

DEFEND-R NAIL BASE

FLAT POLYISOCYANURATE INSULATION MANUFACTURED ON-LINE TO ORIENTED STRAND BOARD



Defend-R Nail Base 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 $\frac{7}{16}$ " on the other. Defend-R Nail Base can also be manufactured off-line bonded to $\frac{5}{8}$ " OSB.

APPLICATIONS

- Standing Seam Metal Roof Systems
- Heavyweight Shingles, Tile and Slate
- Single-Ply Roof Systems — Ballasted, Mechanically Attached, Fully Adhered. (For high wind speed warranty — see individual Single-Ply manufacturer approvals and listings)
- Suitable for new construction and re-roofing on both commercial and residential projects

PANEL CHARACTERISTICS

- 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
- 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
- ASTM C 1289 Type V, Grade 2 (20 psi)
- Available foam size is 47.5" x 95.5" when manufactured on-line in thicknesses of 1.5" (38mm) to 4.0" (102mm)
- Available in foam size is 48" x 96" when manufactured off-line in thicknesses of 1.5" (38mm) to 4.0" (102mm)
- Multiple Substrate Types Available:
OSB: $\frac{7}{16}$ " or $\frac{5}{8}$ " **Plywood:** $\frac{5}{8}$ " or $\frac{3}{4}$ " CDX Fire-Treated

POTENTIAL LEED® CREDITS FOR POLYISO USE

Energy and Atmosphere

- Optimize Energy Performance

Materials & Resources

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

Indoor Environmental Quality

- Thermal Comfort

DEFEND-R NAIL BASE THERMAL VALUES

Long Term Thermal Resistance Values are based on ASTM C 1289

Thickness (inches)	(mm)	LTTR R-Value	Flute Spanability
1.50	38	6.3	4 $\frac{3}{8}$ "
2.00	51	9.2	4 $\frac{3}{8}$ "
2.50	64	12.0	4 $\frac{3}{8}$ "
3.00	76	15.0	4 $\frac{3}{8}$ "
3.50	89	18.0	4 $\frac{3}{8}$ "
4.00	102	21.1	4 $\frac{3}{8}$ "

*Thickness is calculated with $\frac{7}{16}$ " OSB.

Defend-R Nail Base is manufactured in the sizes listed above with additional sizes on our packaging and weights 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 Defend-R Nail Base.

CODES AND COMPLIANCES

- ASTM C 1289 Type V, Grade 2 (20 psi)
- International Building Code (IBC) Chapter 26
- State of Florida Product Approval Number FL 46431
- ICC-ES ESR-5453
- Hail Rating: SH-1, VSH

UNDERWRITERS LABORATORIES INC CLASSIFICATIONS

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

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

DEFEND-R NAIL BASE

TYPICAL PHYSICAL PROPERTY DATA

Polyiso Foam Core Only

Physical 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 ²))
Water Absorption	ASTM C 209	<1% Volume
Flame Spread*	ASTM E 84	<75
Smoke Developed*	ASTM E 84	<450
Service Temperature		-100°F to 250°F (-73°C to 122°)

*Meets the requirements of the IBC code. For specific Flame Spread or Smoke Developed Ratings please contact the Drexel Metals Technical Department.

WARNINGS AND LIMITATIONS

Insulation must be protected from open flame and kept dry at all times. Store above ground on pallets and cover with breathable tarpaulins. Install only as much Polyiso as can be covered the same day with the completed roofing system. Do not leave exposed. Drexel Metals will not be responsible for specific designs by others, for deficiencies in construction or workmanship, for dangerous conditions on the job site, or for improper storage and handling.

INSTALLATION - SINGLE-PLY SYSTEMS

Shingles, Tiles, Slate, Metal and Membrane Roofing

Defend-R Nail Base is installed wood side up over steel, plywood, or structural roof decks. SIP Nail Base Panel fasteners are required to secure the Defend-R Nail Base to the steel or plywood deck. Wood blocking, if necessary, should be equal in thickness to the Defend-R Nail Base 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. Defend-R Nail Base may be adhered to a 1/2" per ft. max slope properly prepared cementitious deck (with a full mopping of Type III or Type IV asphalt or a low rise adhesive) only when manufactured online.

All Defend-R Nail Base manufactured off-line must be mechanically attached.

The Use of Synthetic Underlayments

The use of synthetic underlayments is becoming an industry norm (for steep slope applications). Drexel Metals strongly suggests the use of MetShield underlayment under metal panels unless otherwise specified. MetShield underlayment provides excellent water resistance and absorb no moisture.

Fully Adhered Single-Ply

Each Defend-R Nail Base panel must be secured to the roof deck. Maximum 4' x 4' (1220mm x 1220mm) panels may be adhered to a prepared concrete deck or subsequent layers of insulation with a full mopping of hot steep asphalt, insulation adhesive or cold applied mastic. Butt edges and stagger joints of adjacent panels. Install the roof covering according to the manufacturer's specifications.

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, we recommend 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. Drexel Metals 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

Drexel Metals requires the use of the 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 our website at www.drexmet.com.

Review manufacturer's specifications and details for complete installation information.

