Do Kim & Associates, LLC
Consulting Structural Engineers

Florida Board of Engineers Certificate of Authorization No. 26887

Product Evaluation Report

Date: April 30, 2024

Florida Product Approval: **#FL 9190-R12**

Product Category: Panel Walls

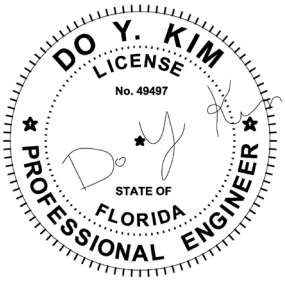
Product sub-category: Siding

Product Name: LP® SmartSide® Siding

Manufacturer: LP Building Solutions
1610 West End Ave, Suite 200
Nashville, TN 37203
(888) 820-0325

Scope:
This product evaluation report issued by Do Kim & Associates, LLC and Do Kim, P.E. for LP Building Solutions is based on Florida Department of Business and Professional Regulation Rule 61G20-3 Method (2) (b) of the State of Florida Product Approval. Re-evaluation of this product shall be required following pertinent Florida Building Code modifications or updates.

Do Kim & Associates, LLC and Do Kim, P.E. do not have nor will acquire financial interest in the company manufacturing or distributing the product or in any other entity involved in the approval process of the product named herein. This product has been evaluated for use in locations adhering to the Florida Building Code 8th Edition (FBC).



Do Kim, P.E.
FL #49497

Do Y Kim

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Supporting Documents

1. Drawings and Reports:
    a. Application Instructions, LP® SmartSide® Siding.
    b. APA-The Engineered Wood Association Product Report PR-N124, Revised September 5, 2023.
    c. Joint Evaluation Report ESR-1301, ICC Evaluation Service, LLC, ICC-ES, 800-423-6587, 562-699-0543, www.icc-es.org and APA Product Report, APA-The Engineered Wood Association, Tacoma, WA, Reissued February 2024.
    d. LP Building Solutions Technical Note No.014, Installing LP Smartside Trim and Lap Siding on Concrete or Masonry Walls over Furring Strips.
    e. LP Building Solutions Technical Note No.028, LP Smartside 38 Series Vertical Siding for Board & Batten Application.

2. Testing
    a. Approved test lab: Architectural Testing, Inc., 130 Derry Court, York, PA 17406. Test reports referenced:
        i. Report No. 79279.01-122-18 (01/07/08)
            1. Testing per Miami-Dade County Checklist #0475 For the Approval of: Durability of Wood-base Structural Composite Lumber and Panels
            2. ASTM D4761-02 Standard Test Methods for Mechanical Properties of Lumber and Wood-Based Structural Material.
            3. ASTM D1761-06 Standard Test Methods for Mechanical Fasteners in Wood.
        ii. Report No. 78294.01-401-18 (12/03/07)
            1. TAS 202-94, Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components Using Uniform Static Air Pressure Loading. Design Pressure @ +/-57.6 psf.
            2. TAS 203-94, Criteria for Testing Products Subject to Cyclic Wind Pressure Loading. Design Pressure @ +/-57.6 psf.

3. Calculations
    a. Standards referenced:
        i. ASCE 7-22, Chapter 30, Wind Loads: Components and Cladding.
            1. Calculations are based on Enclosed Building condition and assumed design parameters in PR-N124. Design wind speed and exposure information in the PR-N124 tables are consistent with calculations of ASCE 7-22.
        ii. ICC Evaluation Service, Inc. Acceptance Criteria for Treated-Engineered-Wood Siding, AC321 (Editorially Revised April 2021).

4. LP® SmartSide® Model Product Names
    a. LP® SmartSide® is a primed siding product.
    b. LP® SmartSide® ExpertFinish® is a prefinished siding product.

5. Application Instructions
    a. Strand Substrate Models:
        i. Installation fastening requirements as outlined in the APA PR-N124 and Joint Evaluation Report ESR-1301 documents have been reviewed and evaluated by Do Kim, P.E. based on comparative and/or rational analysis and has been

determined to be in accordance to accepted engineering practice. Installation loads per APA PR-N124 and Joint Evaluation Report ESR-1301 shall be the minimum design pressures as determined in accordance to the FBC 8th Edition (FBC).

ii. For maximum design pressures, see product report (APA PR-N124) for various fastener types and substrates.

6. Applicable FBC Sections
   a. Chapter 14 Exterior Walls
      i. Section 1404.1 General
      ii. Section 1405.2 Weather Protection
      iii. Section 1405.5 Wood Veneers
      iv. Section 1405.17 Fastening
   b. Chapter 16 Structural Design
      i. Section 1604.3.1 Deflections
      ii. Section 1609.1 Applications
      iii. Section 1616.3.1 HVHZ Allowable Deflections
   c. Chapter 23 Wood
      i. Section 2304.6 Exterior Wall Sheathing
      ii. Section 2304.6.1 Wood Structural Panel Sheathing
      iii. Section 2315.1.11

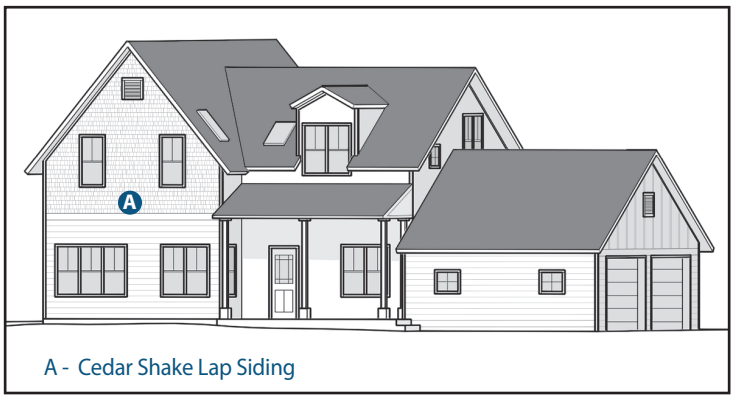
7. Other
   a. Quality Assurance of LP® SmartSide® products by APA - The Engineered Wood Association (FBC Organization #QUA2521) that manufacturer is within a quality assurance program for this product under Rule 61G20-3.

Limitations and Condition of Use

1. This product has been designed and tested in accordance to the Florida Building Code 8th Edition (FBC).
2. No missile impact resistance testing has been conducted.
3. Each product listed above shall be installed in strict compliance with its respective Product Evaluation Document along with all components noted herein.
4. Application instructions in PR-N140 and ESR-1301 are based on enclosed building condition for wind design pressure.
5. Use of each product shall be in strict accordance with its Product Approval Evaluation Documents.
6. Fire-resistant construction: Wood structural panels that are not fire-treated have been shown to meet a Class III (or C) category for flame spread. Where otherwise specified, fire-resistant construction shall be in accordance with the recommendations in APA Product Guide: Fire-Rated Systems, Form W305.
7. Deflection limits and allowable spans per Product Approval Evaluation Documents are in accordance to L/120 in non-HVHZ per Chapter 16 Table 1604.3 deflection limits. Deflection limits and allowable spans per Product Approval Evaluation Documents are in accordance to L/180 in HVHZ per Chapter 16 Section 1616.3.1 deflection limits.
8. All supporting host structures shall be designed to resist all superimposed loads.
9. All components which are permanently installed shall be protected against corrosion, contamination, and other such damage.

LP SmartSide® TRIM & SIDING

LP SMARTSIDE CEDAR SHAKE PRIMED LAP SIDING



A - Cedar Shake Lap Siding



On Site Storage

- Store off the ground well supported, on a flat well-drained surface. (Diagram 1a)
- Additional support may be required to achieve a safe clearance from the ground.
- Store products under a roof or separate waterproof covering. (Diagram 1a)
- When the waterproof covering is removed, cut all unit banding.
- Keep siding clean and dry. Inspect prior to installation.

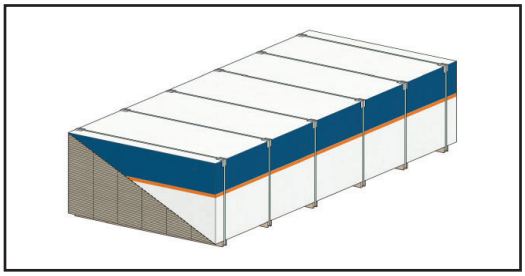


Diagram 1a

Preparation

General Information

- At the time of manufacture, siding meets or exceeds the performance standards set forth in ICC-ES AC321 and has achieved code recognition under ESR-1301 and CCMC 11826-L, APA recognition under PR-N124, and HUD-MR1318c. For copies of these reports, call LP Customer Support at 800-648-6893 or go online at https://lpcorp.com/resources/product-literature/#.
- LP's application instructions describe the minimum requirements needed to assure LP® SmartSide® Limited Warranty coverage.
- Failure to follow the LP application instructions could result in reduced product service life and may lead to denial of coverage under the LP SmartSide Limited Warranty.

Before You Begin

- Minimum 6 inch (152 mm) clearance must be maintained between siding and finish grade (ground cover).
- Siding applied adjacent to porches, patios, walks, roofs or other hard finished surfaces must have a clearance of at least 1 inch (25 mm) above that surface. (Diagram 2a)
- Siding must not be in direct contact with masonry, concrete, brick, stone, stucco or mortar. Backer rod is recommended to properly space materials at these locations.
- Apply siding in a manner that prevents moisture intrusion and water accumulation.
- All wood substrate exposed to the weather must be sealed in a manner the prevents moisture intrusion and water accumulation.
  - Seal ALL exposed cuts of siding and trim. Field spray applied coatings on cuts are not recommended.
  - Sealing can be accomplished by applying a coating or sealant according to the manufacturer's requirements.
- Do not use staples.
- **Siding is designed to be installed directly to wood structural panel wall sheathing**, or can be installed directly to studs spaced a maximum of 16 inches (406 mm) on-center (o.c.), or over rigid foam insulation or to furring strips over concrete/ masonry walls.

Preparation

Trim

- Trim should be thick enough so the shake does not extend beyond the face of the trim.
  - LP SmartSide 540 Series Trim is recommended when the shake reveal selected ranges between a maximum of 10 inches (254 mm) to a minimum of 7 inches (178 mm).
- Trim and fascia must be applied in a manner that will not allow moisture intrusion or water accumulation.

Moisture Control

- Moisture control and moisture vapor control are critical elements of proper housing design and construction. Check your local building codes for application procedures for handling moisture and water vapor in your area.
- Follow all applicable building code specifications relating to prevention of moisture intrusion into the wall assembly. LP® SmartSide® siding is a wood product, and, as with all wood products, must be kept free from excessive moisture. Lack of proper ventilation; exposure to constant or repetitive sources of water such as sprinklers, condensation, inadequate flashing; improper sealing; or failure to follow common building practices that prevent moisture intrusion into the wall system may cause damage, and products subject to such treatment will be excluded from warranty coverage.
- As with all wood products, do not apply engineered wood siding to a structure having excessive moisture conditions such as drying concrete, plaster, or wet blown cellulose insulation. If such conditions exist, the building should be well ventilated to allow it to dry prior to the application of the siding.
- Gutters with kick-out flashing and eave drip edge are recommended for control of roof water run off. (Diagram 2a)

Flashing Windows, Doors & Openings

- All openings must be properly sealed or flashed in a manner that prevents moisture intrusion or accumulation.
- Follow window and door manufacturers' instructions for flashing these components.
- Refer to LP SmartSide Trim & Fascia Application Instructions for additional flashing information and details.

Secondary Water-Resistant Barrier (WRB)

- A properly installed, code approved water-resistive barrier is required behind the siding. Consult your local building code for details.
- LP will assume no responsibility for water penetration or damage it may cause.

Water Run-Off Control

- Properly installed flashing materials will help direct water away from common water collecting areas.
- All flashing material shall be metal or another durable material that under normal outdoor environmental conditions will last for a period of not less than 50 years.
- All flashing materials must have a minimum 4 inch (102 mm) upper leg.
  - Add a 4 inch (102 mm) wide adhesive flashing to flash legs less than 4 inches (102 mm).
- Properly integrate flashing with the secondary WRB according to the WRB manufacturer's instructions. Use housewrap, flashing tape, kickout flashing, step flashing, Z-flashing, drip edge, gutters or other items as needed to maintain counter-flashing principle.
- Install kickout flashing to direct the water into the gutter. (Diagram 2a)
- Install step flashing that has a minimum 4 inch (102 mm) upper leg. (Diagram 2a)
- Maintain a minimum 1 inch (25 mm) clearance between the end of the gutter and the adjoining wall to allow for proper maintenance of the siding. (Diagram 2a)
- Seal ALL exposed cut edges.

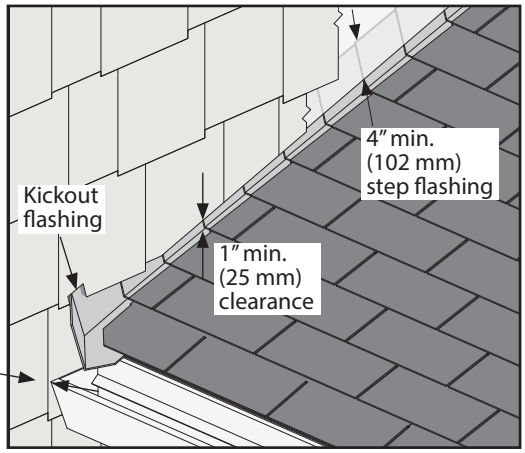


Diagram 2a

Preparation

Cutting

- For the cleanest cut and longer blade life, a fine-tooth carbide tipped blade is recommended.
- Siding is manufactured with a special edge coating which reduces moisture intrusion. If siding is ripped you must take special care to prime, paint and seal all exposed wood fiber as described in the Finishing Instructions on page 8.
- Climb cut the surface of the siding such that the rotation of the blade cuts downward on the primed or prefinished surface.
- **Do not miter edges.**

General Application Equipment

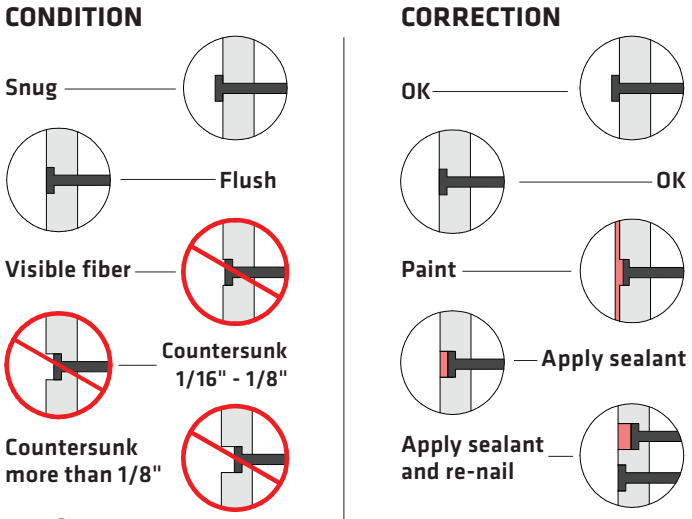


Diagram 3a

- **Fasteners:** Apply and correct overdriven fasteners as shown in Diagram 3a.
- **Sealant:** Use an exterior-quality, non-hardening, paintable sealant. Use a Class 25 or higher exterior sealant meeting the ASTM C920 Standard for Specification for Elastomeric Joint Sealants. Follow the sealant manufacturer's instructions for application.
- **Paint:** A premium quality exterior 100% acrylic latex paint, specially formulated for use on wood or engineered wood substrates is highly recommended. Semi-gloss or satin finish oil or alkyd paints are acceptable. For flat alkyd paint, check with the coating manufacturer to ensure it is suitable for engineered wood siding.

Installation

Fastening Instructions - Sheathing Only

- Install over wood structural panels a minimum 7/16 Category with an APA® Trademark that contains the consensus Standard DOC PS 1 or DOC PS 2.
  - Exception: LP® FlameBlock® Fire-Rated OSB Sheathing.
- **Fastener size:** Use a minimum **0.092 inch** diameter **ring shank** nail, hot-dipped galvanized (ASTM A153) or equivalent. Fasteners shall be corrosion resistant and capable of preventing rust, stain and deterioration under normal outdoor environmental conditions for a period of no less than 50 years.
- **Fastener placement:** A minimum 3/4 inch (19 mm) down from top edge of siding. Fasteners shall be placed 1 inch (25 mm) from ends. (Diagram 3b & 4b)
- **Fastener length:** Long enough to fully penetrate wood structural panel sheathing by at least 1/4 inch (6 mm). Ensure that the ring shanks of the nail fully engage the wood structural panel sheathing. (Diagram 3b)
- **Fastener spacing:** Space ring shank nails a maximum of 8 inches (203 mm) o.c. across the top of siding. (Diagram 4a)
- Apply siding to wall assembly directly to wood structural panel sheathing.
- Begin by nailing a starter strip approximately 3/8 inch (10 mm) thick x 1-1/2 inches (38 mm) wide flush with bottom edge of sill plate.

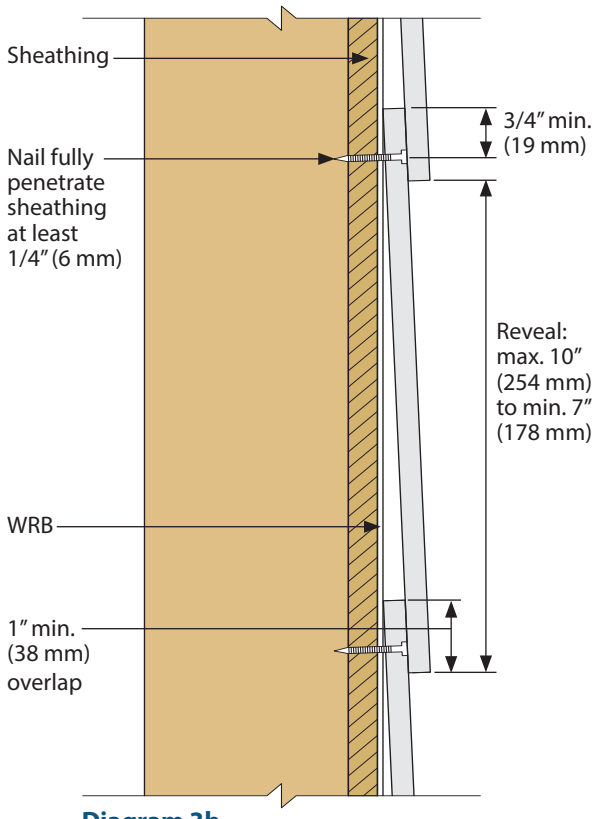
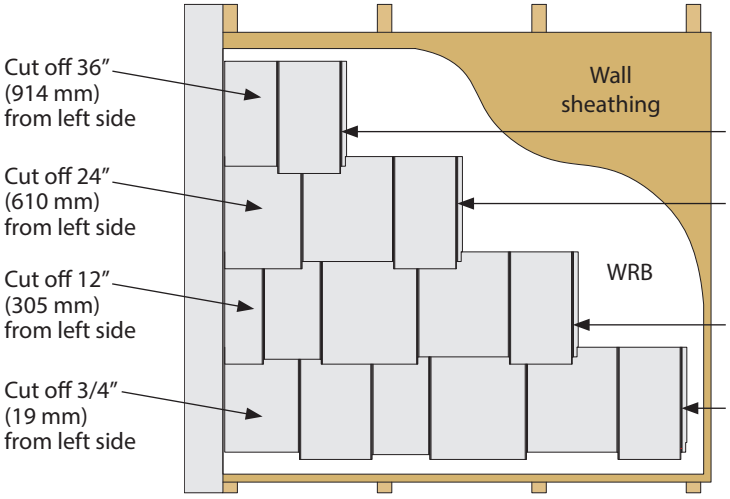


Diagram 3b

Installation

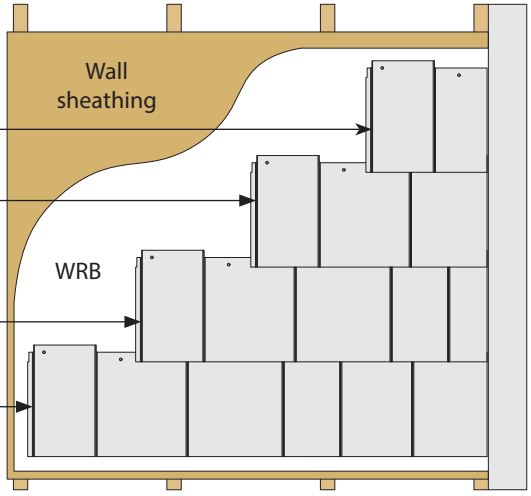
Fastening Instructions - Sheathing Only *(continued)*

- LP® SmartSide® Cedar Shake is a reversible siding product that can be applied with either a staggered edge appearance or rotated 180 degrees to achieve straight edge appearance. (Diagrams 4a & 4b)
- **Staggered Edge:** Starting from **left** to right, level and install shake so bottom edge is no more than 1/2 inch (13 mm) below the starter strip (Diagrams 4a), or
- **Straight Edge:** Starting from **right** to left, level and install shake so bottom edge is no more than 1/2 inch (13 mm) below the starter strip. (Diagrams 4b)
- Use the alignment groove in shiplap edge as a spacing guide. Do not overlap the alignment groove. (Diagrams 4b & 5b)
  - Alternate reveals are allowed. Trim should be thick enough so the shake does not extend beyond its face.
- To obtain the best shake appearance using **staggered edge or straight edge**, cut and fasten the starter pieces for each course using a 12 inch (305 mm) stair-step method as shown in (Diagrams 4a & 4b).
- Overlap shakes using the alignment notch to conceal nail heads and achieve uniform reveal. The alignment notch provides for an overlap of at least 1 inch (25 mm) at the shortest staggered edge to a maximum of 1-3/4 inches (45 mm) at the longest staggered edge regardless of whether the staggered or straight edge is exposed.
- The shake should fit against the window/door trim or the corner board leaving a 3/16 inch (5 mm) gap.
  - Shiplap at this location must be removed to full panel thickness and caulked.
  - The opposite shiplap edge is facing up, to receive the next piece of siding.



Staggered Edge

Diagram 4a



Straight Edge

Diagram 4b

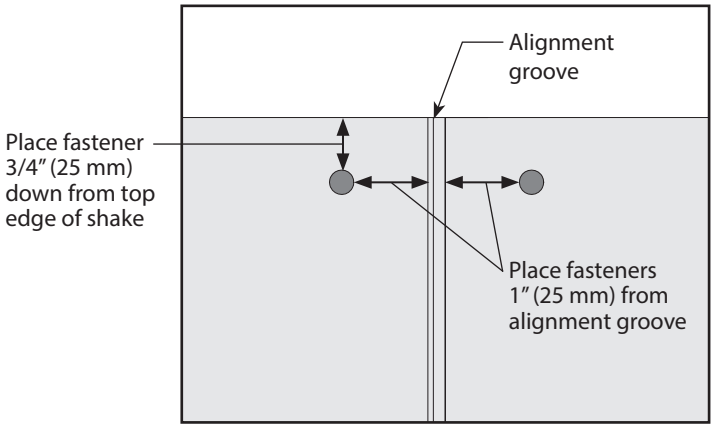


Diagram 4c

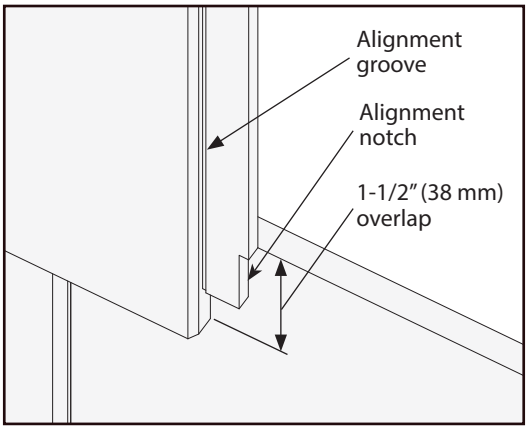


Diagram 4d

Installation

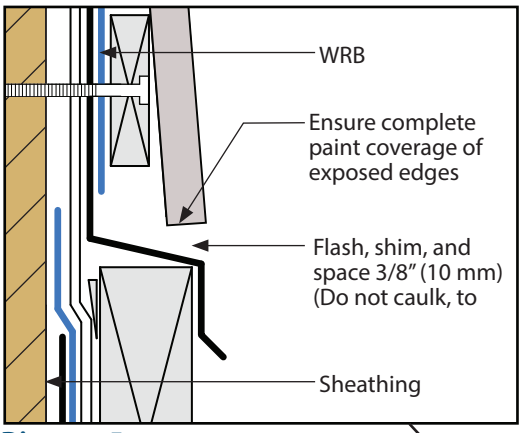


Diagram 5a

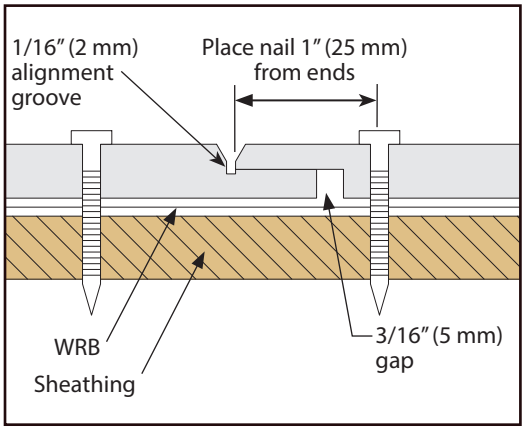


Diagram 5b

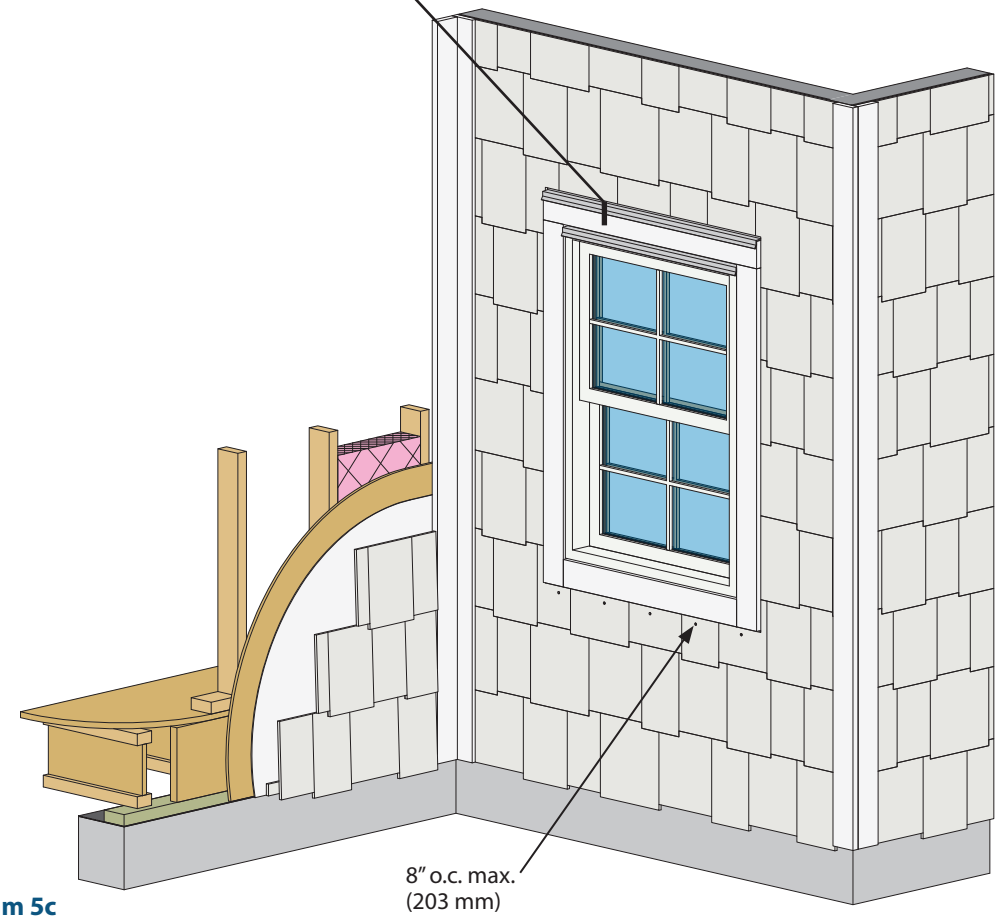
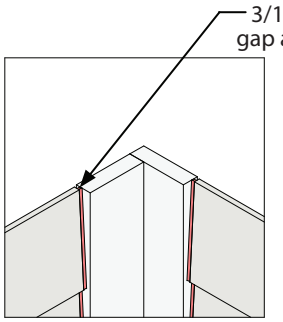
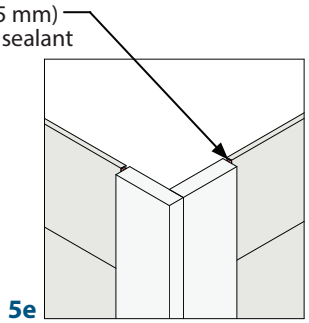


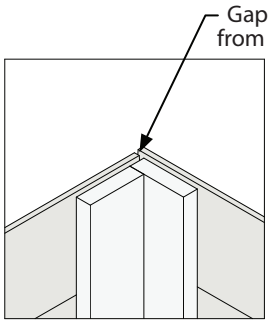
Diagram 5c



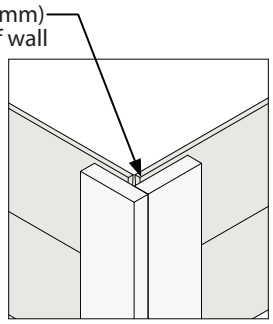
5d **Preferred Inside Corner**



5e **Preferred Outside Corner**



5f **Alternate Inside Corner**

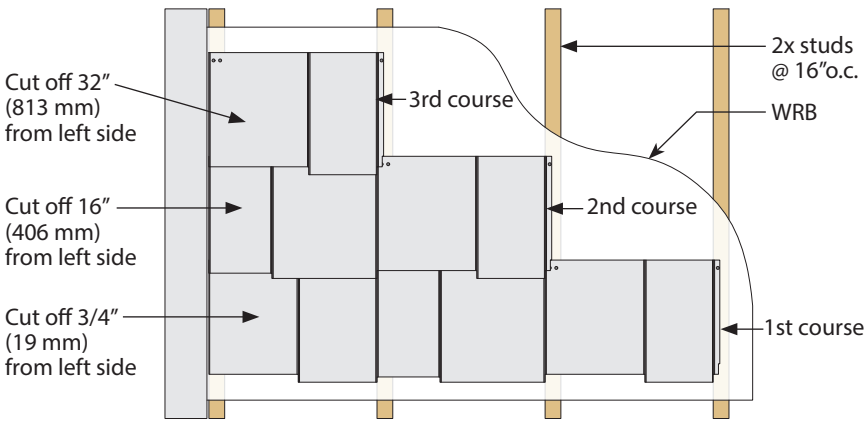


5g **Alternate Outside Corner**

Installation

Alternative Fastening Option:
Fastening Instructions - Direct to Stud

- Siding may be installed directly to studs spaced no greater than 16" (406 mm) o.c. that have adequate corner bracing.
- Use a minimum **0.092 inch** diameter **smooth shank** nail, hot-dipped galvanized (ASTM A153) or equivalent. Fasteners shall be corrosion resistant and capable of preventing rust, stain and deterioration under normal outdoor environmental conditions for a period of no less than 50 years.
- **Fastener placement:** A minimum 3/4 inch (19 mm) down from top edge of siding. Do not place fastener through top shiplap, place fastener 1 inch (25 mm) from end. (Diagram 6b) Place fastener into bottom shiplap a minimum 3/4 inch (19 mm) down from top edge of siding. (Diagram 6b)
- **Fastener length:** Long enough to fully penetrate studs by 1-1/2 inch (38 mm). (Diagram 6b)
- **Fastener spacing:** Space ring shank nails a maximum of 16 inches (406 mm) o.c. across the top of siding. (Diagram 6a)
- Begin by nailing a starter strip approximately 3/8 inch (10 mm) thick x 1-1/2 inches (38 mm) wide flush with bottom edge of sill plate.
- **Staggered Edge:** Starting from **left** to right, level and install shake so bottom edge is no more than 1/2 inch (13 mm) below the starter strip, or
- **Straight Edge:** Starting from **right** to left, level and install shake so bottom edge is no more than 1/2 inch (13 mm) below the starter strip.
- Use the alignment groove in shiplap edge as a spacing guide. Do not overlap the alignment groove. (Diagrams 4b & 5b)
  - Alternate reveals are allowed. Trim should be thick enough so the shake does not extend beyond its face.
- To obtain **staggered edge** appearance, cut and fasten starter pieces for each course using a 16 inch (406 mm) stair-step method as shown in (Diagrams 6a).
- To obtain **straight edge** appearance, rotate shake siding drip edge 180 degrees, cut and fasten starter pieces for each course using a 16 inch (406 mm) stair-step method.
- Overlap shakes using the alignment notch to conceal nail heads and achieve uniform reveal. The alignment notch provides for an overlap of at least 1 inch (25 mm) at the shortest staggered edge to a maximum of 1-3/4 inches (45 mm) at the longest staggered edge regardless of whether the staggered or straight edge is exposed.
- The shake should fit against the window/door trim or the corner board leaving a 3/16 inch (5 mm) space.
  - Shiplap at this location must be removed to full panel thickness and caulked.
  - The opposite shiplap edge is facing up, to receive the next piece of siding.
- When fastening direct to stud, every other shake line (or keyway) will fall in line with the shake lines on the courses above and below. (Diagram 6a)



Staggered Edge

Diagram 6a

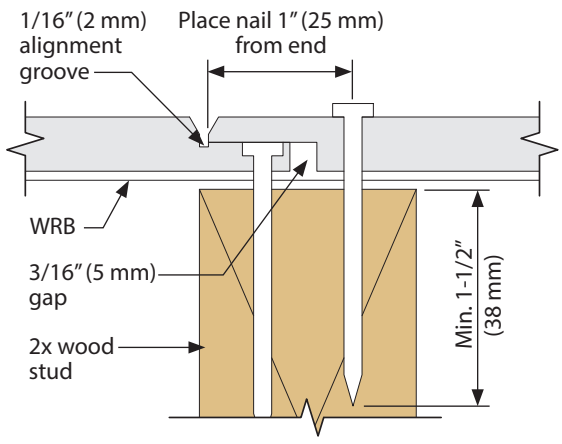


Diagram 6b

Installation

Alternative Fastening Option:
Attachment to Furring Strips over Rigid Foam Insulation > 1 inch, or Furring Strips over Concrete/Masonry

- For rigid foam insulation greater than 1 inch (25 mm), install over a minimum 1x4 (25 mm x 102 mm) nominal size Southern Pine furring strips with a specific gravity greater than or equal to 0.55, no more than 12 inches (305 mm) o.c. in wind speed areas less than or equal to 200 mph.
- Use a minimum **0.120 inch** diameter **ring shank** nail, hot-dipped galvanized (ASTM A153) or equivalent.
- **Fastener placement:** A minimum 3/4 inch (19 mm) down from top edge of the siding.
- **Fastener length:** Shall fully penetrate a minimum 1/2 inch (13 mm) into furring strips. Caution: fastener shall not bottom out on a masonry wall leaving the fastener head less than flush with the face of trim or siding. (Diagram 7b)
- Blind nail with a minimum of two ring shank nails per furring strip. (Diagram 7a)
- Shiplap joints shall occur over furring strips and joints should be staggered. (Diagram 7b)
- Overlap shakes using the alignment notch to conceal nail heads and achieve uniform reveal. The alignment notch provides for an overlap of at least 1 inch (25 mm) at the shortest staggered edge to a maximum of 1-3/4 inch (45 mm) at the longest staggered edge regardless if whether the staggered or straight edge is exposed.
- Siding shall be installed to safely resist all loads, including wind loads, of the locally adopted building codes. The installation of siding shall result in a system that provides a load path that meets the requirements for the transfer of loads from their point of origin through the load-resisting elements to the structure. The mechanical connection of the furring strip to structure is the responsibility of a design professional. LP assumes no liability for any loss or damage caused by the design of the mechanical connection of the furring strip to the structure and is expressly released by the purchaser or owner from any such loss or liability.
- **Exception:** Shakes may be nailed directly to rigid foam insulation less than or equal to 1 inch (25 mm) thick, unless a drainage plane is required by the local building code. Nail length must be increased to ensure a minimum 1-1/2 inch (38 mm) fastener penetration into the structural framing or wood structural panels and structural framing
- Louisiana-Pacific Corporation will assume no responsibility for any damage or condition arising from the use of rigid foam insulation.

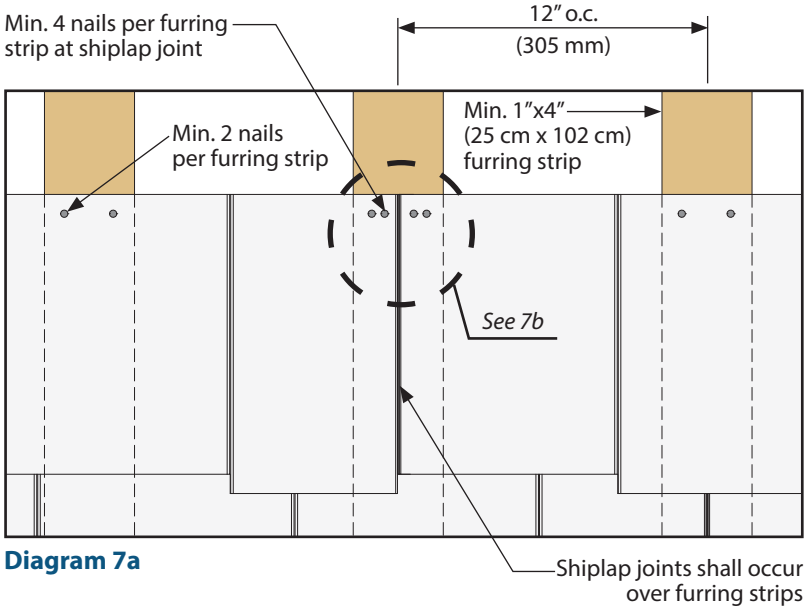


Diagram 7a

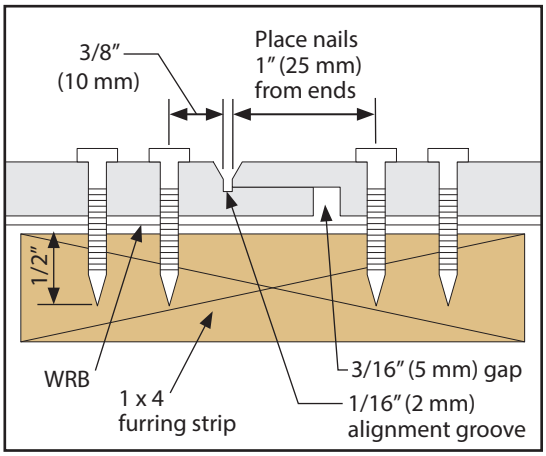


Diagram 7b

Installation

Finishing Instructions

- Prime all exposed wood substrate before painting.
- Thoroughly paint the bottom edges of siding, especially all cut ends near grade or next to the roof line.
- Apply paint as soon as possible and within 180 days of application.
- Follow the coating manufacturer's application and maintenance instructions.

DO NOT USE:

- Stain.
- Vinyl-based paint (vinyl acetate or PVA).

LIMITED WARRANTY

The Louisiana-Pacific Corporation ("LP") LP® SmartSide® Trim and Siding (the "Products") Limited Warranty (the "Warranty") applies only to structures on which the Products have been applied, finished and maintained in accordance with the published application, finishing and maintenance instructions in effect at the time of application. Products affected by a failure to follow such application, finishing or maintenance instructions ("Affected Products") will be excluded from coverage under the Warranty.

LP assumes no liability for any loss or damage caused by the Affected Products and is expressly released by the purchaser or owner from any such loss or liability.

Any modification of the Warranty or the application, finishing and maintenance requirements is void unless approved in writing by LP prior to application.

For a copy of the warranty or installation and technical support, visit the LP Web site at: **www.lpcorp.com**
WARRANTY REMEDIES ARE NOT AVAILABLE IF REQUIREMENTS ARE NOT FOLLOWED. or for additional support call 800-648-6893

⚠WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection.

For more information go to www.P65Warnings.ca.gov/wood.

Louisiana-Pacific Corporation
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Nashville, TN 37219

www.lpcorp.com
www.lpsmartside.com

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NOTICE: Louisiana-Pacific Corporation periodically updates and revises its product information. The information in this document is subject to change without notice. To verify that this version is current, call 800-648-6893.

Joint Evaluation Report

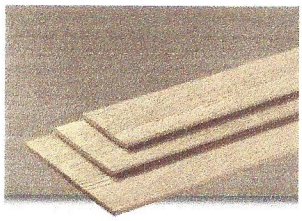
ESR-1301

Reissued February 2024

This report also contains:

- LABC Supplement

Subject to renewal February 2026



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DIVISION: 06 00 00— WOOD, PLASTICS AND COMPOSITES **Section: 06 16 00— Sheathing** **DIVISION: 07 00 00— THERMAL AND MOISTURE PROTECTION** **Section: 07 46 23— Wood Siding**	**REPORT HOLDER: LOUISIANA-PACIFIC CORPORATION**	**EVALUATION SUBJECT: LP® SMARTSIDE® STRAND SUBSTRATE LAP SIDING AND LP® SMARTSIDE® STRAND SUBSTRATE PANEL SIDING**	

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015, 2012, 2009, 2006, and 2003 *International Building Code®* (IBC)
- 2018, 2015, 2012, 2009, 2006, and 2003 *International Residential Code®* (IRC)

For evaluation for compliance with codes adopted by the *Los Angeles Department of Building and Safety* (LADBS), see ESR-1301 LABC and LARC Supplement.

Properties evaluated:

- Exterior siding
- Structural

2.0 USES

LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding are used as exterior wall covering materials on buildings where combustible materials are permitted.

LP® SmartSide® Strand Substrate Panel Siding may be used as Bracing Method 3 for conventional wood-framed walls as specified in the 2003/2006/2009/2012 IBC Section 2308.9.3 and 2003/2006 IRC Section R602.10, or the WSP Method as specified in 2018 and 2015 IBC Section 2308.6 and 2009/2012/2015/2018 IRC Section R602.10.

LP® SmartSide® Strand Substrate Panel Siding may be used as sheathing for wood structural panel shear walls having allowable shear loads specified for PS 2-compliant wood-based sheathing in accordance with 2003/2006 IBC Section 2306.4.1, and 2009/2012/2015/2018 IBC Section 2306.3.

3.0 DESCRIPTION

3.1 General:

LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding are engineered-wood exterior wall covering materials that are suitable for long-term exposure to weather or conditions of similar severity, when fastened to vertical supports or approved nailable wood substrates in accordance with their span ratings and this evaluation report. The lap siding and panel siding products consist of a mat-formed wood substrate preservatively treated with zinc borate in accordance with AWPA Standard T1, and a resin-impregnated overlay material bonded to the face of the lap and panel siding products intended to be exposed to the weather. Additionally, all panel and lap siding edges are factory-sealed with a sealer in accordance with the approved quality-control manual.

3.2 LP® SmartSide® Strand Substrate Lap Siding:

LP® SmartSide® Strand Substrate Lap Siding is available in widths of 5, 6, 7, 8, 9$^1/_2$ and 12 inches (127, 152, 178, 203, 241 and 305 mm); categories $^3/_8$ and $^7/_{16}$; and lengths up to 16 feet (4877 mm). The 8-inch-wide (203 mm), $^7/_{16}$ category lap siding is also available with an optional self-alignment edge.

3.3 LP® SmartSide® Strand Substrate Panel Siding:

LP® SmartSide® Strand Substrate Panel Siding is 4 feet (1219 mm) wide and available in lengths up to 18 feet (5486 mm). LP® SmartSide® Strand Substrate Panel Siding is available in $^3/_8$, $^7/_{16}$, and $^{19}/_{32}$ categories. The $^3/_8$ category panel has grooves spaced at 8 inches (203 mm), with a minimum thickness at the grooves of 0.164 inch (4 mm) and a minimum thickness at the shiplap of 0.136 inch (4 mm), or no groove. The $^7/_{16}$ category panel has grooves spaced at 4 or 8 inches (102 or 203 mm), with a minimum thickness at the grooves of 0.235 inch (6 mm) and a minimum thickness at the shiplap of 0.150 inch (4 mm) or no groove. The $^{19}/_{32}$ category panel has grooves spaced at 8 inches (203 mm), with a minimum thickness at the groove of 0.311 inch (8 mm) and a minimum shiplap thickness of 0.194 inch (5 mm).

LP® SmartSide® Vertical Siding is a narrow width panel siding and is available in 3/8 category, nominal width of 16 inches (406 mm), and 16 feet (4877 mm) in length. The vertical siding can only be installed vertically.

LP® SmartSide® Strand Substrate Panel Siding is classified as Exterior Rated Siding or Exterior Rated Siding—Sheathing. The classification is noted in the label on the panel. Exterior Rated Siding is intended to be installed in applications in accordance with the 2006/2009/2012 IBC Section 2308.9.3 and IRC Section R602.10 or 2018 and 2015 IBC Section 2308.6 and 2018 and 2015 IRC Section R602.10 as an exterior siding suitable for long-term exposure to weather or conditions of similar severity. In addition to the intended application for Exterior Rated Siding, Exterior Rated Siding—Sheathing is intended to be installed in applications in accordance with 2003/2006 IBC Section 2306.4.1, and 2009/2012/2015/2018 IBC Section 2306.3.

4.0 INSTALLATION

4.1 General:

LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding must be installed in accordance with the manufacturer's published installation instructions (titled *Application Instructions LP® SmartSide® Strand Substrate Lap LP® SmartSide® Strand Substrate Panel Siding*) and this report. In the event of conflicts, this report governs. A copy of the manufacturer's installation instructions must be on the jobsite at all times during installation.

LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding must be installed with an approved water-resistive barrier as required by the applicable code. Openings in, penetrations through, and terminations of the LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding are outside the scope of this report and must be specifically approved by the code official in accordance with the applicable code.

Unless otherwise noted in this report, fasteners and fastener spacing must be as noted in the applicable code.

4.2 LP® SmartSide® Strand Substrate Lap Siding:

LP® SmartSide® Strand Substrate Lap Siding must be attached to framing members spaced a maximum of 16 inches (406 mm) on center for $^3/_8$ category siding and a maximum of 24 inches (610 mm) on center for $^7/_{16}$ category siding.

Self-aligning LP® SmartSide® Strand Substrate Lap Siding is installed with nails placed at the top of the LP® SmartSide® Strand Substrate Lap Siding, 3/4 inch (19 mm) down from the upper edge. Each successive course of lap siding must rest on the back rabbet and must self-align at an overlap of 1 inch (25 mm).

Nails must be of sufficient length to penetrate a minimum of 1 1/2 inches (38 mm) and 2 inches (51 mm), respectively, for 0.113-inch and 0.092-inch nails, through the sheathing and into framing at each stud location.

LP® SmartSide® lap siding, when installed vertically, shall be installed over a minimum 7/16 category 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.

4.3 LP® SmartSide® Strand Substrate Panel Siding:

LP® SmartSide® Strand Substrate Panel Siding must be installed with its long dimension oriented vertically.

When LP® SmartSide® Strand Substrate Panel Siding is applied directly to the framing, the maximum spacing of the framing must be consistent with the span rating of the LP® SmartSide® Strand Substrate Panel Siding, which is identified on the panel's label.

Allowable loads for shearwalls sheathed with LP® SmartSide® Strand Substrate Panel Siding—Sheathing are noted in Table 1.

Four-foot-by-8-foot (1219 mm by 2438 mm) LP® SmartSide® Strand Substrate Panel Siding—Sheathing installed vertically, directly to framing, with a single row of nails penetrating both laps, spaced 6 inches on center at panel edges and 12 inches (305 mm) on center at intermediate supports may be used to satisfy the wall bracing requirements for conventional light frame construction specified in the code for prescriptive construction. Install per code requirements for bracing method 3 with wood structural panels or WSP bracing method.

All LP® SmartSide® Strand Substrate Panel Siding joints must occur at framing members and must be protected with a continuous wood batt, approved caulking, flashing, or vertical or horizontal shiplap, or otherwise made waterproof.

LP® SmartSide® Vertical Siding shall be installed over a minimum 7/16 category 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.

4.4 Component and Cladding Wind Pressure Capacity:

Maximum allowable component and cladding wind loads (wall, zone 5) for LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding based on a minimum fastener schedule, are provided in Tables 2 through 5. Tables 2 and 3, for lap and panel siding, respectively, are based on full fastener penetration into the wall studs, i.e., fastener penetration = fastener length - siding thickness. Design wind loads for LP® SmartSide® Strand Substrate Lap Siding when installed over the facer of structural insulated panels (SIPs) are listed in Table 4. Design wind loads for LP® SmartSide® Strand Substrate Vertical Siding and Lap Siding applied vertically are listed in Table 5.

5.0 CONDITIONS OF USE:

The LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 LP® SmartSide® Strand Substrate Lap Siding must not be used to satisfy the bracing requirements specified in the code.

5.2 LP® SmartSide® Strand Substrate Panel Siding—Sheathing, when installed as set forth in this report, may be used as Bracing Method 3 specified in Section 2308.9 of the 2012, 2009, 2006 and 2003 IBC and Section R602.10 of the IRC, or the WSP Method as specified in 2018 and 2015 IBC Section 2308.6 and IRC Section R602.10.

5.3 In areas where seismic analysis is required by the applicable code, the applicable code requirements for wood structural panel shear walls must be consulted for additional detailing requirements, restrictions concerning certain usages, required modifications to the allowable shear loads tabulated in this report, and additional inspection requirements.

5.4 LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding must not be installed in contact with concrete or masonry.

5.5 LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding must be installed with a minimum 6 inches (152 mm) of clearance from finished grade.

5.6 When field cuts are made to LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding, all exposed surfaces must be finished according to the paint or caulk/sealant manufacturers' specifications.

5.7 LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding are manufactured by Louisiana-Pacific Corporation in Dawson Creek, British Columbia (Mill No. 402); Hayward, Wisconsin (Mill No. 357); Newberry, Michigan (Mill No. 416); Tomahawk, Wisconsin (Mill No. 435); Two Harbors, Minnesota (Mill No. 399); and Swan Valley, Minitonas, Manitoba, Canada (Mill No. 457); under a quality control program with inspections by APA – The Engineered Wood Association and ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Treated-engineered-wood Siding (AC321), dated May 2019.

7.0 IDENTIFICATION

7.1 LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding must be labeled with the product designation and the name of Louisiana-Pacific Corp. The stamp shall provide the following information:

1. Mill number.
2. The evaluation report number (ESR-1301).
3. Grade/exposure.
4. Span rating.
5. Performance category (based on customary inch fractions).

7.2 The report holder's contact information is the following:

LOUISIANA-PACIFIC CORPORATION
414 UNION STREET, SUITE 2000
NASHVILLE, TENNESSEE 37219
(888) 820-0325
www.LPcorp.com
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TABLE 1—ALLOWABLE RACKING SHEAR (plf) FOR LP® SMARTSIDE® STRAND SUBSTRATE PANEL SIDING—SHEATHING SHEAR WALLS WITH FRAMING OF DOUGLAS FIR–LARCH OR SOUTHERN PINE FOR WIND OR SEISMIC LOADING[1,2,3,7,8]

PERFORMANCE CATEGORY	MINIMUM NAIL PENETRATION IN FRAMING (inches)	PANELS APPLIED DIRECTLY TO FRAMING					PANELS APPLIED OVER 5/8-INCH GYPSUM SHEATHING				
		Nail Size (Common or Galvanized Box)[7,8]	Nail Spacing at Panel Edges (inches)				Nail Size (Common or Galvanized Box)[7,8]	Nail Spacing at Panel Edges (inches)			
			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 category and 7/16 category panels installed on studs spaced 24 inches o.c. For other conditions and panel thicknesses, space nails 12 inches o.c. on intermediate supports.

[3]The values are for short-term loads due to earthquake and must be reduced by 25 percent for normal duration of loading. 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 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 category panels nailed at shiplap edges use shear values for 5/16 category panels, and 7/16 and 19/32 category panel sidings nailed at shiplap edges use shear values for 3/8 category panels.

[6]Shiplap edges must be double-nailed; one nail must be placed in the underlap and the second nail must be placed 1 inch from the panel edge, not 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]Fasteners shall be carbon steel, hot-dipped galvanized plain (smooth) shank box or common nails and meet dimensions as specified in ASTM F1667.

TABLE 2A—LAP SIDING INSTALLED HORIZONTALLY WITH 0.113-INCH-DIAMETER NAILS MAXIMUM NOMINAL (ALLOWABLE) COMPONENT AND CLADDING DESIGN WIND SPEED, V_{asd}[1,2]

PERFORMANCE CATEGORY	MAXIMUM WALL STUD SPACING[3] (inches)	SIDING WIDTH (inches)	MAXIMUM ALLOWABLE WIND PRESSURE (psf)	MAXIMUM NOMINAL (ALLOWABLE) WIND SPEED, V_{asd}[4] (mph)		
				Wind Exposure Category		
				B	C	D
3/8	16	5, 6, 7	80	170	150	140
		8	74	170	145	130
		9-1/2	61	150	130	120
		12	47	130	110	105
7/16	16	6, 7	80	170	150	140
		8	74	170	145	130
		9-1/2	65	150	130	125
		12	47	130	110	105
	24	6	69	150	140	130
		7	58	150	130	110
		8	49	140	120	110
		9-1/2	41	125	105	100
		12	31	110	90	85

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[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. Fasteners shall be hot dipped galvanized plain (smooth) shank, carbon steel nails, with a minimum shank diameter of 0.113 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 2 inches. Lap siding is not a bracing material.

[2]Tabulated values assume full penetration of the fastener into the wall studs, i.e., fastener penetration = fastener length – siding thickness.

[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 30-feet height in Zone 5 with smallest effective area per Chapter 6 of ASCE 7-05, Section R301.2 of the 2009/2012 IRC, and Section 1609.1.1 of the 2009 IBC.

TABLE 2B—LAP SIDING INSTALLED HORIZONTALLY WITH 0.113-INCH-DIAMETER NAILS MAXIMUM ULTIMATE COMPONENT AND CLADDING DESIGN WIND SPEED, V_{ult}[1,2]

PERFORMANCE CATEGORY	MAXIMUM WALL STUD SPACING[3] (inches)	SIDING WIDTH (inches)	MAXIMUM ULTIMATE WIND PRESSURE (psf)	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}[4] (mph)		
				Wind Exposure Category		
				B	C	D
3/8	16	5, 6, 7	133	200[5]	180	180
		8	123	200[5]	180	160
		9-1/2	102	200[5]	160	150
		12	79	180	150	140
7/16	16	6, 7	133	200[5]	180	180
		8	123	200[5]	180	160
		9-1/2	102	200[5]	160	150
		12	79	180	150	140
	24	6	115	200[5]	180	160
		7	96	180	160	150
		8	85	180	150	140
		9-1/2	68	160	140	130
		12	52	140	120	110

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[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. Fasteners shall be hot dipped galvanized plain (smooth) shank, carbon steel nails, with a minimum shank diameter of 0.113 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 2 inches. Lap siding is not a bracing material.
[2]Tabulated values assume full penetration of the fastener into the wall studs, i.e., fastener penetration = fastener length – siding thickness.
[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 30-feet height in Zone 5 with smallest effective area per Chapter 26 of ASCE 7-10 and ASCE 7-16, Section R301.2.1 of the 2015/2018 IRC, and Section 1609.1.1 of the 2012/2015/2018 IBC.
[5]Table R301.2(2) of the 2015/2018 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

TABLE 2C—LAP SIDING INSTALLED HORIZONTALLY WITH 0.092-INCH-DIAMETER NAILS MAXIMUM NOMINAL (ALLOWABLE) COMPONENT AND CLADDING DESIGN WIND SPEED, V_{asd}[1,2]

PERFORMANCE CATEGORY	MAXIMUM WALL STUD SPACING[3] (inches)	SIDING WIDTH (inches)	MAXIMUM ALLOWABLE WIND PRESSURE (psf)	MAXIMUM NOMINAL (ALLOWABLE) WIND SPEED, V_{asd}[4] (mph)		
				Wind Exposure Category		
				B	C	D
3/8	16	5	78	170	150	130
		6	63	150	130	125
		7	52	145	120	110
		8	45	130	110	105
		9-1/2	37	120	100	90
		12	28	105	90	--
7/16	16	6	63	150	130	125
		7	52	145	120	110
		8	45	130	110	105
		9-1/2	37	120	100	90
		12	28	105	90	--
	24	6	42	130	110	100
		7	35	120	100	90
		8	30	110	90	85
		9-1/2	25	100	85	--
		12	19	85	--	--

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[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. Fasteners shall be hot dipped galvanized plain (smooth) shank, carbon steel nails, with a minimum shank diameter of 0.092 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 1 1/2 inches. Lap siding is not a bracing material.
[2]Tabulated values assume full penetration of the fastener into the wall studs, i.e., fastener penetration = fastener length – siding thickness.
[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 30-feet height in Zone 5 with smallest effective area per Chapter 6 of ASCE 7-05, Section R301.2 of the 2009/2012 IRC, and Section 1609.1.1 of the 2009 IBC.

TABLE 2D—LAP SIDING INSTALLED HORIZONTALLY WITH 0.092-INCH-DIAMETER NAILS MAXIMUM ULTIMATE COMPONENT AND CLADDING DESIGN WIND SPEED, V_{ult}[1,2]

PERFORMANCE CATEGORY	MAXIMUM WALL STUD SPACING[3] (inches)	SIDING WIDTH (inches)	MAXIMUM ULTIMATE WIND PRESSURE (psf)	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}[4] (mph)		
				Wind Exposure Category		
				B	C	D
3/8	16	5	131	200[5]	180	180
		6	104	200[5]	160	160
		7	87	180	160	140
		8	75	160	140	130
		9-1/2	61	150	130	120
		12	47	140	115	--
7/16	16	6	104	200[5]	160	160
		7	87	180	160	140
		8	75	160	140	130
		9-1/2	61	150	130	120
		12	47	140	115	--
	24	6	70	160	140	130
		7	58	150	130	120
		8	50	140	120	110
		9-1/2	41	130	110	--
		12	32	110	--	--

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[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. Fasteners shall be hot dipped galvanized plain (smooth) shank, carbon steel nails, with a minimum shank diameter of 0.092 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 2 inches. Lap siding is not a bracing material.
[2]Tabulated values assume full penetration of the fastener into the wall studs, i.e., fastener penetration = fastener length – siding thickness.
[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 30-feet height in Zone 5 with smallest effective area per Chapter 26 of ASCE 7-10 and ASCE 7-16, Section R301.2.1 of the 2015/2018 IRC, and Section 1609.1.1 of the 2012/2015/2018 IBC.
[5]Table R301.2(2) of the 2015/2018 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

TABLE 3A—PANEL SIDING INSTALLED VERTICALLY WITH 0.113-INCH NAILS MAXIMUM NOMINAL (ALLOWABLE) COMPONENT AND CLADDING DESIGN WIND SPEED, V_{asd}[1]

PERFORMANCE CATEGORY	MAXIMUM WALL STUD SPACING[2] (inches)	FASTENER SPACING[3] (inches o.c.)		MAXIMUM ALLOWABLE WIND PRESSURE (psf)	MAXIMUM NOMINAL (ALLOWABLE) WIND SPEED, V_{asd}[4] (mph)		
		Edges	Field		Wind Exposure Category		
					B	C	D
3/8	16	6	12	43	130	110	100
			6	80	170	150	140
	24	6	12	29	105	90	--
			6	58	150	130	110
7/16	16	6	12	43	130	110	100
			6	80	170	150	140
	24	6	12	29	105	90	--
			6	58	150	130	110
19/32	16	6	12	43	130	110	100
			6	80	170	150	140
	24	6	12	29	105	90	-
			6	58	150	130	110

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[1]Tabulated values assume full penetration of the fastener into the wall studs, i.e., fastener penetration = fastener length – siding thickness.
[2]Wall studs must have a minimum specific gravity of 0.42.
[3]Fasteners shall be hot dipped galvanized plain (smooth) shank, carbon steel nails, with a minimum shank diameter of 0.113 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 2 inches.
[4]Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-feet in Zone 5 with smallest effective area per Chapter 6 of ASCE 7-05, Section R301.2 of the 2009/2012 IRC, and Section 1609.1.1 of the 2009 IBC.

TABLE 3B—PANEL SIDING INSTALLED VERTICALLY WITH 0.113-INCH NAILS MAXIMUM ULTIMATE COMPONENT AND CLADDING DESIGN WIND SPEED, V_{ult}[1]

PERFORMANCE CATEGORY	MAXIMUM WALL STUD SPACING[2] (inches)	FASTENER SPACING[3] (inches o.c.)		MAXIMUM ULTIMATE WIND PRESSURE (psf)	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}[4] (mph)		
		Edges	Field		Wind Exposure Category		
					B	C	D
3/8	16	6	12	72	160	140	130
			6	133	200[5]	180	180
	24	6	12	48	140	115	--
			6	96	180	160	150
7/16	16	6	12	72	160	140	130
			6	133	200[5]	180	180
	24	6	12	48	140	115	--
			6	96	180	160	150
19/32	16	6	12	72	160	140	130
			6	133	200[5]	180	180
	24	6	12	48	140	115	--
			6	96	180	160	150

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[1]Fasteners shall be a hot dipped galvanized plain (smooth) shank nail, with a minimum shank diameter of 0.113 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 2 inches. Tabulated values assume full penetration of the fastener into the wall studs, i.e., fastener penetration = fastener length – siding thickness.
[2]Wall studs must have a minimum specific gravity of 0.42.
[3]Fasteners shall be hot dipped galvanized plain (smooth) shank, carbon steel nails, with a minimum shank diameter of 0.113 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 2 inches.
[4]Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-feet height in Zone 5 with smallest effective area per Chapter 26 of ASCE 7-10 and ASCE 7-16, and Section 1609.1.1 of the 2012/2015/2018 IBC.
[5]Table R301.2(2) of the 2015/2018 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

TABLE 3C—PANEL SIDING INSTALLED VERTICALLY WITH 0.092-INCH NAILS MAXIMUM NOMINAL (ALLOWABLE) COMPONENT AND CLADDING DESIGN WIND SPEED, V_{asd}[1]

PERFORMANCE CATEGORY	MAXIMUM WALL STUD SPACING[2] (inches)	FASTENER SPACING[3] (inches o.c.)		MAXIMUM ALLOWABLE WIND PRESSURE (psf)	MAXIMUM NOMINAL (ALLOWABLE) WIND SPEED, V_{asd}[4] (mph)		
		Edges	Field		Wind Exposure Category		
					B	C	D
3/8	16	6	12	26	100	85	--
			6	52	145	120	110
	24	6	12	17	85	--	--
			6	35	120	100	90
7/16	16	6	12	26	100	85	--
			6	52	145	120	110
	24	6	12	17	85	--	--
			6	35	120	100	90
19/32	16	6	12	26	100	85	--
			6	52	145	120	110
	24	6	12	17	85	--	--
			6	35	120	100	90

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[1]Tabulated values assume full penetration of the fastener into the wall studs, i.e., fastener penetration = fastener length – siding thickness.
[2]Wall studs must have a minimum specific gravity of 0.42.
[3]Fasteners shall be hot dipped galvanized plain (smooth) shank, carbon steel nails, with a minimum shank diameter of 0.092 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 1 1/2 inches. Configuration cannot be used for lateral bracing due to nail size.
[4]Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-feet in Zone 5 with smallest effective area per Chapter 6 of ASCE 7-05, Section R301.2 of the 2009/2012 IRC, and Section 1609.1.1 of the 2009 IBC.

TABLE 3D—PANEL SIDING INSTALLED VERTICALLY WITH 0.092-INCH NAILS MAXIMUM ULTIMATE COMPONENT AND CLADDING DESIGN WIND SPEED, V_{ult}[1]

PERFORMANCE CATEGORY	MAXIMUM WALL STUD SPACING[2] (inches)	FASTENER SPACING[3] (inches o.c.)		MAXIMUM ULTIMATE WIND PRESSURE (psf)	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}[4] (mph)		
		Edges	Field		Wind Exposure Category		
					B	C	D
3/8	16	6	12	44	130	110	--
			6	87	180	160	140
	24	6	12	29	--	--	--
			6	58	150	130	120
7/16	16	6	12	44	130	110	--
			6	87	180	160	140
	24	6	12	29	--	--	--
			6	58	150	130	120
19/32	16	6	12	44	130	110	--
			6	87	180	160	140
	24	6	12	29	--	--	--
			6	58	150	130	120

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[1]Tabulated values assume full penetration of the fastener into the wall studs, i.e., fastener penetration = fastener length – siding thickness.
[2]Wall studs must have a minimum specific gravity of 0.42.
[3]Fasteners shall be hot dipped galvanized plain (smooth) shank, carbon steel nails, with a minimum shank diameter of 0.092 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of $1^1/_2$ inches. Configuration cannot be used for lateral bracing due to nail size.
[4]Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-feet height in Zone 5 with smallest effective area per Chapter 26 of ASCE 7-10 and ASCE 7-16, and Section 1609.1.1 of the 2012/2015/2018 IBC.
[5]Table R301.2(2) of the 2015/2018 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

TABLE 4A—LAP SIDING INSTALLED HORIZONTALLY TO SIPS MAXIMUM NOMINAL (ALLOWABLE) COMPONENT AND CLADDING DESIGN WIND SPEED, V_{asd}[1,2]

PERFORMANCE CATEGORY	MAXIMUM RING SHANK NAIL SPACING[3] (inches)	MAXIMUM WOOD SCREW SPACING[4] (inches)	SIDING WIDTH (inches)	MAXIMUM ALLOWABLE WIND PRESSURE (psf)	MAXIMUM NOMINAL (ALLOWABLE) WIND SPEED, V_{asd}[5] (mph)		
					Wind Exposure Category		
					B	C	D
3/8	8	12	5	80	170	150	140
			6	80	170	150	140
			7	72	170	145	130
			8	63	150	130	125
			9-1/2	54	145	125	110
			12	40	125	105	90
7/16	12	16	6	58	150	130	120
			7	50	140	120	110
			8	42	130	110	100
			9-1/2	36	120	100	90
			12	27	105	85	--

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[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® 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 ring shank fastener located 3/4 inch from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 1 inch. Fasteners shall be a hot dipped galvanized ring shank, carbon steel nails, with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural facer panel.
[4]One #8 wood screw located 3/4 inch from the top edge of the siding may be used. The wood screws must have a minimum shank diameter of 0.164 inch. Length shall be long enough to fully penetrate wood structural facer panel.
[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 in accordance with Chapter 6 of ASCE 7-05, Section R301.2.1 of the 2009/2012 IRC, and Section 1609.1.1 of the 2009 IBC.

TABLE 4B—LAP SIDING INSTALLED HORIZONTALLY TO SIPS MAXIMUM ULTIMATE COMPONENT AND CLADDING DESIGN WIND SPEED, V_{ult}[1,2]

PERFORMANCE CATEGORY	MAXIMUM RING SHANK NAIL SPACING[3] (inches)	MAXIMUM WOOD SCREW SPACING[4] (inches)	SIDING WIDTH (inches)	MAXIMUM ULTIMATE WIND PRESSURE (psf)	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}[5] (mph)		
					Wind Exposure Category		
					B	C	D
3/8	8	12	5	133	200[6]	180	180
			6	133	200[6]	180	180
			7	119	200[6]	160	160
			8	105	200[6]	160	160
			9-1/2	90	180	160	150
			12	67	160	140	120
7/16	12	16	6	97	200[6]	160	150
			7	79	180	150	140
			8	70	160	140	130
			9-1/2	60	150	130	120
			12	45	130	115	--

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[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 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 ring shank fastener located 3/4 inch from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 1 inch. Fasteners shall be a hot dipped galvanized ring shank, carbon steel nails, with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural facer panel.
[4]One #8 wood screw located 3/4 inch from the top edge of the siding may be used. The wood screws must have a minimum shank diameter of 0.164 inch. Length shall be long enough to fully penetrate wood structural facer panel.
[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 in accordance with Chapter 26 of ASCE 7-10 and ASCE 7-16, Section R301.2.1 of the 2015/2018 IRC, and Section 1609.1.1 of the 2012/2015/2018 IBC.
[6]Table R301.2(2) of the 2015/2018 IRC is limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

TABLE 5A—VERTICAL SIDING OR LAP SIDING INSTALLED VERTICALLY MAXIMUM NOMINAL (ALLOWABLE) COMPONENT AND CLADDING DESIGN WIND SPEED, V_{asd}[1]

PERFORMANCE CATEGORY	SIDING TYPE	SIDING WIDTH (inches)	FASTENER EDGE SPACING (inches o.c.)	MAXIMUM ALLOWABLE WIND PRESSURE (psf)	MAXIMUM NOMINAL (ALLOWABLE) WIND SPEED, V_{asd}[6] (mph)		
					Wind Exposure Category		
					B	C	D
3/8	Vertical Siding	16[2]	6[4]	80	170	150	140
	Lap Siding Installed Vertically	5[3]	12[5]	80	170	150	140
		6[3]		72	170	145	130
		7[3]		62	150	130	120
		8[3]		54	145	125	110
		9-1/2[3]		46	130	110	105
		12[3]		36	120	100	90
7/16	Lap Siding Installed Vertically	6[3]	12[5]	72	170	145	130
		7[3]		62	150	130	120
		8[3]		54	145	125	110
		9-1/2[3]		46	130	110	105
		12[3]		36	120	100	90

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[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 hot dipped galvanized ring shank, carbon steel nails with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of 6 inches o.c. along the siding perimeter in accordance with Figures 5 and 6.
[5]Fasteners must be hot dipped galvanized ring shank, carbon steel nails with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of 12 inches 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 30-ft height in Zone 5 with smallest effective area in accordance with Chapter 6 of ASCE 7-05, Section R301.2.1 of the 2009/2012 IRC, and Section 1609.1.1 of the 2009 IBC.

TABLE 5B—VERTICAL SIDING OR LAP SIDING INSTALLED VERTICALLY MAXIMUM ULTIMATE COMPONENT AND CLADDING DESIGN WIND SPEED, V_{ult}[1,2]

PERFORMANCE CATEGORY	SIDING TYPE	SIDING WIDTH (inches)	FASTENER EDGE SPACING (inches o.c.)	MAXIMUM ALLOWABLE WIND PRESSURE (psf)	MAXIMUM NOMINAL (ALLOWABLE) WIND SPEED, V_{asd}[6] (mph)		
					Wind Exposure Category		
					B	C	D
3/8	Vertical Siding	16[2]	6[4]	133	200	180	180
	Lap Siding Installed Vertically	5[3]	12[5]	133	200	180	180
		6[3]		120	200	180	160
		7[3]		103	200	160	160
		8[3]		90	180	160	150
		9-1/2[3]		76	160	150	130
		12[3]		60	150	130	120
7/16	Lap Siding Installed Vertically	6[3]	12[5]	120	200	180	160
		7[3]		103	200	160	160
		8[3]		90	180	160	150
		9-1/2[3]		76	160	150	130
		12[3]		60	150	130	120

For **SI:** 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 mph = 1.6 kph.

[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 hot dipped galvanized ring shank, carbon steel nails with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of 6 inches o.c. along the siding perimeter in accordance with Figures 5 and 6.
[5]Fasteners must be hot dipped galvanized ring shank, carbon steel nails with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of 12 inches 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 30-feet height in Zone 5 with smallest effective area per Chapter 26 of ASCE 7-10 and ASCE 7-16, and Section 1609.1.1 of the 2012/2015/2018 IBC.

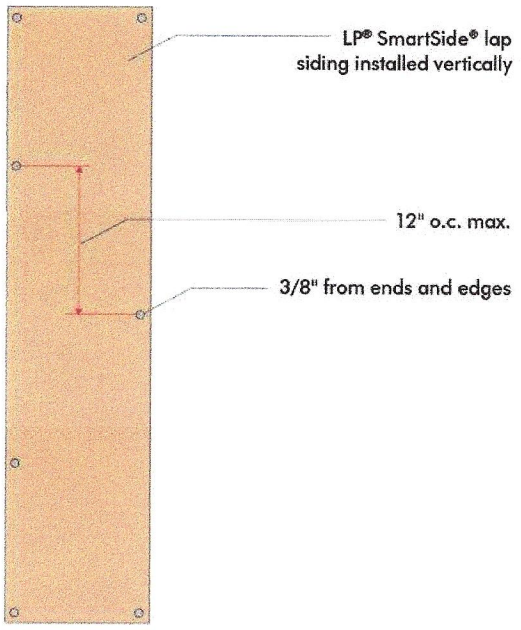


FIGURE 1—LAP SIDING INSTALLED VERTICALLY

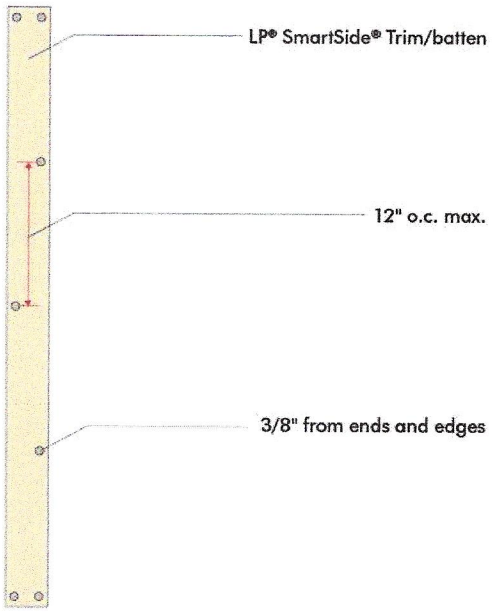


FIGURE 2—LP® SMARTSIDE® TRIM/BATTEN

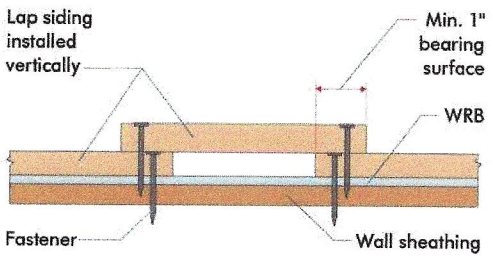


FIGURE 3—LAP SIDING ATTACHMENT DETAIL

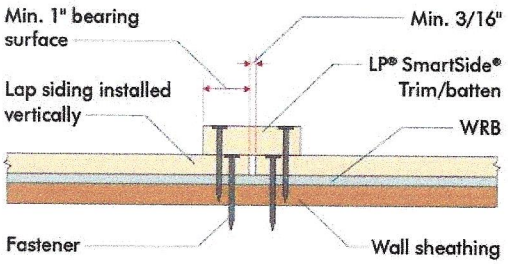


FIGURE 4—LP® SMARTSIDE® TRIM/BATTEN ATTACHMENT DETAIL

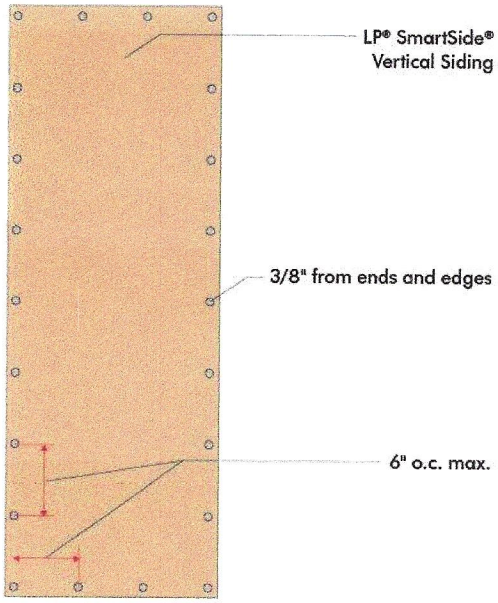


FIGURE 5—VERTICAL SIDING

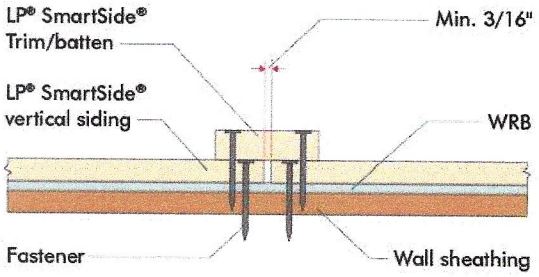


FIGURE 6—VERTICAL SIDING ATTACHMENT DETAIL

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 16 00—Sheathing

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 46 23—Wood Siding

REPORT HOLDER:

LOUISIANA-PACIFIC CORPORATION

EVALUATION SUBJECT:

LP® SMARTSIDE® STRAND SUBSTRATE LAP SIDING AND LP® SMARTSIDE® STRAND SUBSTRATE PANEL SIDING

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding, described in ICC-ES evaluation report ESR-1301, have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2020 *City of Los Angeles Building Code* (LABC)
- 2020 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding, described in Sections 2.0 through 7.0 of the evaluation report ESR-1301, comply with the LABC Chapters 14 and 23, and the LARC, and are subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report ESR-1301.
- The design, installation, conditions of use and identification are in accordance with the 2018 *International Building Code®* (IBC) and 2018 *International Residential Code* (IRC) provisions noted in the evaluation report ESR-1301.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Panels must be used only in locations were combustible materials are permitted in the 2020 LABC.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.
- The LP® SmartSide® Strand Substrate Lap Siding and LP® SmartSide® Strand Substrate Panel Siding have not been evaluated under the LABC Chapter 7A or the LARC Section R337 for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas of any Wildland – Urban Interface Area.

This supplement expires concurrently with the evaluation report, reissued February 2024.

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APA PRODUCT REPORT®

www.apawood.org

LP® SmartSide® and LP® SmartSide® ExpertFinish® Treated-Engineered-Wood Lap, Panel, Cedar Shake Lap, Nickel Gap Lap, and Vertical Siding
Louisiana-Pacific Corporation

PR-N124
Revised September 5, 2023

Product: LP® SmartSide® and LP® SmartSide® ExpertFinish® Treated-Engineered-Wood Lap, Panel, Cedar Shake Lap, Nickel Gap Lap, and Vertical Siding
Louisiana-Pacific Corporation, 1610 West End Ave, Suite 200, Nashville, TN 37203
(888) 820-0325
www.lpcorp.com

1. Basis of the product report:
   - 2021, 2018, 2015, and 2012 International Building Code (IBC): Section 104.11 Alternative materials
   - 2021, 2018, 2015, and 2012 International Residential Code (IRC): 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 and ASCE 7-10 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, T2018P-05, T2022Q-25, T2023Q-30, and other qualification data.

2. Product description:
   Louisiana-Pacific Corporation (LP®) SmartSide® and LP® SmartSide® ExpertFinish® Treated-Engineered-Wood Lap, Panel, Cedar Shake Lap, Nickle Gap Lap, 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 and ExpertFinish Treated-Engineered-Wood Lap, Panel, Cedar Shake Lap, Nickle Gap Lap, and Vertical Siding is outside the scope of this report and the APA certification program. All edges are factory-sealed with a primer.

   LP SmartSide and LP SmartSide ExpertFinish Lap Siding is available in 3/8 and 7/16 Performance Categories, in nominal widths of 5, 6, 7, 8, 9-1/2, and 12 inches and in lengths up to 16 feet. **The Lap Siding may be installed horizontally or vertically.**

   LP SmartSide and LP SmartSide ExpertFinish Panel Siding is available in 3/8, 7/16, and 19/32 Performance Categories, 4 feet in width, and up to 18 feet in length. 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.

   LP SmartSide and LP SmartSide ExpertFinish Cedar Shake Lap Siding includes shiplap ends, which results in a seamless appearance when installed, and is available in 3/8 Performance Category with a nominal width of 12 inches and in lengths up to 4 feet. **The Cedar Shake Lap Siding can only be installed horizontally.**

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LP SmartSide and LP SmartSide ExpertFinish Nickel Gap Lap Siding includes shiplap edges, which results in a flat siding profile when installed, and is available in 1/2 Performance Category with a nominal width of 8 inches and in lengths up to 16 feet. **The Nickle Gap Lap Siding may be installed horizontally or vertically.**

LP SmartSide and LP SmartSide ExpertFinish Vertical Siding is a narrow-width panel siding and is available in 3/8 Performance Category, nominal width of 16 inches, and in 16-foot lengths. **The Vertical Siding can only be installed vertically.**

3. Design properties:
Allowable racking shear values for LP SmartSide and LP SmartSide ExpertFinish 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 for LP SmartSide and LP SmartSide ExpertFinish Lap and Panel Siding are listed in Tables 2 and 3, respectively. Design wind loads for LP SmartSide and LP SmartSide ExpertFinish Lap and Panel Siding when installed over the facer of structural insulated panels (SIPs) and wood structural panel (WSP) sheathing are listed in Tables 4 and 5, respectively. Design wind loads for LP SmartSide and LP SmartSide ExpertFinish Vertical Siding and Lap Siding applied vertically are listed in Table 6.

4. Product installation:
LP SmartSide and LP SmartSide ExpertFinish Treated-Engineered-Wood Lap, Panel, Cedar Shake Lap, Nickel Gap Lap, 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 and LP SmartSide ExpertFinish Lap, Nickel Gap Lap, and Panel Siding shall be permitted to be installed over the facer of structural insulated panels (SIPs) and WSP sheathing in accordance with Tables 4 and 5, respectively.

LP SmartSide and LP SmartSide ExpertFinish Lap and Nickel Gap Lap Siding, when installed vertically, shall be installed over a minimum 7/16 Performance Category 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 (see link above). 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 and LP SmartSide ExpertFinish Vertical Siding shall be installed over a minimum 7/16 Performance Category 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 (see link above). 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 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).

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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 and LP SmartSide ExpertFinish Treated-Engineered-Wood Lap, Panel, Cedar Shake Lap, Nickel Gap Lap, 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 and LP SmartSide ExpertFinish Treated-Engineered-Wood Lap, Panel, Cedar Shake Lap, Nickel Gap Lap, and Vertical Siding is outside the scope of this report and the APA certification program.
   c) LP SmartSide and LP SmartSide ExpertFinish 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 panel siding at a 16 o.c. Span Rating.
   d) LP SmartSide and LP SmartSide ExpertFinish Treated-Engineered-Wood Lap and Panel Siding is produced at Louisiana-Pacific Corporation facilities at Dawson Creek, BC, Hayward, WI, Houlton, ME, Newberry, MI, Sagola, MI, Swan Valley, MB, Tomahawk, WI, and Two Harbors, MN, and LP SmartSide 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 and LP SmartSide ExpertFinish Treated-Engineered-Wood Lap, Panel, Cedar Shake Lap, Nickel Gap Lap, and Vertical Siding described in this report are identified by a label bearing the manufacturer's name (Louisiana-Pacific Corporation) and/or trademark, the APA assigned plant number (402 for the Dawson Creek, BC plant, 357 for the Hayward, WI plant, 368 for the Houlton, ME plant, 416 for the Newberry, MI plant, 407 for the Sagola, MI plant, 457 for the Swan Valley, MB plant, 435 for the Tomahawk, WI plant, or 399 for the Two Harbors, MN 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 and LP SmartSide ExpertFinish 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. Nail Penetration in Framing (inches)	Panels Applied Directly to Framing					Panels Applied Over Max. 5/8-inch Gypsum Sheathing				
		Nail Size (common or galvanized box)[7,8]	Nail Spacing at Panel Edges (inches)				Nail Size (common or galvanized box)[7,8]	Nail Spacing at Panel Edges (inches)			
			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 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 2-inch nominal or wider framing. Panels must be installed with the long dimension oriented in the vertical direction. 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. 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 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 full panel thickness at the nail spacing specified for the applicable shear value. Follow manufacturer's recommendations.

(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.

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Table 2a. **Maximum V_{asd}**[1] for Lap Siding Installed Horizontally with 0.113" Nails[2]

Performance Category	Max. Stud Spacing[3] (inches)	Siding Width (inches)	Max. Allowable Wind Pressure (psf)	Maximum V_{asd}[4] (mph)		
				Wind Exposure Category		
				B	C	D
3/8 and 7/16	16	6	80	170	150	140
		7	80	170	150	140
		8	73	170	145	130
		9.5	60	150	130	120
		12	47	130	110	105
7/16	24	6	68	150	140	130
		7	57	150	130	110
		8	49	140	120	110
		9.5	40	125	105	100
		12	31	110	90	85
1/2 Nickel Gap	16	8	64	150	130	125
	24		43	130	110	100

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

(1) For 3/8 and 7/16 performance category lap siding, one fastener for each 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. For Nickel Gap Lap, one fastener for each stud located in center of fastener groove in accordance with the manufacturer's recommendation. Fasteners shall be a hot-dip galvanized plain (smooth) shank nail, with a minimum shank diameter of 0.113 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 2 inches. **Lap siding is not a bracing material.**

(2) 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 57 lbf/fastener or greater based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(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 30-ft height in Zone 5 with the smallest effective area in accordance with Chapter 26 of ASCE 7-10 and Section R301.2.1 of the 2012 IRC.

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Table 2b. **Maximum V_{ult} or V[(1)]** for Lap Siding Installed Horizontally with 0.113" Nails[(2)]

Performance Category	Max. Stud Spacing[(3)] (inches)	Siding Width (inches)	Max. Ultimate Wind Pressure (psf)	Maximum V_{ult} or V[(4)] (mph)		
				Wind Exposure Category		
				B	C	D
3/8 and 7/16	16	6	133	200[(5)]	180	180
		7	133	200[(5)]	180	180
		8	122	200[(5)]	180	170
		9.5	101	200[(5)]	170	150
		12	78	170	150	130
7/16	24	6	114	200[(5)]	180	160
		7	95	180	160	150
		8	81	180	150	140
		9.5	67	160	140	120
		12	52	140	120	110
1/2 Nickel Gap	16	8	107	200[(5)]	170	160
	24		71	170	140	130

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

(1) For 3/8 and 7/16 performance category lap siding, one fastener for each 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. For Nickel Gap Lap, one fastener for each stud located in center of fastener groove in accordance with the manufacturer's recommendation. Fasteners shall be a hot-dip galvanized plain (smooth) shank nail, with a minimum shank diameter of 0.113 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 2 inches. **Lap siding is not a bracing material.**

(2) 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 57 lbf/fastener or greater based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(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 30-ft height in Zone 5 with the 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 are limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

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Table 2c. **Maximum V_{asd}[1] for Lap Siding Installed Horizontally with 0.092" Nails**[2]

Performance Category	Max. Stud Spacing[3] (inches)	Siding Width (inches)	Max. Allowable Wind Pressure (psf)	Maximum V_{asd}[4] (mph)		
				Wind Exposure Category		
				B	C	D
3/8 and 7/16	16	5	78	170	150	140
		6	63	150	130	125
		7	52	145	120	110
		8	45	130	110	105
		9.5	37	120	100	90
		12	29	105	90	-
7/16	24	6	42	130	110	100
		7	35	120	100	90
		8	30	110	90	85
		9.5	25	100	85	-
		12	19	85	-	-
1/2 Nickel Gap	16	8	39	125	105	90
	24		26	100	85	-

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

(1) For 3/8 and 7/16 performance category lap siding, one fastener for each 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. For Nickel Gap Lap, one fastener for each stud located in center of fastener groove in accordance with the manufacturer's recommendation. Fasteners shall be a hot-dip galvanized plain (smooth) shank nail, with a minimum shank diameter of 0.092 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 1.5 inches. **Lap siding is not a bracing material.**

(2) 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 35 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(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 30-ft height in Zone 5 with the smallest effective area in accordance with Chapter 26 of ASCE 7-10 and Section R301.2.1 of the 2012 IRC.

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Table 2d. **Maximum V_{ult} or V[1]** for Lap Siding Installed Horizontally with 0.092" Nails[2]

Performance Category	Max. Stud Spacing[3] (inches)	Siding Width (inches)	Max. Ultimate Wind Pressure (psf)	Maximum V_{ult} or V[4] (mph)		
				Wind Exposure Category		
				B	C	D
3/8 and 7/16	16	5	131	200[5]	180	180
		6	105	200[5]	170	160
		7	87	180	160	140
		8	75	170	140	130
		9.5	61	150	130	120
		12	48	140	115	105
7/16	24	6	70	170	140	130
		7	58	150	130	120
		8	50	140	120	110
		9.5	41	130	110	-
		12	32	110	-	-
1/2 Nickel Gap	16	8	65	160	130	120
	24		44	130	110	-

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

(1) For 3/8 and 7/16 performance category lap siding, one fastener for each 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. For Nickel Gap Lap, one fastener for each stud located in center of fastener groove in accordance with the manufacturer's recommendation. Fasteners shall be a hot-dip galvanized plain (smooth) shank nail, with a minimum shank diameter of 0.092 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 1.5 inches. **Lap siding is not a bracing material.**

(2) 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 35 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(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 30-ft height in Zone 5 with the 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 are limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

Table 3a. **Maximum V_{asd}**[1] for Panel Siding Installed Vertically with 0.113" Nails[2]

Performance Category	Max. Stud Spacing[3] (inches)	Fastener Spacing (inches o.c.)		Max. Allowable Wind Pressure (psf)	Maximum V_{asd}[4] (mph)		
					Wind Exposure Category		
		Edges	Field		B	C	D
3/8, 7/16 and 19/32	16	6	12	43	130	110	100
			6	80	170	150	140
19/32	24	6	12	29	105	90	-
			6	57	150	130	110

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

(1) Fasteners shall be a hot-dip galvanized plain (smooth) shank nail, with a minimum shank diameter of 0.113 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 2 inches.

(2) 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 57 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(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 30-ft height in Zone 5 with the smallest effective area in accordance with Chapter 26 of ASCE 7-10 and Section R301.2.1 of the 2012 IRC.

Table 3b. **Maximum V_{ult} or V**[1] for Panel Siding Installed Vertically with 0.113" Nails[2]

Performance Category	Max. Stud Spacing[3] (inches)	Fastener Spacing (inches o.c.)		Max. Ultimate Wind Pressure (psf)	Maximum V_{ult} or V[4] (mph)		
					Wind Exposure Category		
		Edges	Field		B	C	D
3/8, 7/16 and 19/32	16	6	12	71	170	140	130
			6	133	200[5]	180	180
19/32	24	6	12	48	140	115	-
			6	95	180	160	150

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

(1) Fasteners shall be a hot-dip galvanized plain (smooth) shank nail, with a minimum shank diameter of 0.113 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 2 inches

(2) 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 57 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(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 30-ft height in Zone 5 with the 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 are limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

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Table 3c. **Maximum V_{asd}[1] for Panel Siding Installed Vertically with 0.092" Nails**[2]

Performance Category	Max. Stud Spacing[3] (inches)	Fastener Spacing (inches o.c.)		Max. Allowable Wind Pressure	Maximum V_{asd}[4] (mph)		
					Wind Exposure Category		
		Edges	Field		B	C	D
3/8, 7/16 and 19/32	16	6	12	26	100	85	-
			6	52	145	120	110
19/32	24	6	12	17	85	-	-
			6	35	120	100	90

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

(1) Fasteners shall be a hot-dip galvanized plain (smooth) shank nail, with a minimum shank diameter of 0.092 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 1.5 inches. **Configuration cannot be used for lateral bracing due to nail size.**

(2) 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 35 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(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 30-ft height in Zone 5 with the smallest effective area in accordance with Chapter 26 of ASCE 7-10 and Section R301.2.1 of the 2012 IRC.

Table 3d. **Maximum V_{ult} or V[1],** for Panel Siding Installed Vertically with 0.092" Nails[2]

Performance Category	Max. Stud Spacing[3] (inches)	Fastener Spacing (inches o.c.)		Max. Ultimate Wind Pressure (psf)	Maximum V_{ult} or V[4] (mph)		
					Wind Exposure Category		
		Edges	Field		B	C	D
3/8, 7/16 and 19/32	16	6	12	44	130	110	-
			6	87	180	160	140
19/32	24	6	6	58	150	130	120

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

(1) Fasteners shall be a hot-dip galvanized plain (smooth) shank nail, with a minimum shank diameter of 0.092 inch, and long enough to penetrate structural framing or wood structural panels and structural framing a minimum of 1.5 inches. **Configuration cannot be used for lateral bracing due to nail size.**

(2) 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 35 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(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 the 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.

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Table 4a. **Maximum V_{asd}**[1] for Lap Siding Installed Horizontally to SIPs[2] or WSP Sheathing[3]

Performance Category	Max. Ring Shank Nail Spacing[4,5] (inches)	Siding Width (inches)	Max. Allowable Wind Pressure (psf)	Maximum V_{asd}[6] (mph)		
				Wind Exposure Category		
				B	C	D
3/8 and 7/16	8	5	80	170	150	140
		6	80	170	150	140
		7	80	170	150	140
		8	80	170	150	140
		9.5	77	170	150	130
		12	59	150	130	120
	12	5	80	170	150	140
		6	80	170	150	140
		7	73	170	145	130
		8	62	150	130	120
		9.5	51	145	120	110
		12	40	125	105	90
1/2 Nickel Gap	8	8	80	170	150	140
	12		55	150	125	110
	16		41	130	110	100
	24		27	105	85	-

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

(1) 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.**

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

(3) 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.

(4) Fasteners shall be a hot-dip galvanized ring shank nail, with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural facer panel. For 3/8 and 7/16 performance category lap siding, one ring shank fastener located 3/4 inch from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 1 inch. For Nickel Gap Lap, ring shank fasteners spaced per Table 4b, through the top nail flange, placed in the center of faster groove in accordance with the manufacturer's recommendation.

(5) 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 36 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(6) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-ft height in Zone 5 with the smallest effective area in accordance with Chapter 26 of ASCE 7-10 and Section R301.2.1 of the 2012 IRC.

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Table 4b. **Maximum V_{ult} or V[1]** for Lap Siding Installed Horizontally to SIPs[2] or WSP Sheathing[3]

Performance Category	Max. Ring Shank Nail Spacing[4,5] (inches)	Siding Width (inches)	Max. Ultimate Wind Pressure (psf)	Maximum V_{ult} or V[6] (mph)		
				Wind Exposure Category		
				B	C	D
3/8 and 7/16	8	5	133	200[7]	180	180
		6	133	200[7]	180	180
		7	133	200[7]	180	180
		8	133	200[7]	180	180
		9.5	128	200[7]	180	170
		12	99	200[7]	170	150
	12	5	133	200[7]	180	180
		6	133	200[7]	180	180
		7	121	200[7]	180	170
		8	104	200[7]	170	160
		9.5	86	180	150	140
		12	66	160	140	120
1/2 Nickel Gap	8	8	133	200[7]	180	180
	12		91	180	160	150
	16		68	160	140	130
	24		45	130	115	-

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

(1) 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.**

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

(3) 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.

(4) Fasteners shall be a hot-dip galvanized ring shank nail, with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural facer panel. For 3/8 and 7/16 performance category lap siding, one ring shank fastener located 3/4 inch from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 1 inch. For Nickel Gap Lap, ring shank fasteners spaced per Table 4b, through the top nail flange, placed in the center of faster groove in accordance with the manufacturer's recommendation.

(5) 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 36 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(6) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-ft height in Zone 5 with the 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 are limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

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Table 5a. **Maximum V_{asd}[1] for Panel Siding Installed Vertically to SIPs[2] or WSP Sheathing[3]**

Performance Category	Max. Ring Shank Nail Spacing[4,5] (inches o.c.)		Max. Allowable Wind Pressure (psf)	Maximum V_{asd}[6] (mph)		
				Wind Exposure Category		
	Vertical	Horizontal		B	C	D
3/8, 7/16 and 19/32	8	8	80	170	150	140
	10	10	52	145	120	110
	12	12	36	120	100	90
	16	16	20	90	-	-

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

(1) 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.**

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

(3) 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.

(4) Fasteners shall be a hot-dip galvanized ring shank nail, with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural facer panel. Ring shank nails fastened in a grid as specified.

(5) 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 36 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(6) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-ft height in Zone 5 with the smallest effective area in accordance with Chapter 26 of ASCE 7-10 and Section R301.2.1 of the 2012 IRC.

Table 5b. **Maximum V_{ult} or V[1] for Panel Siding Installed Vertically to SIPs[2] or WSP Sheathing[3]**

Performance Category	Max. Ring Shank Nail Spacing[4,5] (inches o.c.)		Max. Ultimate Wind Pressure (psf)	Maximum V_{ult} or V[6] (mph)		
				Wind Exposure Category		
	Vertical	Horizontal		B	C	D
3/8, 7/16 and 19/32	8	8	133	200[7]	180	180
	10	10	87	180	160	140
	12	12	61	150	130	120
	16	16	34	115	-	-

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

(1) 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.**

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

(3) 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.

(4) Fasteners shall be a hot-dip galvanized ring shank nail, with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural facer panel. Ring shank nails fastened in a grid as specified.

(5) 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 36 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(6) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-ft height in Zone 5 with the 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 are limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

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Table 6a. **Maximum V_{asd}[1] for Vertical Siding or Lap Siding Installed Vertically on WSP Sheathing**

Perf. Category	Siding Type	Siding Width (inches)	Max. Ring Shank Nail Edge Spacing (inches o.c.)	Max. Allowable Wind Pressure (psf)	Maximum V_{asd}[8] (mph)		
					Wind Exposure Category		
					B	C	D
3/8 and 7/16	Vertical Siding	16[2]	6[4,7]	80	170	150	140
			12[4,7]	55	150	125	110
			16[4,7]	41	130	110	100
	Lap Siding Installed Vertically	5[3]	12[5,7]	80	170	150	140
		6[3]		73	170	145	130
		7[3]		62	150	130	120
		8[3]		55	150	125	110
		9.5[3]		46	130	110	105
		12[3]		36	120	100	90
1/2 Nickel Gap	Lap Siding Installed Vertically	8	8[6,7]	80	170	150	140
			12[6,7]	55	150	125	110
			16[6,7]	41	130	110	100
			24[6,7]	27	105	85	-

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

(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 manufacturer's recommendations.

(3) Lap Siding installed vertically in accordance with manufacturer's recommendations.

(4) Fasteners must be ring shank nails with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of tabulated value on-center spacing along the siding perimeter in accordance with manufacturer's recommendations.

(5) Fasteners must be ring shank nails with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of tabulated value on-center spacing along alternating edges of the length of the trim/batten in accordance with manufacturer's recommendations.

(6) Fasteners shall be a hot-dip galvanized ring shank nail, with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural facer panel. Ring shank fastener located in center of fastener groove in accordance with the manufacturer's recommendation.

(7) 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 36 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(8) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-ft height in Zone 5 with the smallest effective area in accordance with Chapter 26 of ASCE 7-10 and Section R301.2.1 2012 IRC.

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Table 6b. **Maximum V_{ult} or V**[1] for Vertical Siding or Lap Siding Installed Vertically to WSP Sheathing

Perf. Category	Siding Type	Siding Width (inches)	Max. Ring Shank Nail Edge Spacing (inches o.c.)	Max. Ultimate Wind Pressure (psf)	Maximum V_{ult} or V[8] (mph)		
					Wind Exposure Category		
					B	C	D
3/8 and 7/16	Vertical Siding	16[2]	6[4,7]	133	200[9]	180	180
			12[4,7]	91	180	160	150
			16[4,7]	68	160	140	130
	Lap Siding Installed Vertically	5[3]	12[5,7]	133	200[9]	180	180
		6[3]		121	200[9]	180	170
		7[3]		104	200[9]	170	160
		8[3]		91	180	160	150
		9.5[3]		77	170	150	130
		12[3]		61	150	130	120
1/2 Nickel Gap	Lap Siding Installed Vertically	8	8[6,7]	133	200[9]	180	180
			12[6,7]	91	180	160	150
			16[6,7]	68	160	140	130
			24[6,7]	45	130	115	-

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

(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 manufacturer's recommendations.

(3) Lap Siding installed vertically in accordance with manufacturer's recommendations.

(4) Fasteners must be ring shank nails with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of tabulated value on-center spacing along the siding perimeter in accordance with manufacturer's recommendations.

(5) Fasteners must be ring shank nails with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural panel wall sheathing. Fasteners must be spaced a maximum of tabulated value on-center spacing along alternating edges of the length of the batten in accordance with manufacturer's recommendations.

(6) Fasteners shall be a hot-dip galvanized ring shank nail, with a minimum shank diameter of 0.092 inch. Length shall be long enough to fully penetrate wood structural facer panel. Ring shank fastener located in center of fastener groove in accordance with the manufacturer's recommendation.

(7) 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 36 lbf/fastener based on the load duration factor of 1.6. The fastener shall meet or exceed the corrosion-resistance of hot-dip galvanized steel wire nails meeting the requirements of ASTM A153, Class D.

(8) Three-second-gust; based on wind pressures acting toward and away from building surfaces, at 30-ft height in Zone 5 with the 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.

(9) Table R301.2.1(1) of the 2021 IRC and Table R301.2(2) of the 2018 and 2015 IRC are limited to a maximum ultimate design wind speed, V_{ult}, of 180 mph.

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Technical Note No. 014

LP® BUILDING PRODUCTS

Installing LP® SmartSide® Trim and Lap Siding on Concrete or Masonry Walls over Furring Strips (V_{ult} Wind Speeds)

This Technical Note is an addendum to the LP® SmartSide® Trim and Fascia, and LP® SmartSide® Lap siding Application Instructions ("Instructions"). It is intended to provide an alternative fastening option for LP SmartSide trim and lap siding on concrete or masonry walls over furring strips. The Instructions remain effective except as may be modified by this Note. Refer to the Instructions for all other aspects of product installation.

Trim and lap siding may be installed on concrete or masonry walls over furring strips:

- Trim and lap siding must be installed over a minimum 1x4 nominal size Southern Pine furring strips with a specific gravity greater than or equal to 0.55.
    - Install furring strips no more than 16"o.c. in wind speed areas less than or equal to 200 MPH[1]
- Siding shall be installed to safely support all loads, including wind loads, of the locally adopted building codes. The installation of siding shall result in a system that provides a load path that meets the requirements for the transfer of loads from their point of origin through the load-resisting elements to the structure. The mechanical connection of the furring strip to the concrete or masonry structure is the responsibility of a design professional. LP assumes no liability for any loss or damage caused by the design of the mechanical connection of the furring strip to the concrete or masonry structure and is expressly released by the purchaser or owner from any such loss or liability.
- Minimum Fastener Type:
    - Corrosion Resistant – Hot Dipped Galvanized or equal (ASTM A153)[2]
    - Ring Shank[3]
    - Shank diameter = 0.120 inch
    - Head diameter = 0.270 inch
    - Length = fastener shall fully penetrate a minimum 1/2 inch into nailable furring **Caution:** fastener shall not bottom out on masonry wall leaving the fastener head less than flush with the face of trim or siding.

ADDRESS 414 Union Street
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FAX (615) 986-5666
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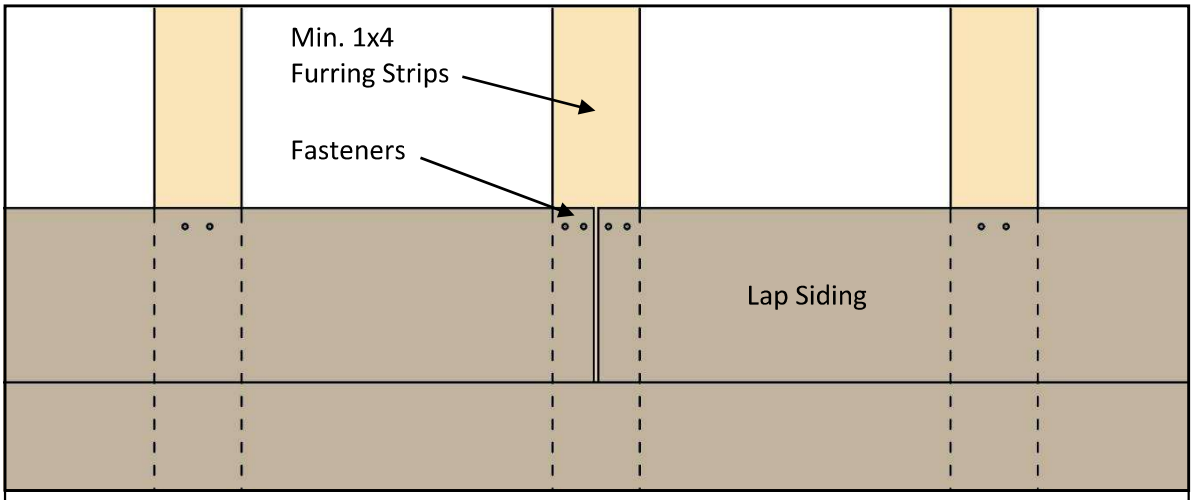
Date Created: 12/04/2015
Last Revision: 10/09/2017

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- The IRC and Florida Residential Code require a water-resistant barrier be used on all exterior walls, except over concrete or masonry walls per Exception 1 in Section R703.1.1 of both Codes. LP always requires the use of a WRB behind LP® SmartSide® products. LP has no responsibility for any damage arising from a failure to use a WRB.

Lap Siding

- Limitations:
  - For use with Strand substrate lap (all widths) and/or Fiber substrate lap (up to 8 inches wide only)
  - Excluding Cedar Shake Fiber Lap, Bold Profiles Fiber Lap, Self-Aligning Fiber Lap, and SmartLock™ Strand Lap
- Fastening Requirements:
  - Place fasteners 3/4 inch from top edge of lap siding
  - Increase minimum lap siding overlap to 1-1/8 inch
  - Blind nail two fasteners per furring strip (**every 16" o.c.**)



- 2 nails per furring (4 nails at butt joints)
- Nails spaced 3/4" from top edge of lap and 3/8" from ends of lap (approximately 1" apart)
- 1-1/8" min. lap siding overlap.

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Trim

- Limitations:
    - In Hurricane-Prone Regions or locations where negative wind loads are a concern, box or common nails should be used.
        - Trim nails may be used in Non-Hurricane-Prone Regions with the following cautions: Do not overdrive or counter sink the fastener, nail flush with the surface of trim. Detachment of trim is not covered by the LP® SmartSide® limited warranty whether common, box, or trim nails are used.
- Fastening Requirements:
    - Two fasteners spaced a maximum of every 24 inches o.c. along the length of the trim, or two fasteners at both ends with additional fasteners spaced a maximum of every 12 inches o.c. along alternating edges the length of the trim.
    - Trim under 7 inches wide use a minimum of 2 nails per width. Trim 7 to 12 inches wide use a minimum of 3 nails per width. Trim over 12 inches wide use a minimum of 4 nails per width.

[1] Wind speed is Ultimate Design Wind Speed/ Zone 5/ 10 ft^2/ 30 foot height.

[2] Corrosion resistance and capable of preventing rust, stain and deterioration of the fasteners under normal outdoor environmental conditions for a period of no less than 50 years. For further information or guidance, consult your nail supplier/manufacturer.

[3] Ring shank nails shall be capable of the performance specified in Table 1A Ring-Shank Nail Withdrawal Loads of APA publication TT-109, *Wood Structural Panels Used as Nailable Sheathing* when tested in accordance with ASTM D 1761, *Standard Test Method for Mechanical Fasteners in Wood* and NDS-2015. For further information or guidance, consult your nail supplier/manufacturer.

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