

# 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, 1.2 lb/cuft, 1 in. is R-4.5

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 FSC Certified Skins
- Optional wire chases
- Optional Code Listing NTA FRD-031609-25 (EPS and NEO Only)

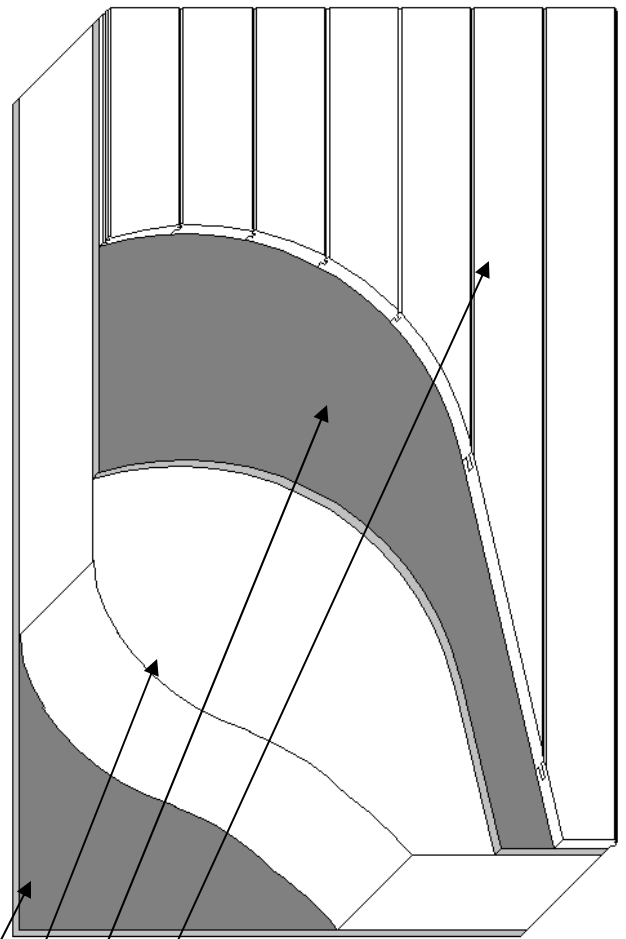
\*Panels over 12ft will have butt joints in finish lumber.

## 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°	11	18	28	36	45	47	55	58	68	72
	R-Value @40°	11	19	29	37	47	48	57	60	70	75
	Permeance (perm)	0.67	0.52	0.42	0.35	0.30	0.29	0.26	0.25	0.22	0.21
	Weight (lb/sqft)	3.0	3.2	3.4	3.5	3.7	3.8	3.9	4.0	4.2	4.3
	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>	1.2 <sup>4</sup>	1.6	2.0
	Dimensional Stability (% Change)	ASTM D2126	2 <sup>3</sup>	2	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>	4.5 <sup>2</sup>	5.0	5.7
	R-Value of 1 inch thickness (40 °F)	ASTM C518 or C578	4.2 <sup>3</sup>	4.8 <sup>2</sup>	5.4	-
	U-Value of 1 inch thickness (75 °F)	ASTM C518	0.26 <sup>3</sup>	0.22 <sup>2</sup>	0.20	0.17
	U-Value of 1 inch thickness (40 °F)	ASTM C518 or C578	0.24 <sup>3</sup>	0.21 <sup>2</sup>	0.19	-
Strength	Compressive 10% Deformation (lbs/sqin)	ASTM D1621 or C165	10	13	20	20
	Permeability (perm inches)	ASTM E96	5.0 <sup>3</sup>	3.5 <sup>4</sup>	1.5	<1.0
	Absorption (% volume)	ASTM C272	4.0 <sup>3</sup>	3.0 <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	250 <sup>2</sup>	165	220 <sup>8</sup>
	Flame Spread	E84	15	25 <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> ICC-ES ESR 3463. Accessed 5/26/2013 [http://www.icc-es.org/reports/pdf\\_files/ICC-ES/ESR-2784.pdf](http://www.icc-es.org/reports/pdf_files/ICC-ES/ESR-2784.pdf)

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

<sup>4</sup> BASF Technical Leaflet, February 2012.

[http://www.plasticsportal.net/wa/EU-en\\_GB/Catalog/ePlastics/doc4/BASF/PRD/30060740/.pdf?title=&asset\\_type=ti/pdf&language=EN&urn=urn:documentum:](http://www.plasticsportal.net/wa/EU-en_GB/Catalog/ePlastics/doc4/BASF/PRD/30060740/.pdf?title=&asset_type=ti/pdf&language=EN&urn=urn:documentum:)

<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 Coare 20 WN Extruded Polystyrene Foam Insulation. Issued January 2012.

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