

INNOVAPANEL® TECHNICAL BULLETIN

TB-007

AIR SEALING & VAPOR MANAGEMENT FOR HIGH-PERFORMANCE SIP BUILDINGS

Achieving Near Airtight Building Envelopes Through Proper Joint Sealing

A SIP Building Is Only as Airtight as Its Joints

Structural Insulated Panels create highly energy-efficient building envelopes. Because closed-cell SIP cores do not permit significant air movement through the panel itself, virtually all potential air leakage occurs at panel joints, openings, penetrations, and transitions.

Why Air Sealing Matters

Potential Leakage Location	Importance
Wall-to-roof transitions	Highest priority sealing location
Panel-to-panel joints	Primary air leakage pathway
Window and door openings	Critical moisture control area
Mechanical and electrical penetrations	Maintain continuity of the air barrier

In extreme climates, vapor pressure differentials can force moisture through even very small gaps in the building envelope. The result may include condensation, finish cracking, ghosting, reduced energy performance, and moisture accumulation.

Manufacturer Recommended Procedures

Step 1 – Foam All Joints

Fill all panel joints, splines, framing cavities and transitions with approved expandable foam.

Step 2 – Tape Critical Transitions

Apply high-performance vapor tape at wall-to-roof connections, window openings, door openings and structural transitions.

Step 3 – Top Plate Protection

As an added precaution in extreme environments, InnovaPanel recommends vapor taping the wall panel top plate before roof panel installation.

Step 4 – Flash Openings

Properly flash, tape, and seal all windows and door openings to maintain continuity of the air barrier.

Climate-Specific Guidance

Florida, Caribbean & Gulf Coast: Install vapor tape on the exterior (warm side) of the assembly.

Northern U.S., Canada & Cold Climates: Install vapor tape on the interior (warm side) of the assembly.

Important Installation Sequencing

- Do not vapor tape wall panels until roof panels have been installed and the roof dried in.
- Do not vapor tape roof panels until roofing underlayment installation is ready to begin.
- This helps prevent accidental trapping of moisture within the assembly.

Benefits of Proper Sealing

- Near airtight building envelopes
- Reduced heating and cooling costs
- Improved occupant comfort
- Reduced condensation risk
- Reduced finish cracking
- Improved moisture control
- Improved hurricane resilience
- Net Zero readiness

Architect / Engineer Notes

CSI References:

06 12 00 Structural Insulated Panels

07 21 00 Thermal Insulation

07 25 00 Weather Barriers

07 27 00 Air Barriers

07 60 00 Flashing and Sheet Metal

InnovaPanel recommends expandable foam sealant at all panel joints and vapor tape at critical transitions as part of a comprehensive air barrier strategy.

**Built Tighter. Built Stronger. Built Better.
A Better Way To Build.**