porterSIPS™
structural insulated panels

Technical Bulletin

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Vapor Retarders With PorterSIPs

In conventional construction, a vapor retarder may be required to control the diffusion entry of water vapor into building assemblies from the interior of a building, from the exterior of a building or from both the interior and exterior.

A vapor retarder, not to be confused with an air barrier, is the element that is designed and installed in an assembly to retard the movement of water by vapor diffusion. The material is vapor semi-impermeable with a permeance of 1.0 perm or less and greater than 0.1 perm. It is a Class II vapor control layer. The International Residential Code (IRC) requires the following:

IRC SECTION R318.1 In all framed walls, floors and roof /ceilings comprising elements of the building thermal envelope, a vapor retarder shall be installed on the warm-in-winter side of the insulation. Exceptions:

1. In construction where moisture or freezing will not damage the materials
2. Where the framed cavity or space is ventilated to allow moisture to escape
3. In counties identified as in climate zones 1 through 4 in Table N1101.2

The APA has determined that the OSB skins of the panels that PorterCorp produces have a permeance rating of less than 1. The EPS foam core also has a permeance rating of less than 1. So, the panels themselves act as vapor retarders. As a result, the primary area of concern with a SIP system, when considering vapor retarder application, is the panel joints. PorterCorp requires that construction sealant and expanding foam sealant be used when joining panels. (See connection details.) PorterCorp also recommends the use of SIP tape at all roof panel joints - installed on the predominantly warm side. The SIP tape is formulated with a permeance of less than 1. The combination of the OSB skins and the SIP Tape meets the building code requirements for vapor retarders.

Typically, 6" wide SIP Tape is used at all roof panel joints as well as at wall-to-roof corners.

Roof panels that have joints on supporting beams may require wider SIP tape. A ridge beam is an example of this condition.

The use of an additional vapor retarder, such as polyethylene sheeting, may be warranted based on the local building code and/or climate conditions. It is up to the design professional to make this determination. If an additional vapor retarder is utilized, it must be installed properly.

For more information, please refer to Porter Construction Details in the Porter SIPs catalog or online at www.portersips.com.

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