

LP NovaCore[®] Thermal Insulated Sheathing
Louisiana-Pacific Corporation

PR-N139

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Product: LP NovaCore[®] Thermal Insulated Sheathing
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1. Basis of the product report:
 - 2024, 2021, 2018, and 2015 International Building Code (IBC): Sections 104.2.3 (104.11 in 2021, 2018, and 2015 IBC) Alternative materials and 2303.1.5 Wood structural panels
 - 2024, 2021, 2018, and 2015 International Residential Code (IRC): Sections R104.2.2 (R104.11 in 2021, 2018, and 2015 IRC) Alternative materials and R503.2 Wood structural panel sheathing
 - DOC PS 2-18, Performance Standard for Wood Structural Panels
 - APA Reports T2022P-06, T2022P-13, T2023P-12, T2023P-13, and T2024P-10, and other qualification data
2. Product description:

LP NovaCore[®] Thermal Insulated Sheathing is an insulated sheathing made by combining 7/16 Category OSB with a layer of R-5 per inch XPS rigid foam insulation laminated to the OSB with a non-structural polyvinyl acetate (PVA) adhesive. The OSB complies with DOC PS 2 in accordance with the in-plant manufacturing standard approved by APA.

LP NovaCore Thermal Insulated Sheathing is available in nominal panel thicknesses of 15/16, 1-7/16, and 1-15/16 inches, and 4x8-foot, 4x9-foot, and 4x10-foot nominal panel sizes with square edges. The XPS specification and the PVA glue bond applications are specified in the in-plant manufacturing standard but are beyond the scope of the APA certification.
3. Design properties:
 - 3.1 Intermittent Wall Bracing (WSP Method): Table 1 lists the LP NovaCore Thermal Insulated Sheathing prescriptive nailing requirements for use as the intermittent wall bracing in accordance with Section R602.10 of the IRC and Section 2308.10 of the 2024 IBC, and Section 2308.6 of the 2021, 2018, and 2015 IBC. Segments of the wall with openings shall not be counted as the length of wall bracing for the WSP intermittent wall bracing method.
 - 3.2 Engineered Shear Wall: Tables 2A and Table 2B list the LP NovaCore Thermal Insulated Sheathing in-plane nominal unit shear capacities for engineering design in accordance with Section 2305 of the IBC and ANSI/AWC Special Design Provisions for Wind and Seismic (SDPWS) for wood structural panel shear walls unless otherwise specified in this report. The seismic design coefficients and factors shall be in accordance with the ASCE-7 Bearing Wall Systems for light-frame wood walls sheathed with wood structural panels (Item 15) with the maximum shear wall aspect ratio of 2:1. Segments of the wall with openings shall not be counted as a shear wall.
4. Product installation:

LP NovaCore Thermal Insulated Sheathing recognized in this report shall be installed with the insulation direct to studs and used in accordance with the recommendations provided by

the manufacturer (<https://lpcorp.com/resources/product-literature/installation-instructions/lp-novacore-installation-instructions>).

5. Limitations:

- a) LP NovaCore Thermal Insulated Sheathing recognized in Section 3.1 of this report shall be permitted for use as prescriptive intermittent wall bracing in Seismic Design Categories (SDC) A, B, and C (excluding townhouses in SDC C) and in regions where wind design is not required by Section R301.2.1.1 of the IRC when installed in accordance with the requirements specified in this report and the recommendations provided by the manufacturer.
- b) LP NovaCore Thermal Insulated Sheathing recognized in Section 3.2 of this report shall be permitted for use as shear walls in any Seismic Design Categories as permitted in Section 2305 of the IBC when installed in accordance with the requirements specified in this report and the recommendations provided by the manufacturer.
- c) LP NovaCore Thermal Insulated Sheathing is limited to dry service conditions that result in the average equilibrium moisture content of sawn lumber of less than 16%.
- d) LP NovaCore Thermal Insulated Sheathing shall be covered with a water-resistive barrier on the exterior of the OSB sheathing in accordance with the code.
- e) An approved thermal barrier, such as minimum 1/2-inch gypsum wallboard, shall be installed on the interior side of the wall framing, opposite the LP NovaCore Thermal Insulated Sheathing, in accordance with Section R303.4 of the 2024 IRC and Section R316.4 of the 2021, 2018, and 2015 IRC, or Section 2603.4 of the IBC.
- f) Fire resistance of LP NovaCore Thermal Insulated Sheathing is beyond the scope of this report.
- g) The nominal 1/2-inch thick (R-3), 1-inch thick (R-5), and 1-1/2-inch thick (R-7.5) XPS insulation is supplied by an XPS manufacturer in accordance with the in-plant manufacturing standard and its certification is beyond the scope of this report.
- h) The 7/16 Category OSB sheathing is manufactured at the LP facilities in Thomasville, Alabama (APA assigned plant number 520) and Peace Valley, British Columbia, Canada (APA assigned plant number 510), and certified by APA.
- i) This report is subject to re-examination in one year.

6. Identification:

The NovaCore Thermal Insulated Sheathing described in this report is identified by a label bearing the manufacturer's name (Louisiana-Pacific Corporation) and/or trademark, the report number PR-N139, and a means of identifying the date of manufacture.

Table 1. Intermittent Wall Bracing Nailing Requirements for LP NovaCore Thermal Insulated Sheathing in Accordance with the 2024, 2021, 2018, and 2015 IRC (WSP Method)

XPS Thickness (in)	Framing ^(a)		Nailing Requirement		
	Nominal Stud Size (Min.)	Max. Stud Spacing (in.)	Min. Nail Size Nail Size Length x Shank Dia. x Head Dia. (in.) ^(b,c,d)	Max. Nail Spacing Edge ^(e) /Field (in.)	Min. Penetration into Framing (in.)
1/2	2 x 4	24	2-1/2 x 0.131 x 0.281	4/12	1.5
1	2 x 4	24	3 x 0.131 x 0.281	4/12	1.5
1-1/2	2 x 4	24	3-1/2 x 0.131 x 0.281	3/12	1.5

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 lbf = 0.454 kg, 1 psi = 6.9 kPa

- (a) All panel edges must be backed by framing or blocking. Exception: When not used as bracing panels, the horizontal edges may be left unblocked.
- (b) Nails must be full round head of a type generally used to attach wood structural panel sheathing.
- (c) Offset round head nails of equivalent size shall be permitted to be substituted provided the nails are included in ICC-ES Evaluation Report ESR-1539 and meet the Head Area Ratio (HAR) requirements of a nail having a shank diameter of at least 0.131 in. (e.g., Y =8d equivalent to an 8d common nail with a shank diameter of 0.131 in., or Y 135 for a nail having a shank diameter of 0.135 in.).
- (d) All nails must be "bright" carbon steel or galvanized of equivalent or larger size.
- (e) All panel edge nails must be located approximately 3/8 inch from panel edges except at the corner of a brace wall line, in which the recommendation by the manufacturer shall be followed.

Table 2A. Nominal Unit Shear Capacities for Douglas fir-Larch Wood-Framed Shear Walls Sheathed with LP NovaCore Insulated Sheathing Using Standard Full-Round Head Nails^(a,b,c,d,e,f)

Nominal Panel Thickness (in.)	Min. Nail Penetration into Framing (in.)	Nail Size Length x Shank Dia. x Head Dia. (in.)	Nail Spacing Edge/Field (in.)	Nominal Unit Shear Capacity (lbf/ft)	Apparent Shear Stiffness, G_a (kips/in.)
15/16	1.5	2-1/2 x 0.131 x 0.281	3/12	840	9.6
			4/12	730	7.2
1-7/16	1.5	3 x 0.131 x 0.281	3/12	785	5.6
			4/12	685	5.1
1-15/16	1.5	3-1/2 x 0.131 x 0.281	3/12	730	3.2

For SI: 1 inch = 25.4 mm, 1lbf/ft = 14.59 N/m; 1 kips/in. = 175.13 kN/m

- a) For seismic design, the allowable stress design (ASD) allowable shear capacity shall be determined by dividing the tabulated nominal shear capacity by the ASD reduction factor of 2.8 and the LRFD factored shear resistance shall be determined by multiplying the nominal shear capacity by a resistance factor, ϕ_D , of 0.50. No further increases shall be permitted.
- b) For wind design, the ASD allowable shear capacity shall be determined by dividing the tabulated nominal shear capacity by the ASD reduction factor of 2.0 and the LRFD factored shear resistance shall be determined by multiplying the nominal shear capacity by a resistance factor, ϕ_D , of 0.80. No further increases shall be permitted.
- c) Values assume Douglas fir-Larch lumber at 19% or less moisture content at the time of fabrication.
- d) When species of framing lumber other than Douglas fir-Larch are used, reduce nominal unit shear capacity by multiplying the tabulated value by the Specific Gravity Adjustment Factor = $(1-(0.50-G)) \leq 1.0$, where G = specific gravity of the framing lumber from NDS Table 12.3.3A.
- e) All panel edges shall be backed by framing or blocking, and nails shall be located approximately 3/8 inch from panel edges except at the corner of a brace wall line, in which the recommendation by the manufacturer shall be followed.
- f) Shear wall deflection shall be determined in accordance with SDPWS using the G_a value provided in this table.

Table 2B. Nominal Unit Shear Capacities for Douglas fir-Larch Wood-Framed Shear Walls Sheathed with LP NovaCore Insulated Sheathing Using Nails with Offset Round Heads^(a,b,c,d,e,f)

Nominal Panel Thickness (in.) ^(g)	Min. Nail Penetration into Framing (in.)	Nail Size Length x Shank Dia. (in.) x Min. Head Area Ratio (HAR) ^(g)	Nail Spacing Edge/Field (in.)	Nominal Unit Shear Capacity (lbf/ft)	Apparent Shear Stiffness, G_a (kips/in.)
15/16	1.5	2-1/2 x 0.131 x Y =8d	3/12	785	8.9
			4/12	685	6.7
1-7/16	1.5	3 x 0.131 x Y =8d	3/12	730	5.1
			4/12	645	4.7
1-15/16	1.5	3-1/2 x 0.131 x Y =8d	3/12	670	2.6

For SI: 1 inch = 25.4 mm, 1lbf/ft = 14.59 N/m; 1 kips/in. = 175.13 kN/m

- a) For seismic design, the allowable stress design (ASD) allowable shear capacity shall be determined by dividing the tabulated nominal shear capacity by the ASD reduction factor of 2.8 and the LRFD factored shear resistance shall be determined by multiplying the nominal shear capacity by a resistance factor, ϕ_D , of 0.50. No further increases shall be permitted.
- b) For wind design, the ASD allowable shear capacity shall be determined by dividing the tabulated nominal shear capacity by the ASD reduction factor of 2.0 and the LRFD factored shear resistance shall be determined by multiplying the nominal shear capacity by a resistance factor, ϕ_D , of 0.80. No further increases shall be permitted.
- c) Values assume Douglas fir-Larch lumber at 19% or less moisture content at the time of fabrication.
- d) When species of framing lumber other than Douglas fir-Larch are used, reduce nominal unit shear capacity by multiplying the tabulated value by the Specific Gravity Adjustment Factor = $(1-(0.50-G)) \leq 1.0$, where G = specific gravity of the framing lumber from NDS Table 12.3.3A.
- e) All panel edges shall be backed by framing or blocking, and nails shall be located approximately 3/8 inch from panel edges except at the corner of a brace wall line, in which the recommendation by the manufacturer shall be followed.
- f) Shear wall deflection shall be determined in accordance with SDPWS using the G_a value provided in this table.
- g) Offset round head nails included in ICC-ES Evaluation Report ESR-1539 and meet the Head Area Ratio (HAR) requirements of a nail having a shank diameter of at least 0.131 in. (e.g., Y =8d for an 8d common nail with a shank diameter of 0.131 in., or Y 135 for a nail having a shank diameter of 0.135 in.).

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