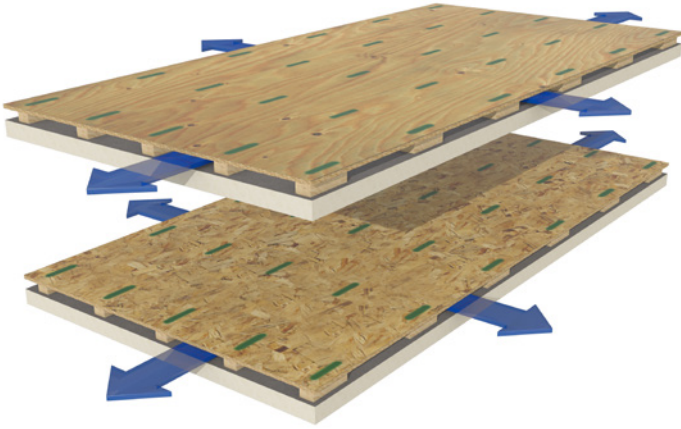


DEFEND-R VENT

VENTED NAILBASE POLYISOCYANURATE INSULATION PANEL FOR STEEP SLOPE ROOF APPLICATIONS



Defend-R Vent is a venting composite insulation board that consists of a 4' x 8' panel of closed cell rigid polyisocyanurate, a middle layer of solid wood spacers, creating a standard 1" air space and a top layer of APA/TECO rated OSB or plywood. Defend-R Vent is the environmentally intelligent choice for steep slope roofing applications and is viable in green and sustainable building designs.

APPLICATIONS

Defend-R Vent is custom built to incorporate the individual specifications of the building designer. Defend-R Vent is for use on slopes of 3:12 or greater (for lower slope considerations see Defend-R Nail Base).

- To achieve optimal thermal performance, Drexel Metals recommends installation of a multi-layered system with staggered joints.

Applicable construction types include:

- Non-insulated Cathedral and Vaulted Ceilings
- Exposed ceiling designs beneath steel, plywood, tongue & groove deck types in commercial and residential constructions
- Log Home applications
- Post & Beam constructions

Acceptable Roof Coverings:

- Standing Seam Metal Roof Systems
- Shingles
- Slate (Natural and Synthetic)
- Tile

PANEL CHARACTERISTICS

- Manufactured with NexGen Chemistry: Contains no CFCs, HCFCs, HFCs, is Zero ODP, EPA Compliant and has virtually no GWP
- 75% lateral air movement
- Optimal cooling and ventilation through 92% open air space
- ASTM C1289 Type II, Class 1, Grade 2 (20 psi)
- Available in 4' x 8' (1220mm x 2440mm) panels in overall thicknesses of 2.5" (64mm) to 5.0" (127mm)
- Multiple Substrate Types Available:
 - OSB: $\frac{7}{16}$ " or $\frac{5}{8}$ "
 - Plywood: $\frac{5}{8}$ ", $\frac{3}{4}$ " (CDX or CDX Fire-Treated)
- The edges of the wood panels are rabbeted to provide for expansion and contraction of the wood while allowing the foam edges to be installed tightly to achieve thermal integrity across the entire roof deck
- Wood spacers less than 12" apart; minimizes deflection
- Design flexibility: 1.5" and 2" wood spacers available for increased air flow (when eave ridge distance is over 20 feet)
- Exceeds requirements of ARMA Tech Bulletin 211-RR-24 regarding minimum depth of air space

DEFEND-R VENT THERMAL VALUES

Long Term Thermal Resistance Values are based on ASTM C 1289

Thickness (inches)	(mm)	Minimum R-Value	Flute Spanability
2.5	64	5.7	2 $\frac{5}{8}$ "
3.0	76	8.6	4 $\frac{3}{8}$ "
3.5	89	11.4	4 $\frac{3}{8}$ "
4.0	102	14.4	4 $\frac{3}{8}$ "
4.1	104	15.0	4 $\frac{3}{8}$ "
4.5	114	17.4	4 $\frac{3}{8}$ "
5.0	127	20.5	4 $\frac{3}{8}$ "

*Thickness is calculated with $\frac{7}{16}$ " OSB and 1" airspace. For other dimensions contact Drexel Metals. Defend-R Vent is only manufactured in the sizes listed above and on our 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 Defend-R Vent.

DEFEND-R VENT

POTENTIAL LEED® CREDITS FOR POLYISO USE

Energy and Atmosphere

- Optimize Energy Performance

Materials & Resources

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

Indoor Environmental Quality

- Thermal Comfort

DEFINITION OF NFA/LF

The Net Free Area of Ventilation Per Linear Foot is derived by multiplying the air space in inches by the length in inches of the Defend-R Vent panel. The area of the wood spaces is then subtracted and the difference is divided by 4 or 8.

Airspace Dimension	NFA/LF
1.0"	7.5/9.5 sq inch
1.5"	11.25/14.25 sq inch
2.0"	15.00/19.0 sq inch

CODES AND COMPLIANCES

- ASTM C 1289 Type II, Class 1 Grade 2 (20 psi)
- International Building Code (IBC) Chapter 26
- State of Florida Product Approval Number FL 46439

UNDERWRITERS LABORATORIES INC CLASSIFICATIONS

- TGDY. R20624 Shingle Deck Accessory; Defend-R Vent roof insulation is classified for use with any Class A, B, or C asphalt organic shingles, metal or tile roof coverings.
- 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 more details

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·m²))
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)

*Meets the requirements of the IBC code.

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.

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. This panel consists of insulation, wood spacers, and the top layer of OSB or Ply. All materials are glued together for transportation and handling purposes only. Support the panel from the bottom layer when relocating to the desired location. Improper handling may cause components to separate. Separation of the components will not affect the performance of the products once properly installed. 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.

DEFEND-R VENT

INSTALLATION

- Install Defend-R Vent only over fully supported structural decking
- Defend-R Vent is NOT a structural panel
- Drexel Metals recommends Defend-R Vent be applied perpendicular to the flutes in steel deck applications
- The use of 15# and 30# roofing felt is not recommended under asphalt shingles when using Drexel Metals' Defend-R Vent product
- Install Defend-R Vent on slopes 3:12 or greater

NOTE: When installing Defend-R Vent over an acoustical deck, check local codes for fire ratings. The use of a $\frac{5}{8}$ " minimum gypsum fire barrier may be required.

The Use of High Temperature Underlayments

The use of High Temperature underlayment is becoming the industry standard under metal panels. Drexel's MetShield HT self-adhered underlayment partners perfectly with metal and alternate roof cladding materials. It protects the roof structure from water seepage caused by ice dams and wind-driven rain and can resist temperatures up to 250° F.

Vapor Retarders

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. This criteria varies with geological location therefore 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.

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

