

SECTION 06 16 13  
INSULATING SHEATHING - LP NOVACORE

## PART 1 - GENERAL

## 1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

## 1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials, and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. Insulating sheathing attached to cold-formed metal framing members or wood framing members at exterior wall.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
  - 1. Section 04 20 00 - UNIT MASONRY for masonry-veneer anchors and insulation in cavity wall construction.
  - 2. Section 05 40 00 - COLD-FORMED METAL FRAMING for metal framing at exterior wall.
  - 3. Section 06 10 00 - ROUGH CARPENTRY for plywood backing panels.
  - 4. Section 07 27 00 - AIR BARRIERS for modified bituminous sheet membrane over gypsum sheathing and membrane flashing.
  - 5. Section 07 62 00 - SHEET METAL FLASHING AND TRIM for flashing applied to gypsum sheathing.

## 1.3 REFERENCED STANDARDS

- A. APA - The Engineered Wood Association:
  - 1. APA Reports T2022P-06 and T2022P-13, and other qualification data.
- B. ASTM International (ASTM):
  - 1. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- C. Department of Commerce (DOC):
  - 1. DOC PS 2-18 - Performance Standard for Wood Structural Panels.
- D. International Building Code (IBC):
  - 1. IBC Section 104.11 - Alternative Materials, 2021, 2018, 2015 and 2012.
  - 2. IBC Section 2303.1.5 - Wood structural panels, 2021, 2018, and 2015.
  - 3. IBC Section 2303.1.4 - Wood structural panels, 2012.

- E. International Residential Code (IRC):
  - 1. IRC Section R104.11 – Alternative Materials, 2021, 2018, 2015 and 2012.
  - 2. IRC R503.2 – Wood structural panel sheathing.

#### 1.4 SUBMITTALS

- A. Product Data: For each product specified.
- B. Evaluation Reports: For wood sheathing and seam tape, from ICC-ES.
- C. LEED Submittals: Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

#### 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each gypsum sheathing product through one source from a single manufacturer.

#### 1.6 WARRANTY:

- A. Limited Warranty: 20 years. Visit [lpcorp.com/warranties](http://lpcorp.com/warranties) for details.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles, each bearing brand name and identification of manufacturer.
  - 1. 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.
- B. Store panels indoors or protected from extended UV exposure of the insulation or water exposure of the sheathing prior to installation.
- C. Keep panels off the ground, well-supported, on a flat surface.
- D. Use a minimum of 3 stickers spaced evenly under each unit. Stickers shall be a minimum 2-1/2 inch wide (i.e., a flat 2x3).
  - 1. Ensure stickers are aligned vertically when stacking units.
  - 2. Do not stack higher than 3 units.
- E. Space unit stacks a minimum of 6 inches on all sides.
- F. Panels are packaged with a weather-resistant unit cover to provide protection on the jobsite prior to installation. Replace the cover over the unused portion of panels. Keep panels clean and dry. Inspect prior to application.
- G. If the original cover cannot be used, use only opaque white covers to avoid damage to the insulation. Do not use non-white or non-opaque covers as these can build up excess heat or expose the insulation to UV.

- H. Be careful not to drop insulation on corners or crush the edges of the insulation. Note: A panel with damaged insulation may still be used as a fill-in panel by cutting off the affected area and trimming to the needed size.

## 1.8 SEQUENCING AND SCHEDULING

- A. Sequence installing sheathing with installing exterior cladding to comply with requirements indicated below:
  - 1. Do not leave Insulated sheathing board exposed to weather.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS:

- A. Provide insulating sheathing manufactured by the following:
  - 1. Louisiana-Pacific Corporation, 1610 West End Ave., Suite 200, Nashville, TN 37203. Phone: (888) 820-0325. URL: [www.lpcorp.com](http://www.lpcorp.com)
- B. Substitutions: [Not Permitted.] [In accordance with provisions in Section 01 60 00.]
  - 1. It is the responsibility of manufactures to confirm non-infringement on intellectual property.

Editor's Note: Combat cold and heat: The continuous insulation from LP NovaCore sheathing can reduce potential heat gain or loss through the studs, making a more comfortable house for homeowners. 2-in-1 sheathing that cuts and installs like OSB to provide a solid nailing substrate for a variety of cladding and a layer of continuous insulation.

### 2.2 THERMAL INSULATED SHEATHING

- A. Basis of Design: Product: LP NovaCore™ Thermal Insulated Sheathing. An insulated sheathing made by combining 7/16 Category OSB with a layer of nominal 1 inch thick 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.
  - 1. Nominal Product Thickness: 1-7/16 inches.
  - 2. Nominal OSB Sizes: [4x8-ft] [4x9-ft] [4x10-ft]., Square edges. Category: 7/16.
  - 3. XPS Foam: Owens Corning® FOAMULAR® NGX™ XPS foam. Nominal Thickness: 1 inch.
    - a. Water Absorption Owens Corning foam plastic sheathing doesn't absorb water.
    - b. R-Value: 5
  - 4. Cuts and installs like oriented strand board (OSB). A solid nailing substrate for a variety of facades and a layer of continuous insulation.
  - 5. Installs with insulation facing the studs.
  - 6. Zero Ozone Depletion Potential: Specifying and installing LP NovaCore sheathing helps builders achieve LEED®, ENERGY STAR®, and Green Building Standard ICC 700-2008 certifications.
  - 7. In some climate zones can use 2x4 studs while still meeting strict energy codes.

### 2.3 PERFORMANCE AND DESIGN REQUIREMENTS

- A. Can be used to meet energy code requirements anywhere a climate zone allows an R-Value of 13+5, or 20+5.
- B. ASTM C578 Compliance Type 4, Compressive strength 25 PSI.
- C. Dimensions are reduced 1/8 inch for proper spacing during installation.
- D. Panel Orientation: Installed vertically or horizontally, provided panel edges are supported and fastened to wall framing or blocking.

Editor's Note: The following two paragraphs are a summary of what conditions are required so the exposed foam of LP NovaCore sheathing or panels would not need a thermal barrier.

- E. Requirements to Achieve Class A Exposure in Attics and Crawlspace
  - 1. May be used in floors and walls of attics, and walls of crawl spaces without the coverings listed in IBC Section 2603.4.1.6 or IRC Section R316.5.3 and Section R316.5.4.
    - a. Entry to attic or crawl space is limited to service of utilities. No storage is permitted.
      - 1) Utilities include, but are not limited to, mechanical equipment, electrical wiring, fans, plumbing, gas or electric hot water heaters, and gas or electric furnaces.
    - b. There are no interconnected crawl space areas.
    - c. Air in the attic or crawl space is not circulated to other parts of the building.
    - d. Under-floor (crawl space) ventilation is provided when required by Section 1203.3 of the 2012 IBC, Section 1203.4 of the 2015 IBC, Section 1202.4 of the 2018 and 2021 IBC, or Section R408.1 of the IRC, as applicable.
    - e. Combustion air is provided in accordance with Section 701 of the International Mechanical Code.
- F. May be installed on wall surfaces of a detached garage, pole barn, telecommunication shelter, concrete modular building, agricultural building, buildings under the IBC Utility and Miscellaneous Group U or other structures under the IBC or IRC, with no thermal or ignition barrier applied to the foam plastic sheathing, based on testing in accordance with NFPA 286, and Section 2603.9 of the IBC or Section R316.6 of the IRC, when all other requirements of the building code for that building are met.
- G. Intermittent Wall Bracing (WSP Method): In accordance with both the 2021, 2018, 2015 and 2012 IRC and IBC.
  - 1. IRC: Section R602.10
  - 2. IBC: Section 2308.6
  - 3. Not approved for use as prescriptive wall bracing where wind design is required by Section R301.2.1.1 of the IRC.
  - 4. Segments of the wall with openings shall not be counted as the length of wall bracing for the WSP intermittent wall bracing method.
  - 5. Framing: All panel edges must be backed by framing or blocking. When not used as bracing panels, horizontal edges may be left unblocked.
    - a. Nominal Stud Size (Min.): 2 x 4 inches.
    - b. Maximum Stud Spacing: 24 inches on center.
    - c. Nailing Requirements: Nails must be full round head.
      - 1) Minimum Nail Size (Length x Shank Dia. x Head Dia.): 3 x 0.131 x 0.281 inches.

- 2) Minimum Penetration into Framing: 1.5 inches.
  - 3) Maximum Nail Spacing (Edge / Field): 4 / 12 inches. 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 is to be followed.
6. Engineered Shear Wall: Table 2 lists 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.
- a. Nominal Unit Shear Capacities for Douglas Fir/Larch Wood-Framed Shear Walls Sheathed with LP NovaCore Insulated Sheathing:
    - 1) Sheathing Thickness: 1-7/16 inches
    - 2) Minimum Nail Penetration into Framing: 1.5 inches
    - 3) Nail Size (Length x Shank Dia. x Head Dia.): 3 x 0.131 x 0.281 inches
    - 4) Nail Spacing Edge / Field: [3 / 12] [4 / 12]
    - 5) Nominal Unit Shear Capacity (lbf/ft): [870] [730]
    - 6) Apparent Shear Stiffness,  $G_a$  (kips/in.): 5.90
  - b. Seismic Design:
    - 1) Allowable stress design (ASD):
      - a) Allowable Shear Capacity: Determine by dividing the tabulated nominal shear capacity by the ASD reduction factor of 2.8.
      - b) LRFD Factored Shear Resistance: Determine by multiplying the nominal shear capacity by a resistance factor,  $\phi_D$ , of 0.50.
      - c) No further increases are permitted.
  - c. Wind Design:
    - 1) ASD Allowable Shear Capacity: Determine by dividing the tabulated nominal shear capacity by the ASD reduction factor of 2.0
    - 2) LRFD Factored Shear Resistance: Determine by multiplying the nominal shear capacity by a resistance factor,  $\phi_D$ , of 0.80. No further increases are permitted.
  - d. Values assume Douglas Fir-Larch lumber at 19 percent or less moisture content at time of fabrication.
  - e. For Species of Framing Lumber other than Douglas Fir-Larch: Reduce nominal unit shear capacity by multiplying the tabulated value by the Specific Gravity Adjustment Factor.
    - 1) Specific Gravity Adjustment Factor:  $(1-(0.50-G)) \leq 1.0$ .
    - 2) G is the specific gravity of the framing lumber from NDS Table 12.3.3A.
  - f. Shear Wall Deflection: Determined in accordance with SDPWS using the  $G_a$  value provided in the Engineered Shear Wall paragraph of this specification.

## H. Limitations of LP NovaCore™ Thermal Insulated Sheathing:

1. Limited to dry service conditions that result in the average equilibrium moisture content of sawn lumber of less than 16 percent.
2. Requires being covered with a water-resistive barrier on the exterior of the OSB sheathing in accordance with the code.
3. An approved thermal barrier, such as minimum 1/2 inch gypsum wallboard, is to be installed on the interior side of the wall framing, opposite the Thermal Insulated Sheathing, in accordance with Section R316.4 of the IRC or Section 2603.4 of the IBC.
4. Is not by itself fire resistant.
5. Not a Water Resistive Barrier: With the OSB facing outwards and exposed, an approved house wrap must be used.
6. Not Fire Retardant: A layer of minimum 1/2 inch gypsum wallboard must be installed on the interior face of the wall as a thermal barrier in accordance with the IBC and IRC to protect the foam insulation
7. Not a Roofing Panel: Can only be used as wall sheathing.

## PART 3 - EXECUTION

Editor's Note: LP NovaCore™ Thermal Insulated Sheathing is approved only for installation on walls and has been evaluated for compliance with the International Residential Code (IRC) and the International Building Code (IBC) as follows:

As an alternative to the wood structural panel (WSP) method for the intermittent braced wall provisions of Section R602.10 of the IRC and Section 2308 of the IBC. Refer to APA Product Report® PR-N139 for additional information.

As shear wall in accordance with the provisions of Section 2305 of the IBC. Refer to APA Product Report PR-N139 for shear wall design information.

Segments of a wall with openings do not count as the length of braced wall or as shear wall.

LP NovaCore panels are nominally 1-7/16 inch thick. To account for the thickness of the panels, additional framing may be needed at corners where intersecting panels overlap. Wall stud spacing may also need to be adjusted to meet the minimum braced wall panel length requirements in Section R602.10.5 of the IRC or Section 2308 of the IBC (typically nominal 48 inches).

## 3.1 PREPARATION

- A. All mechanical strapping or connectors (e.g., to resist uplift) must be installed directly to the wall framing before installing the LP NovaCore panels.
- B. An approved thermal barrier, such as a minimum of 1/2 inch gypsum wallboard, must be installed on the interior side of the wall framing, opposite the LP NovaCore panels, in accordance with Section R316.4 of the IRC or Section 2603.4 of the IBC.
- C. Use of an interior vapor retarder with LP NovaCore panels shall be in accordance with the continuous insulation provisions of Section 702.7 of the IRC or Section 1404.3 of the IBC.

## 3.2 INSTALLATION

- A. General:
  1. Install sheathing to comply with manufacturer's written instructions, requirements of applicable Evaluation Reports, and requirements of the IRC or the IBC, and authorities having jurisdiction.

2. Do not allow foam plastic sheathing to come in contact with flame or heat sources over 165 degrees F.
3. Panels must be covered by an approved water-resistive barrier.
4. The OSB substrate of panels is not preservative treated and must be installed in accordance with the code for untreated wood structural panel wall sheathing. The OSB must not be in direct contact with concrete or masonry foundations. In the absence of approved project specifications:
  - a. When the OSB is located above the foundation (wall framing set back from face of foundation), provide a minimum 1/2 inch gap between the bottom edge of the panel and the foundation.
  - b. When the OSB extends along the outside of the foundation, provide an air gap behind the OSB, or protect it from direct contact with the foundation with flashing or other impervious material.
  - c. Always maintain code-required clearance above grade.
5. Termites: Panels are not treated for protection against termites. Follow all code requirements for protection of wood structural panels and foam plastic sheathing. Refer to Sections R316.7 and R318 in the IRC, and Sections 2304.12 and 2603.8 in the IBC.
6. Panels can be cut with standard woodworking tools. It can be easier to cut the panels from the OSB side.
7. Exercise safe practices always while handling and using this product. Refer to the Safety Data Sheet (SDS) for important information on the safe handling and use of this product. These can be found at LPCorp.com.

B. Walls:

1. Panels must be installed with the insulation direct to the studs, with the OSB to the outside.
2. Wall studs must be minimum 2x4 framing lumber, spaced no more than 24 inches on center.
3. The panels may be installed vertically or horizontally. In horizontal installations, stagger joints a minimum of one stud space.
4. All panel edges must be backed by framing or 2x blocking except that horizontal edges may be left unblocked when not used as a braced wall or shear wall panels.
5. Provide 1/8 inch minimum space between panel ends and edges. Use a spacer tool (e.g., a 10d box nail) to assure accurate and consistent spacing.
6. To nail panels to the framing and blocking:
  - a. Nails must be a minimum of 3 inches long x 0.131 inch diameter, full round head, framing nails. Nails may be galvanized or stainless steel if specified or if required by code.
  - b. For braced wall panels, panel edge nails must be spaced no farther than 4 inches on center. For shear walls, panel edge nails shall be 3 or 4 inches on center, as specified. Exception: When not used as bracing or shear wall panels, panel edge nailing may be 6 inches on center.
  - c. Panel field nails must be spaced no more than 12 inch on center along intermediate supports.
  - d. Place nails 3/8 inches from all panel edges. At outside corners the nails may be set back approximately 2 inches from the panel edge depending on the overlap. See installation instructions for more detail.
  - e. Nail heads must be flush to the OSB.
  - f. Do not overdrive the nails. Reduce pressure to the gun if needed to avoid overdriving or breaking the corners of the OSB. In case of a broken corner, add a nail 1 inch away from the break along both adjoining edges of the panel.

- C. Outside Corners: Install 1st panel within an 1/8 inch of the edge of the corner end stud. Install the 2nd panel to overlap so that the edge of the 2nd panel is flush with the outer face of the OSB from the 1st panel. Alternatively, the insulation of the 2nd panel may be trimmed, and the 1st panel shifted to cover the insulation of the 2nd panel (leave an 1/8 inch gap). Nails will be approximately 2 inches from the corner depending on the detail.
- D. Inside Corners: Install 1st panel into the flat stud of the connecting wall (leave an 1/8 inch gap). Install the 2nd panel from the other side to leave an 1/8 inch gap with the 1st panel.
- E. Do not bridge building expansion joints with sheathing; cut and space edges to match spacing of structural support elements.
- F. Coordinate insulating sheathing application with installation of materials so insulating sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

END OF SECTION