

# H-SHIELD NB

Flat Polyisocyanurate Insulation  
Manufactured On-Line to Oriented Strand Board



**H-Shield NB**  
Manufactured by Hunter Panels

## PRODUCT DESCRIPTION

H-Shield NB is a rigid roof insulation composite panel composed of a closed-cell polyisocyanurate foam core manufactured on-line to a fiber reinforced facer on one side and either  $\frac{7}{16}$ " or  $\frac{5}{8}$ " oriented strand board (OSB) on the other. H-Shield NB can also be manufactured off-line bonded to  $\frac{5}{8}$ " or  $\frac{3}{4}$ " plywood.

## FEATURES AND BENEFITS

- Manufactured with NexGen Chemistry: Contains no CFCs, HFCs, HCFCs, is Zero ODP, EPA Compliant, and has virtually no GWP
- A superior combination of high insulating properties and a nailable surface
- Suitable for new construction and re-roofing on both commercial and residential projects
- Incorporates APA-TECO Rated Exposure 1 OSB and Plywood
- The edges of the wood panels are rabbeted to allow for expansion and contraction of the wood. The foam edges shall be installed tightly to achieve thermal integrity across the entire roof deck
- Available as a non-rabbeted panel upon special request
- Hail Rating: SH-1, VSH

## PANEL CHARACTERISTICS

- Available in two grades of compressive strengths per ASTM C1289 Type V, Class 1 Grade 2 (20 psi) or Grade 3 (25 psi)
- Also available in ASTM C1289 Type V, Class 2 (H-Shield CG), Grade 2 (20 psi) or Grade 3 (25 psi)
- Available foam size is 47.5"x95.5" when manufactured on line in thicknesses of 1.5" (38mm) to 4.0" (102mm)
- Available in foam size is 48"x96" when manufactured off-line in thicknesses of 1.5" (38mm) to 4.0" (102mm)
- Multiple Substrate Types Available:

<b>OSB:</b>	<b>Plywood:</b>
· $\frac{7}{16}$ " or $\frac{5}{8}$ "	· $\frac{5}{8}$ " or $\frac{3}{4}$ " CDX
	· Fire-Treated

## APPLICATIONS

- Standing seam metal roof systems

## H-SHIELD NB THERMAL VALUES

THICKNESS† (INCHES)	(MM)	LTR R-VALUE*	FLUTE SPANABILITY
1.5	38	6.3	4 3/8"
2.0	51	9.2	4 3/8"
2.5	64	12.0	4 3/8"
3.0	76	15.0	4 3/8"
3.5	89	18.0	4 3/8"
4.0	102	21.1	4 3/8"

\*Long Term Thermal Resistance Values are based on ASTM C 1289.

†Thickness is calculated with 7/16" OSB. Also available in 5/8" OSB, 5/8" Ply and 3/4" Ply.

H-Shield NB is only manufactured in the sizes listed above and on the packaging and weight chart. R-values other than those listed can be achieved by installing a multi-layer system consisting of an additional layer of flat polyiso under H-Shield NB.

## CODES AND COMPLIANCES

- ASTM C 1289 Type V, Grade 2 (20 psi) or Grade 3 (25 psi)
- International Building Code (IBC) Chapter 26
- State of Florida Product Approval Number FL 5968
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1420
- Miami Dade County Product Control Approved

## UNDERWRITERS LABORATORIES INC. CLASSIFICATIONS

- UL 1256
- Insulated Steel Deck Construction Assemblies – No. 120, 123
- UL 790
- UL 263 Hourly Rated P Series Roof Assemblies

## UL CLASSIFIED FOR USE IN CANADA

- Refer to UL Directory of Products Certified for Canada for details

## FACTORY MUTUAL APPROVALS

- FM 4450, FM 4470
- Approved for Class 1 insulated steel deck constructions. Refer to FM Approval's RoofNav for details on specific systems

## POTENTIAL LEED CREDITS FOR POLYISO USE

### Energy and Atmosphere

- Optimize Energy Performance

### Materials and Resources

- Building Life-Cycle Impact Reduction
- Environment Product Declaration
- Material Reuse
- Recycled Content
- Construction and Demolition Waste Management

### Indoor Environmental Quality

- Thermal Comfort

## INSTALLATION

### Metal

H-Shield NB is installed wood side up over steel, plywood or structural roof decks. SIP NB Panel Fasteners are required to secure the H-Shield NB to the steel or plywood deck. Wood blocking, if necessary, should be equal in thickness to the H-Shield NB and should be installed along the eaves and rake edges of the roof. The roofing system is then installed according to the manufacturer's recommendations.

### THE USE OF METAL ROOFING UNDERLAYMENTS

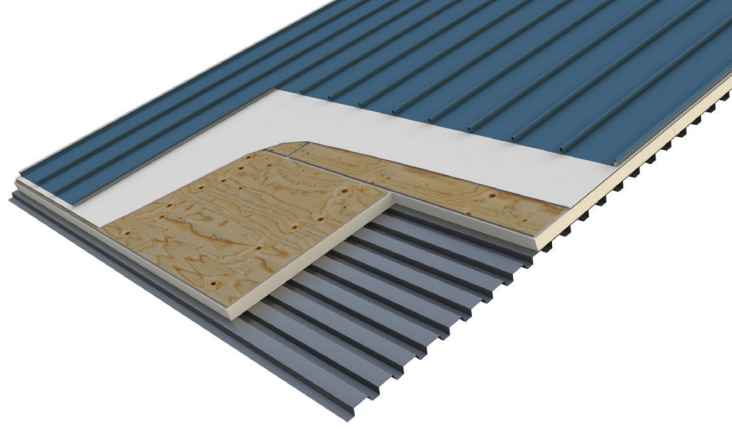
PAC-CLAD strongly suggests the use of Carlisle's WIP 300HT on all warranted projects.

### VAPOR RETARDERS

In building construction, vapor retarders are used to inhibit or block the passage of moisture into roofing assemblies. Vapor barriers also serve as air barriers to limit the movement of moisture-laden air from the interior to the exterior. This is especially important during the construction phase where excessive moisture drive is present. To determine whether a vapor retarder is necessary it is recommended that calculations on the building's interior relative humidity, interior temperature conditions and outside temperature fluctuations during the various seasons be performed prior to the completion of the design. Excessive moisture migration can cause unwanted condensation that will potentially damage the system or infiltrate the occupied space. PAC-CLAD strongly suggests the use of a vapor retarder with a perm value of 0.5 or less on all projects except in extreme cooling conditions. Consult a licensed design professional, architect or engineer to establish whether or not a vapor retarder is necessary and to specify its type and location within the assembly. This criteria varies with geographical location and is therefore specific to each project.

### FASTENING GUIDELINES

PAC-CLAD requires the use of a SIP SD Panel Fastener for steel deck applications, the SIP WD for plywood deck applications, and SIP HD for heavy-duty steel decks. Additional information on fasteners and fastening patterns are available on [pac-clad.com](http://pac-clad.com).



**H-SHIELD NB TYPICAL PHYSICAL PROPERTY DATA CHART**  
**POLYISO FOAM CORE ONLY**

PROPERTY	TEST METHOD	VALUE
Compressive Strength	ASTM D 1621	20 psi* (138kPa, Grade 2)
Dimensional Stability	ASTM D 2126	2% linear change (7 days)
Moisture Vapor Transmission	ASTM E 96	< 1 perm (57.5ng/(Pa*s*m <sup>2</sup> ))
Water Absorption	ASTM C 209	< 1% volume
Flame Spread**	ASTM E 84	< 75
Smoke Developed**	ASTM E 84	< 450
Service Temperature	-	-100° to 250° F (-73°C to 122°C)

\*Also available in 25 psi, Grade 3  
\*\*Meets the requirements of the IBC code. For specific Flame Spread or Smoke Developed Ratings please contact the PAC-CLAD Technical Department

### WARNINGS AND LIMITATIONS

Insulation must be protected from open flame and kept dry at all times. Install only as much insulation as can be covered the same day by completed roof covering material. PAC-CLAD will not be responsible for specific building and roof design by others, for deficiencies in construction or workmanship, for dangerous conditions on the job site or for improper storage and handling. Technical specifications shown in this literature are intended to be used as general guidelines only and are subject to change without notice. For more information refer to the Storage and Handling Technical Bulletin at [pac-clad.com](http://pac-clad.com), or refer to PIMA Technical Bulletin No. 109: *Storage & Handling Recommendations for Polyiso Roof Insulation* at [www.polyiso.org](http://www.polyiso.org).



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