

# TONGUE & GROOVE CLAD PANELS



Tongue and Groove Clad Structural Panels are an energy efficient alternative to conventional framing, insulation, sheathing and other building systems. They are load-capable insulated panels used as walls, roofs, and floors in residential, commercial and institutional buildings. T&G Clad Panels provide the exterior sheathing, insulation, & interior finish in one unit, and are available 4' wide in a broad range of thicknesses and lengths.

## Components & Features:

### **Interior and Exterior Skins:**

7/16" thick, HUD-PS2-grade, Exposure 1, Oriented Strand Board

### **Interior Finish:**

1"x 8" tongue & groove boards. Our preferred board is NELMA Standard grade eastern white pine milled with a v-groove pattern (WP4).

### **Core Materials:**

EPS: Expanded Polystyrene, 1.0 lb/cuft, 1 in. is R-3.8

XPS: Extruded Polystyrene, 1.6 lb/cuft, 1 in. is R-5.0

NEO: Neopor Polystyrene, 1.15 lb/cuft, 1 in. is R-4.7

PIR: Polyisocyanurate foam, 2.0 lb/cuft, 1 in. is R-5.7

### **Features:**

- Reduces Heating and Cooling Costs
- Fast Installation Reduces Labor Costs
- Uses Renewable Wood
- Recycled / Recyclable Foam Insulation

### **Availability:**

- 3.0 through 25.0 inches thick
- 4ft by 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 22, & 24ft\*
- Optional pre-cut services
- Optional embedded nailers
- Optional Custom Skins
- Optional wire chases
- Optional Code Listing NTA FRD-031609-25 (EPS and NEO Only)

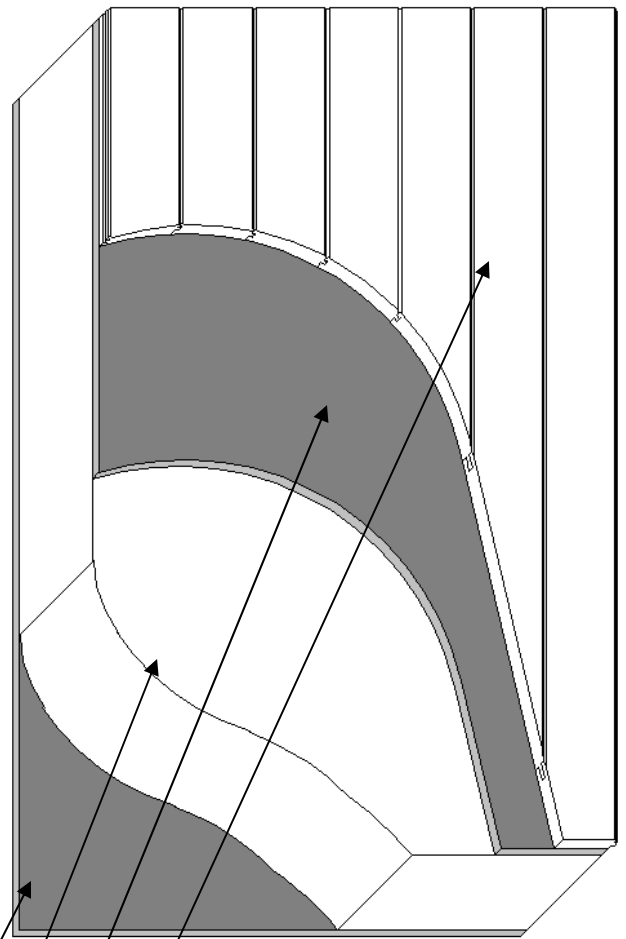
\*Panels over 12ft will have butt joints in finish lumber.

## Manufacturing & Quality Control:

Foard Panel manufacturing meets ICC-ES AC-10. Independent review and approval of procedures and plant operations by registered, third party, ISO Guide 65/17065:2012 accredited inspection agency.

## 20 Year Limited Warranty:

Foard Panel Inc. warrants to the buyer that Foard Panels will not delaminate in normal use as the result of a defect in materials or manufacturing for 20 years from the date of purchase. See full warranty for details.



Interior Finish: Tongue & Groove (T&G)

Interior Skin: 7/16" OSB, PS2

Core: EPS, NEO, XPS, or PIR  
In Various Thicknesses

Exterior Skin: 7/16" OSB, PS2

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## SIP Properties at Standard Thicknesses

| Overall Thickness (in) | 2.88                         | 4.50   | 6.50 | 8.25 | 10.25 | 10.50 | 12.25 | 12.88 | 15.00 | 16.00 |      |
|------------------------|------------------------------|--|------|------|-------|-------|-------|-------|-------|-------|------|
| Core Thickness (in)    | 2.00                         | 3.63   | 5.63 | 7.38 | 9.38  | 9.63  | 11.38 | 11.88 | 14.13 | 15.13 |      |
| EPS                    | R-Value @75°                 | 8.7  | 15   | 23   | 29    | 37    | 38    | 45    | 47    | 55    | 59   |
|                        | R-Value @40°                 | 9.4  | 16   | 25   | 32    | 40    | 41    | 49    | 51    | 60    | 65   |
|                        | Permeance (perm)             | .71  | 0.58 | 0.47 | 0.40  | 0.35  | 0.34  | 0.31  | 0.29  | 0.26  | 0.25 |
|                        | Weight (lb/sqft)             | 3.0  | 3.1  | 3.3  | 3.4   | 3.6   | 3.6   | 3.7   | 3.8   | 4.0   | 4.1  |
|                        | Size Availability 4ft Widths | 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 22, and 24ft |      |      |       |       |       |       |       |       |      |
| XPS                    | R-Value                      | 11   | 19   | 29   | 38    | 48    | -     | 58    | -     | -     | -    |
|                        | Permeance (perm)             | 0.50   | 0.36 | 0.26 | 0.21  | 0.18  | -     | 0.15  | -     | -     | -    |
|                        | Weight (lb/sqft)             | 3.1  | 3.3  | 3.6  | 3.8   | 4.1   | -     | 4.3   | -     | -     | -    |
|                        | Size Availability 4ft Widths | 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 22, and 24ft |      |      |       |       |       |       |       |       |      |
| NEO                    | R-Value @75°                 | 10   | 18   | 27   | 36    | 45    | 46    | 54    | 57    | 67    | 72   |
|                        | R-Value @40°                 | 11   | 19   | 29   | 38    | 48    | 49    | 58    | 61    | 72    | 77   |
|                        | Permeance (perm)             | 0.61   | 0.46 | 0.36 | 0.30  | 0.25  | 0.24  | 0.21  | 0.21  | 0.18  | 0.17 |
|                        | Weight (lb/sqft)             | 3.1  | 3.3  | 3.6  | 3.9   | 4.2   | 4.2   | 4.5   | 4.6   | 4.9   | 5.1  |
|                        | Size Availability 4ft Widths | 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 22, and 24ft |      |      |       |       |       |       |       |       |      |
| PIR                    | R-Value                      | 12   | 23   | 34   | 45    | 56    | -     | 67    | -     | -     | -    |
|                        | Permeance (perm)             | 0.33   | 0.22 | 0.15 | 0.12  | 0.10  | -     | 0.08  | -     | -     | -    |
|                        | Weight (lb/sqft)             | 3.1  | 3.4  | 3.7  | 4.0   | 4.4   | -     | 4.7   | -     | -     | -    |
|                        | Size Availability 4ft Widths | 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 22, and 24ft |      |      |       |       |       |       |       |       |      |

Note: Because the wood cladding is not specified, thickness, R-value and weight are for naked panel only. T&G boards are assumed to have no significant impact on the permeance of the overall panels.

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## SIP Core Properties

|                      |  | Test Method               | EPS               | NEO               | XPS              | PIR              |
|----------------------|--|---------------------------|-------------------|-------------------|------------------|------------------|
| General              | Density (lb/cuft)                      | ASTM D1622 or C303        | 1.0 <sup>5</sup>  | 1.15 <sup>4</sup> | 1.6              | 2.0              |
|                      | Dimensional Stability (% Change)       | ASTM D2126                | 2 <sup>3</sup>    | <1.5 <sup>2</sup> | 2                | 2                |
|                      | Max. Custom SIP Thickness (in.)        | -                         | 25.00             | 25.00             | 12.25            | 12.25            |
| Thermal              | R-Value of 1 inch thickness (75 °F)    | ASTM C518                 | 3.8 <sup>3</sup>  | 4.7 <sup>4</sup>  | 5.0              | 5.7              |
|                      | R-Value of 1 inch thickness (40 °F)    | ASTM C518 or C578         | 4.2 <sup>3</sup>  | 5.0 <sup>4</sup>  | 5.4              | -                |
|                      | U-Value of 1 inch thickness (75 °F)    | ASTM C518                 | 0.26 <sup>3</sup> | 0.21              | 0.20             | 0.17             |
|                      | U-Value of 1 inch thickness (40 °F)    | ASTM C518 or C578         | 0.24 <sup>3</sup> | 0.20              | 0.19             | -                |
| Strength             | Compressive 10% Deformation (lbs/sqin) | ASTM D1621 or C165        | 10                | 14                | 20               | 20               |
|                      | Permeability (perm inches)             | ASTM E96                  | 5.0 <sup>3</sup>  | 3.1 <sup>4</sup>  | 1.5              | <1.0             |
|                      | Absorption (% volume)                  | ASTM C272                 | 4.0 <sup>3</sup>  | 1.1 <sup>4</sup>  | 0.3              | <1.0             |
|                      | Max. Service Temperature (°F)          | ASTM D3278                | 160               | 165 <sup>5</sup>  | 190 <sup>7</sup> | 250              |
| Fire Characteristics | Rating                                 | -                         | Class I           | Class I           | Class I          | Class I          |
|                      | Smoke Developed                        | E84                       | 125               | 25 <sup>2</sup>   | 165              | 220 <sup>8</sup> |
|                      | Flame Spread                           | E84                       | 15                | 5 <sup>2</sup>    | 5                | 50 <sup>8</sup>  |
|                      | Toxicity of Combustion Products        | Same as wood or Cardboard |                   |                   |                  |                  |

<sup>1</sup> Hunter Panel. Accessed, 5/26/2013. [http://www.hpanels.com/images/stories/pdfs/tech\\_bulls/Hunter\\_Recycled\\_Content.pdf](http://www.hpanels.com/images/stories/pdfs/tech_bulls/Hunter_Recycled_Content.pdf)

<sup>2</sup> Opcore G Thermal Insulation, NEO 5300plus from opcodirect.com/library accessed 8/24/2017

<sup>3</sup> ASTM International Standards (2006). ICC. pp659-662. West Conshohocken, PA

<sup>5</sup> BASF Safety Data Sheet: Styropor BF-222. Revised June 2007, Version 2.1.

<sup>6</sup> BASF Safety Data Sheet: Neopor 2200. Revised February 2011, Version 2.0.

<sup>7</sup> Dow Material Safety Data Sheet: Styrofoam 4x48 Inch Panel Core 20 WN Extruded Polystyrene Foam Insulation. Issued January 2012.

<sup>8</sup> Hunter Panel Technical Department, October 31, 2014.