SIP No. 2074

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.

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sales@rcontrolsips.com
www.rcontrolsips.com

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R-CONTROL SIPS
1450 N. Waco St.
Hillsboro, Texas 76645
254-324-7477
(SIPS)

APA PRODUCT REPORT®

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LP® SmartSide® Precision Series Treated-Engineered-Wood Lap & Panel Siding Louisiana-Pacific Corporation

PR-N124

Revised July 2, 2014

Product: LP® SmartSide® 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®) SmartSide® 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® SmartSide® 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® SmartSide® 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® SmartSide® 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® SmartSide® Precision Series lap and panel siding are listed in Tables 2 and 3, respectively.

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

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maximum span shall be in accordance with the Span Rating shown in the trademark. The LP® SmartSide® 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® SmartSide® 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® SmartSide® 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® SmartSide® 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® SmartSide® 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.

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

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

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

(1) 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 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 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 3/8 and 7/16 Performance Category panels installed on studs spaced 24 inches o.c. For other conditions and panel Performance Categories, space nails 12 inches 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.

(4) Framing at panel edges must be 3 inches nominal or wider 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 nominal 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.

(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.

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Table 2a. Lap Siding – **Maximum nominal (allowable) design wind speed, V_{asd}**[1]

Performance Category	Maximum Wall Stud Spacing[2] (in.)	Siding Width (in.)	Maximum Allowable Wind Pressure (psf)	Maximum Nominal (Allowable) Wind Speed, V_{asd}[3] (mph)		
				Wind Exposure Category		
				B	C	D
3/8	16	6	80	170	150	140
		8	79	170	150	140
		12	50	140	120	110
7/16	16	6	80	170	150	140
		8	76	170	150	130
		12	49	140	120	110
	24	6	71	170	145	130
		8	51	145	120	110
		12	32	110	90	90

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

(1) 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).

(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 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 – **Maximum ultimate design wind speed, V_{ult}**[1]

Performance Category	Maximum Wall Stud Spacing[2] (in.)	Siding Width (in.)	Maximum Ultimate Wind Pressure (psf)	Maximum Ultimate Design Wind Speed, V_{ult}[3] (mph)		
				Wind Exposure Category		
				B	C	D
3/8	16	6	133	200	180	180
		8	131	200	180	180
		12	83	180	150	140
7/16	16	6	133	200	180	180
		8	127	200	180	160
		12	81	180	150	140
	24	6	119	200	180	160
		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.

(1) 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).

(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 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.

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Table 3a. Panel Siding – **Maximum nominal (allowable) design wind speed, V_{asd}**

Performance Category	Maximum Wall Stud Spacing[2] (in.)	Fastener Spacing[1] (in. o.c.)		Maximum Allowable Wind Pressure	Maximum Nominal (Allowable) Wind Speed, V_{asd}[3] (mph)		
					Wind Exposure Category		
		Edges	Field		B	C	D
3/8	16	6	12	46	130	110	105
			6	80	170	150	140
	24	6	12	31	110	90	85
			6	61	150	130	120
7/16	16	6	12	45	130	110	105
			6	80	170	150	140
	24	6	12	30	110	90	85
			6	59	150	130	120
19/32	16	6	12	41	130	110	100
			6	80	170	150	140
	24	6	12	27	105	90	-
			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).
(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 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_{ult}**

Performance Category	Maximum Wall Stud Spacing[2] (in.)	Fastener Spacing[1] (in. o.c.)		Maximum Ultimate Wind Pressure (psf)	Maximum Ultimate Design Wind Speed, V_{ult}[3] (mph)		
					Wind Exposure Category		
		Edges	Field		B	C	D
3/8	16	6	12	77	160	150	130
			6	133	200	180	180
	24	6	12	51	140	120	110
			6	102	200	160	150
7/16	16	6	12	74	160	140	130
			6	133	200	180	180
	24	6	12	50	140	120	110
			6	99	200	160	150
19/32	16	6	12	69	160	140	130
			6	133	200	180	180
	24	6	12	46	130	115	-
			6	92	180	160	150

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).
(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 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.

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Table 4a. Lap Siding Installed Over the Facer of SIPs[1] – **Maximum nominal (allowable) design wind speed, V_{asd}[2]**

Performance Category	Maximum Ring Shank Nail Spacing[3] (in.)	Maximum Wood Screw Spacing[4] (in.)	Siding Width (in.)	Maximum Allowable Wind Pressure (psf)	Maximum Nominal (Allowable) Wind Speed, V_{asd}[5] (mph)		
					Wind Exposure Category		
					B	C	D
3/8	8	12	6	80	170	150	140
			8	63	150	130	125
			12	40	125	105	90
7/16	12	16	6	58	150	130	120
			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.

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

(4) 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.

(5) 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[1] – **Maximum ultimate design wind speed, V_{ult}[2]**

Performance Category	Maximum Ring Shank Nail Spacing[3] (in.)	Maximum Wood Screw Spacing[4] (in.)	Siding Width (in.)	Maximum Ultimate Wind Pressure (psf)	Maximum Ultimate Design Wind Speed, V_{ult}[5] (mph)		
					Wind Exposure Category		
					B	C	D
3/8	8	12	6	133	200	180	180
			8	105	200	160	160
			12	67	160	140	120
7/16	12	16	6	97	200	160	150
			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.

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

(4) 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.

(5) 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.

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APA – THE ENGINEERED WOOD ASSOCIATION
HEADQUARTERS
7011 So. 19th St. ▪ Tacoma, Washington 98466
Phone: (253) 565-6600 ▪ Fax: (253) 565-7265 ▪ Internet Address: www.apawood.org

PRODUCT SUPPORT HELP DESK
(253) 620-7400 ▪ *E-mail Address*: help@apawood.org

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