	
3/8 <sup>(5,6)</sup>	1-1/2	8d	220	320	410	530	104	260	380	490 <sup>(4)</sup>	640	
7/16 <sup>(5)</sup>	1-1/2	ou	240	350	450	585	10d	260	380	490 <sup>(4)</sup>	640	
19/32 <sup>(5)</sup>	1-5/8	10d	340	510	665 <sup>(4)</sup>	870	-	-	-	-	-	

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m.

For framing of other species: (a) Find specific gravity for species of lumber in AF&PA National Design Specification; (b) find shear value from table for nails size; (c) multiply value by (1) (2)

All panel edges must be backed with 2-inch nominal or equal to 0.42 but less than 0.49, or 0.65 for species with specific gravity less than 0.42. All panel edges must be backed with 2-inch nominal or wider framing. Panels must be installed with the long dimension oriented in the vertical direction. Space nails 6 inches o.c. along intermediate framing members for 38 and 71/6 Performance Category panels installed on stude spaced 24 inches o.c. For other conditions and panel Performance Categories, space nails 12 inches o.c. on intermediate supports. For shear loads of normal or permanent load duration, the values in the table shall be multiplied by 0.63 or 0.56, respectively.

(3)

 <sup>(6)</sup> For Sheat loads on normal or permanent load our atom, the values in the table shall be insurptice by 0.00 or 0.00, respectively.
<sup>(6)</sup> Framing at panel edges must be 3 inches normal and nails must be staggered where nails are spaced 2 inches o.c., and where 10d nails having penetration into framing of more than 1-5/8 inches are spaced 3 inches or less, o.c. Exception: Unless otherwise required, 2-inch normal 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 shear values, and 7/16 and 19-/32 Performance Category panel sidings nailed at shiplap edges use 3/8 Performance Category shear values. 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 values. (6)

<sup>(7)</sup> 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.

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	Maximum	Maximum		Maximum Maximum No			
Derferreenee	Wall	Siding	Allowable	Speed, V <sub>asd</sub> <sup>(3)</sup> (mph)			
Performance Category	Stud	Width	Wind	Wind	I Exposure Ca	ategory	
Calegory	Spacing <sup>(2)</sup> (in.)	(in.)	Pressure (psf)	В	С	D	
		6	80	170	150	140	
3/8	16	8	79	170	150	140	
		12	50	140	120	110	
		6	80	170	150	140	
	16	8	76	170	150	130	
7/40		12	49	140	120	110	
7/16		6	71	170	145	130	
	24	8	51	145	120	110	
		12	32	110	90	90	

Table 2a. Lap Siding – Maximum nominal (allowable) design wind speed, V<sub>asd</sub><sup>(1)</sup>

For **SI**: 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 0.447 m/s.

<sup>(1)</sup> One fastener per stud located 3/4 inch from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 1 inch. Fastener must have a minimum head diameter of 0.297 inch, a minimum shaft diameter of 0.113 inch and a minimum length of 2.5 inches (8d box nail).

<sup>(2)</sup> 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 30-ft height in Zone 5 with smallest effective area per Chapter 6 of ASCE 7-05, Section R301.2 of the 2009 and 2012 IRC, and Section 1609.1.1 of the 2009 IBC.

Table 2b.	Lap Siding -	- Maximur	n ultimate	design wind s	speed, $V_{ult}^{(1)}$

•	Maximum		Maximum	Maximum Ultimate Design Wind Speed, V <sub>ult</sub> <sup>(3)</sup> (mph)			
Performance	Wall	Siding	Ultimate				
Category	Stud	Width	Wind	Wind	Exposure Cat	egory	
Calegory	Spacing <sup>(2)</sup> (in.)	(in.)	Pressure (psf)	В	С	D	
		6	133	200	180	180	
3/8	16	8	131	200	180	180	
		12	83	180	150	140	
		6	133	200	180	180	
	16	8	127	200	180	160	
7/16		12	81	180	150	140	
//10		6	119	200	180	160	
	24	8	85	180	150	140	
		12	54	140	120	115	

For **SI**: 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 0.447 m/s.

<sup>(1)</sup> One fastener per stud located 3/4 inch from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 1 inch. Fastener must have a minimum head diameter of 0.297 inch, a minimum shaft diameter of 0.113 inch and a minimum length of 2.5 inches (8d box nail).

<sup>(2)</sup> Wall studs must have a minimum specific gravity of 0.42.

<sup>(3)</sup> Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-ft height in Zone 5 with smallest effective area per Chapter 26 of ASCE 7-10 and Section 1609.1.1 of the 2012 IBC.

Table 3a.	Panel Siding -	- Maximum	nominal	(allowable)	) design wind s	peed. Vasd

Table 5a. Table Siding – Maximum normal (anowable) design wind speed, vasd											
Performance			Spacing <sup>(1)</sup> o.c.)	Maximum Allowable	Maximum Nominal (Allowable) Wind Speed, V <sub>asd</sub> <sup>(3)</sup> (mph)						
Category	Spacing <sup>(2)</sup>			Wind	Wind I	Exposure Ca	tegory				
Category	(in.)	Edges	Field	Pressure	В	С	D				
	10	6	12	46	130	110	105				
2/0	16	ю	6	80	170	150	140				
3/8	24	6	12	31	110	90	85				
			6	61	150	130	120				
	16	6	12	45	130	110	105				
7/16		6	6	80	170	150	140				
//10	24	6	12	30	110	90	85				
	24	0	6	59	150	130	120				
	16	6	12	41	130	110	100				
19/32	10	ю	6	80	170	150	140				
19/32	24	6	12	27	105	90	-				
	24	0	6	55	150	125	110				

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 0.447 m/s.

(1) Fastener must have a minimum head diameter of 0.297 inch, a minimum shaft diameter of 0.113 inch and a minimum length of 2.5 inches (8d box nail). Wall studs must have a minimum specific gravity of 0.42.

(2)

(3) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-ft height in Zone 5 with smallest effective area per Chapter 6 of ASCE 7-05, Section R301.2 of the 2009 and 2012 IRC, and Section 1609.1.1 of the 2009 IBC.

Table 3b. Panel Siding – Maximum ultimate design wind speed, V <sub>u</sub>
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Performance	Maximum Wall Stud	Fastener Spacing <sup>(1)</sup> (in. o.c.)		Maximum Ultimate	Maximum Ultimate Design Wind Speed, V <sub>ult</sub> <sup>(3)</sup> (mph)			
Category	Spacing <sup>(2)</sup>			Wind	Wind E	Exposure Ca	itegory	
Calegory	(in.)	Edges	Field	Pressure (psf)	В	С	D	
	16	6	12	77	160	150	130	
3/8	10	0	6	133	200	180	180	
3/0	24	6	12	51	140	120	110	
			6	102	200	160	150	
	16	6	12	74	160	140	130	
7/16		0	6	133	200	180	180	
7710	24	6	12	50	140	120	110	
	24	0	6	99	200	160	150	
	16	6	12	69	160	140	130	
19/32	10	Ö	6	133	200	180	180	
19/32	24	6	12	46	130	115	-	
	24	0	6	92	180	160	150	

For **SI**: 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 0.447 m/s.

<sup>(1)</sup> Fastener must have a minimum head diameter of 0.297 inch, a minimum shaft diameter of 0.113 inch and a minimum length of 2.5 inches (8d box nail).

<sup>(2)</sup> 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 30-ft height in Zone 5 with smallest effective area per Chapter 26 of ASCE 7-10 and Section 1609.1.1 of the 2012 IBC.

Table 4a. Lap Siding Installed Over the Fac	er of SIPs <sup>(1)</sup> – <b>Maximum nominal (allowable)</b>
design wind speed, V <sub>asd</sub> <sup>(2)</sup>	

Performance Category	Maximum Ring Shank Nail Spacing <sup>(3)</sup>	Maximum Wood Screw Spacing <sup>(4)</sup>	Siding Width	Maximum Allowable Wind	Wind S	Nominal (A peed, V <sub>asd</sub> <sup>(5</sup> Exposure Ca	) (mph)			
Category	(in.) (in.)		(in.)	Pressure (psf)	В	С	D			
			6	80	170	150	140			
3/8	8	12	8	63	150	130	125			
			12	40	125	105	90			
			6	58	150	130	120			
7/16	12	16	8	42	130	110	100			
			12	27	105	85	-			

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 0.447 m/s.

<sup>(1)</sup> The facer of the structural insulated panels (SIPs) shall be 7/16 Performance Category or thicker OSB sheathing meeting DOC PS2 requirements.

<sup>(2)</sup> 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.

<sup>(3)</sup> One 6d ring shank nail (0.120 inch in diameter) located 1/2 inch from the top edge of the siding. The ring shank nails must have a minimum head diameter of 0.297 inch, a minimum shank diameter of 0.120 inch and a minimum length of 2 inches.

<sup>(4)</sup> One #8 wood screw (0.164 inch in diameter) located 1/2 inch from the top edge of the siding may be used. The wood screws must have a minimum head diameter of 0.297 inch, a minimum shank diameter of 0.164 inch and a minimum length of 2 inches.

<sup>(5)</sup> Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-ft height in Zone 5 with smallest effective area per Chapter 6 of ASCE 7-05, Section R301.2 of the 2009 and 2012 IRC, and Section 1609.1.1 of the 2009 IBC.

## Table 4b. Lap Siding Installed Over the Facer of SIPs<sup>(1)</sup> – **Maximum ultimate design wind speed, V**<sub>ult</sub><sup>(2)</sup>

Performance Category	Maximum Ring Shank Nail Spacing <sup>(3)</sup>	Maximum Wood Screw Spacing <sup>(4)</sup>	Siding Width	Maximum Ultimate Wind	Wind S	um Ultimate Speed, V <sub>ult</sub> <sup>(5</sup> xposure Ca	<sup>)</sup> (mph)
	(in.)	(in.)	(in.)	Pressure (psf)	В	С	D
			6	133	200	180	180
3/8	8	12	8	105	200	160	160
			12	67	160	140	120
			6	97	200	160	150
7/16	12	16	8	70	160	140	130
			12	45	130	115	-

For **SI**: 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 0.447 m/s.

<sup>(1)</sup> The facer of the structural insulated panels (SIPs) shall be 7/16 Performance Category or thicker OSB sheathing meeting DOC PS2 requirements.

<sup>(2)</sup> 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) One 6d ring shank nail (0.120 inch in diameter) located 1/2 inch from the top edge of the siding. The ring shank nails must have a minimum head diameter of 0.297 inch, a minimum shank diameter of 0.120 inch and a minimum length of 2 inches.

<sup>(4)</sup> One #8 wood screw (0.164 inch in diameter) located 1/2 inch from the top edge of the siding may be used. The wood screws must have a minimum head diameter of 0.297 inch, a minimum shank diameter of 0.164 inch and a minimum length of 2 inches.

<sup>(5)</sup> Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-ft height in Zone 5 with smallest effective area per Chapter 26 of ASCE 7-10 and Section 1609.1.1 of the 2012 IBC.

APA – The Engineered Wood Association is an approved national standards developer accredited by American National Standards Institute (ANSI). APA publishes ANSI standards and Voluntary Product Standards for wood structural panels and engineered wood products. APA is an accredited certification body under ISO/EC 17020 by International Code Council (ICC) International Accreditation Service (IAS), and an accredited testing organization under ISO/IEC 17025 by IAS. APA is also an approved Product Certification Agency, Testing Laboratory, Quality Assurance Entity, and Validation Entity by the State of Florida, and an approved testing laboratory by City of Los Angeles and Miami-Dade County.

#### APA - THE ENGINEERED WOOD ASSOCIATION

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