

Product Information Bulletin

Thermal Performance of Insulspan SIP System

The Insulspan® SIP System is an energy efficient building system consisting of an expanded polystyrene (EPS) insulation core with oriented strand board (OSB) structurally laminated to the interior and exterior faces. The table below provides thermal resistance (R-value) and thermal transmittance (U-factor) values for Insulspan structural insulating panels.

SIP Total Thickness		Thickness EPS Core & OSB		SIP R-value @		SIP U-factor @		SIP Weight	
Inches	mm	Inches	mm	75°F	24°C	75°F	24°C	lb/ft ²	kg/m ²
				$\frac{\text{ft}^2 \cdot \text{h} \cdot \text{°F}}{\text{BTU}}$	$\frac{\text{m}^2 \cdot \text{°C}}{\text{W}}$	$\frac{\text{BTU}}{\text{ft}^2 \cdot \text{h} \cdot \text{°F}}$	$\frac{\text{W}}{\text{m}^2 \cdot \text{°C}}$		
4 1/2	114	7/16	11	15.0	2.64	0.067	0.379	3.2	15.7
		3 5/8	92						
		7/16	11						
6 1/2	165	7/16	11	22.5	3.96	0.044	0.252	3.4	16.5
		5 5/8	143						
		7/16	11						
8 1/4	210	7/16	11	29.1	5.12	0.034	0.195	3.5	17.2
		7 3/8	187						
		7/16	11						
10 1/4	260	7/16	11	36.6	6.44	0.027	0.155	3.7	18.1
		9 3/8	238						
		7/16	11						
12 1/4	311	7/16	11	44.1	7.76	0.023	0.129	3.9	18.9
		11 3/8	289						
		7/16	11						

The overall (effective) thermal resistance (R-value) of a building assembly includes the effect of thermal bridges as a result of framing members as well as interior/exterior cladding or finish materials and air films. Insulspan SIP wall and roof assemblies require fewer framing members than conventional wood frame construction resulting in energy efficient building construction with higher overall R-value. Insulspan Product Information Bulletin Nos. 209 and 214 provide examples of overall (effective) R-value calculations for typical SIP wall and roof assemblies.

In addition, air leakage is one of the biggest sources of energy loss in most buildings. Air leakage rate and overall R-value are measures used to determine the energy efficiency of building construction. Significantly lower air leakage rates are achievable for energy efficient buildings constructed using the Insulspan SIP System.

The combined higher overall R-value and lower air leakage characteristic for buildings built with the Insulspan SIP System results in long-term energy cost savings versus other construction methods such as wood frame construction.