

## **SUBJECT: ROOFING UNDERLAYMENTS OVER NON-VENTILATED EXTREME PANEL SIPS**

One of the many benefits of building with Extreme SIPs is the speed of construction, especially for roof installations. Another advantage of using SIPs is the fact that you have now created additional conditioned space directly under the SIP deck. Unlike a ventilated roof system which can dry from the underside, SIPs must dry to the exterior side of the building's envelope – meaning underlayments with little or no permeance can trap moisture that needs to move away from the upper OSB layer of the SIP. It's essential to fully understand and mitigate the effects of precipitation during installation on a SIP roof assembly. Proper construction methodology and sequencing for roofing over non-ventilated SIP roofs should allow the OSB and SIP joint interiors to dry adequately before the installation of roofing underlayments, and cladding. SIP joints and termination joints on the underside of the SIP roof should not be taped until after the underlayment has been applied, and the joint is dry.

### **SLOPED ROOFING: Mechanically Attached**

Extreme SIPs must be covered by asphalt-saturated felt or synthetic, vapor-permeable roofing underlayment, mechanically fastened below the final roof covering material. Roofing underlayments with perm ratings of 10 or higher are recommended. Vapor-permeable underlayment allows water vapor to pass through it while preventing bulk water from moving back through to the OSB facer of the SIP roof deck.

The purpose of vapor-permeable underlayment is to allow any trapped water vapor at the OSB interface to pass through the synthetic roofing underlayment.

### **SLOPED ROOFING: Self-Adhered**

Self-adhered, vapor permeable underlayment, with a perm rating of 10 or greater, can be used on Extreme SIPs sloped roofs as code-recognized ice barriers for roof eaves, valleys, gables and full-field coverage. When adhered over Extreme SIPs roof deck, it should never be removed. During future re-roofing, an additional layer of vapor-permeable underlayment, with a perm rating of 10 or greater, must be applied over the existing layer.

Special Note: Non-permeable underlayments, made with modified bitumen technology, adhered with solvent-based primers and adhesives, and described as “vapor and air barriers” must never be applied over Extreme SIPs roof decks. The manufacturers of these products caution that non-permeable underlayments are intended solely for “ventilated” attics and “vented spaces” below the non-permeable underlayment layer.

Special Note: Solvent-based primers and adhesives can volatilize in hot weather, causing damage to the SIP insulation core; they must never be applied over an Extreme SIPs roof deck. FOR MORE ON EXPOSURE TO SOLVENTS SEE EXTREME PANEL'S TECHNICAL BULLETIN I-2

Fortunately, many manufacturers of vapor-permeable underlayments in North America offer products with a permeance rating greater than 10 that are compatible with SIP roof decks and the roofing materials used in SIP projects. Below is a partial list of vapor- permeable underlayment manufacturers you may contact to learn more about their products\*\*:

1. VaproShield – SlopeShield® Plus Self-Adhered: [www.vaproshield.com](http://www.vaproshield.com)
2. Benjamin Obdyke (VaporDry SH): <https://benjaminobdyke.com/product-systems/system-wood-roof/>
3. Malarkey Roofing – Secure Start® Permeable: [www.malarkeyroofing.com](http://www.malarkeyroofing.com)
4. GAF – Deck-Armor™: [www.gaf.com/en-us/products/deck-armor](http://www.gaf.com/en-us/products/deck-armor)
5. ACGI - Air Outshield Roof Underlayment: [allenconsultinggroup.net](http://allenconsultinggroup.net)
6. DELTA®-Trella Vapor Permeable Underlayment: [www.dorken.com](http://www.dorken.com)

### LOW-SLOPED ROOFING: Mechanically Attached

Before applying a low-sloped roofing membrane system over Extreme SIPs, a capping layer of vapor-permeable cover board—such as GP's DensDeck, GAF's DEXcell, USG's Securock, or a similar gypsum fiber or cement fiber roof cover board product—must be mechanically attached to the Extreme SIPs roof deck. A single-ply membrane can be mechanically fastened through the vapor-permeable cover board into the SIP roof deck.

FOR MORE INFORMATION ON LOW-SLOPED SIP ROOFING APPLICATIONS, SEE EXTREME PANEL'S TECHNICAL BULLETIN R-5. FOR MORE ON ROOF ASSEMBLIES IN EXCESSIVE HEAT SCENARIOS SEE TECHNICAL BULLETIN R-7.

For more information, please contact your Extreme Panel representative.

\*\* Extreme Panels have no business relationship, financial interest, or involvement in the performance or warranty claims made by the companies listed above or discussed in this Technical Bulletin. It is the responsibility of each customer to research information from these companies and determine the suitability of the listed products when used with Extreme SIPs.