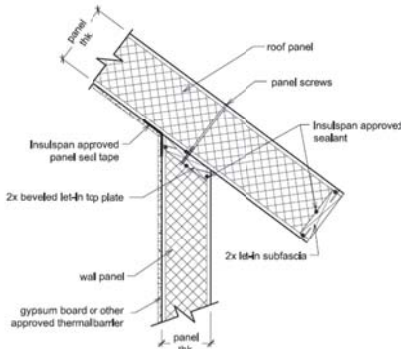


# Product Information Bulletin

## Insulspan® SIP System - NBC 2010 Effective Thermal Resistance Page 1 of 2



The Insulspan® SIP (Structural Insulating Panel) System is an energy efficient building system that consists of a core of expanded polystyrene (EPS) insulation with oriented strand board (OSB) structurally laminated to the interior and exterior faces. This bulletin provides **effective thermal resistance ( $RSI_{eff}/R_{eff}$ )** for Insulspan SIP System wall and roof assemblies calculated as per National Building Code of Canada 2010 (NBC 2010), Subsection 9.36.2.

Insulspan SIP System wall and roof assemblies are constructed with wood framing at 1,220 mm (48") on center versus typical wood frame assemblies which are constructed with wood framing at 406 mm (16") to 610 mm (24") on center.  $RSI_{eff}/R_{eff}$  calculations include the effect of thermal bridging due to repetitive structural members such as wood framing members in wall or roof assemblies calculated using the formula below as per National Building Code of Canada 2010, Appendix Note A-9.36.2.4.(1) using framing percentages are as per Table A-9.36.2.4.(1)A.

$$RSI_{eff} (R_{eff}) = \frac{100\%}{\frac{\% \text{ with Framing}}{RSI_F (R_F)} + \frac{\% \text{ Area Cavity}}{RSI_C (R_C)} + RSI(R) \text{ Continuous Material Layers}}$$

Tables 1 and 2 provide  $RSI_{eff}/R_{eff}$  calculations for typical Insulspan SIP System wall and roof assemblies manufactured with PlastiSpan insulation core meeting CAN/ULC-S701, Type 1.

**Table 1 -  $RSI_{eff}/R_{eff}$  Calculations for Insulspan SIP System Wall Assemblies**

Insulspan SIP System Wall Assembly	6-1/2" Insulspan SIP Wall			8-1/4" Insulspan SIP Wall		
	Framed Portion		Continuous Materials	Framed Portion		Continuous Materials
	$RSI_F$	$RSI_C$		$RSI_F$	$RSI_C$	
Outside Air Film (above grade)	----	----	0.03	----	----	0.03
Metal Siding	----	----	0.11	----	----	0.11
Sheathing Paper	----	----	----	----	----	----
11.1 mm (7/16") OSB Skin	----	----	0.11	----	----	0.11
<b>PlastiSpan Insulation Core</b>	----	<b>3.71</b>	----	----	<b>4.87</b>	----
Wood Stud @ 1220 mm (48")	1.19	----	----	1.57	----	----
11.1 mm (7/16") OSB Skin	----	----	0.11	----	----	0.11
12.7-mm (1/2") Gypsum Wall Board	----	----	0.08	----	----	0.08
Inside Air Film	----	----	0.12	----	----	0.12
<b>Sub-Total RSI</b>	<b>1.19</b>	<b>3.71</b>	<b>0.56</b>	<b>1.57</b>	<b>4.87</b>	<b>0.56</b>
<b>Framing Percentages</b>	<b>14%</b>	<b>86%</b>	<b>100%</b>	<b>14%</b>	<b>86%</b>	<b>100%</b>
<b><math>RSI_{eff} (R_{eff})</math></b>	<b>RSI-3.42 (R-19.4)</b>			<b>RSI-4.32 (R 24.5)</b>		

**Table 2 -  $RSI_{eff}/R_{eff}$  Calculations for Insulspan SIP System Roof Assembly**

Insulspan SIP System Wall Assembly	8-1/4" Insulspan SIP Roof			10-1/4" Insulspan SIP Roof		
	Framed Portion		Continuous Materials	Framed Portion		Continuous Materials
	$RSI_F$	$RSI_C$		$RSI_F$	$RSI_C$	
Outside Air Film (above grade)	----	----	0.03	----	----	0.03
Asphalt Shingles	----	----	0.08	----	----	0.11
Sheathing Paper	----	----	0.03	----	----	----
11.1 mm (7/16") OSB Skin	----	----	0.11	----	----	0.11
<b>PlastiSpan Insulation Core</b>	----	<b>4.87</b>	----	----	<b>6.19</b>	----
Wood Stud @ 1220 mm (48")	1.57	----	----	2.00	----	----
11.1 mm (7/16") OSB Skin	----	----	0.11	----	----	0.11
12.7-mm (1/2") Gypsum Wall Board	----	----	0.08	----	----	0.08
Inside Air Film	----	----	0.12	----	----	0.12
<b>Sub-Total RSI</b>	<b>1.57</b>	<b>4.87</b>	<b>0.56</b>	<b>2.00</b>	<b>6.19</b>	<b>0.56</b>
<b>Framing Percentages</b>	<b>9%</b>	<b>91%</b>	<b>100%</b>	<b>9%</b>	<b>91%</b>	<b>100%</b>
<b><math>RSI_{eff} (R_{eff})</math></b>	<b>RSI-4.65 (R-26.4)</b>			<b>RSI-5.76 (R-32.7)</b>		