INSULSPAN®
STRUCTURAL INSULATING PANEL SYSTEM
Better building ideas from PFB™

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Product Information Bulletin

Building Code Requirements for Roof Ventilation

The International Residential Code (IRC) 2012 contains a general provision that enclosed attics and enclosed rafter spaces must have cross ventilation. Section R806.1 of the IRC defines an enclosed attic as the space formed by application of finish material to the underside of roof rafters. The IRC further defines an attic as the unfinished space between the ceiling joists of the top story and the roof rafters.

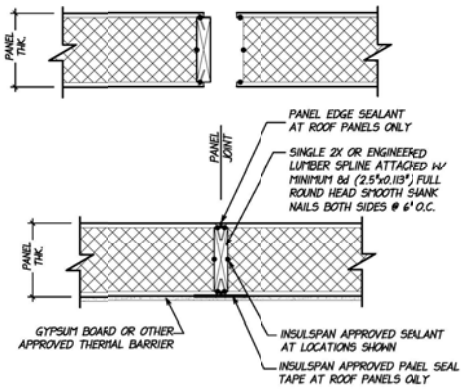
The National Building Code of Canada 2005 & 2010 and Provincial codes created from these model codes address venting of roof spaces in Article 9.19.1.1., **Required Venting**. Article 9.19.1.1. requires vents to be provided between the top of the insulation and the underside of the sheathing where insulation is installed in a ceiling-roof space, except where it can be shown to be unnecessary. Appendix note A-9.19.1.1 clarifies that this exception includes ceiling-roof assemblies that have been shown to be tight enough to prevent excessive moisture accumulation.

In wood frame construction, an enclosed rafter space is formed when the interior ceiling finish is applied directly to the underside of rafters and exterior roof sheathing is applied to the top side of rafters. Insulation material is placed in the 'enclosed' space to create an insulated cathedral ceiling. Ventilation called for in US and Canadian codes ensures that if warm air from the interior enters this enclosed space and results in moisture condensation on the cold top side of rafters or underside of the roof sheathing it is given an opportunity to dry out.

The Insulspan structural insulating panel (SIP) system is a closed cavity building component that does not include "enclosed rafters" as defined above. Insulspan SIPs consist of an expanded polystyrene (EPS) insulation core material with structural grade 7/16" oriented strand board (OSB) factory laminated to the top and bottom surfaces of the rigid EPS core.

Since the EPS insulation is in direct contact with the entire underside/interior of the structural roof deck (top skin of the SIP), there is no opportunity for condensation to occur within an Insulspan SIP roof assembly. In addition, the joints between Insulspan SIPs are sealed to prevent air movement into joints between panels. The detail below provides a typical joint sealing method.

Roof Panel Connection Detail



Insulspan SIP roof joint sealing details include two levels of redundancy to prevent air movement within the joint: 1) joint sealant applied to the vertical face as well as the top and bottom face of the 2x wood spline used to join the SIPs and 2) panel seal tape applied to the underside of SIP roof joints. As well, a sealant is applied to the top edge of OSB skins to seal the top surface of the SIP joint.

Since there is no space within the SIP nor panel joints for air movement to occur, the Insulspan SIP System is a closed cavity design. The space below the SIP roof is all conditioned space so there is no opportunity for condensation to occur.

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