

Insulspan SIPs PIB 222

**Insulspan SIP
System - City of
Vancouver Building
By-Law No. 10908**

Product Information Bulletin

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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.

City of Vancouver Building By-Law No. 10908 adopted the 2012 British Columbia Building Code (BCBC) with modifications. By-Law No. 11748 enacted energy efficiency amendments to Building By-Law 10908 effective March 1, 2018 as noted in table 1 below.

**Table 1 – City of Vancouver Building By-Law No. 11748
Minimum Thermal Resistance Requirements**

Minimum Effective Thermal Resistance of Assemblies in Buildings of Group C Major Occupancy Containing No Other Major Occupancies	
Table 10.2.2.5.(1) Forming part of Sentence 10.2.2.5.(1)	
Building Assembly	Assembly Minimum RSI Value (m ² ·°K/W)
Cathedral Ceilings and Flat Roofs	5.28
Walls (above & below grade)	3.85
Table 10.2.2.6. Forming part of Sentences 10.2.2.6.(1)	
Building Assembly	Assembly Minimum RSI Value (m ² ·°K/W)
Roof Joist Assemblies for one and two family dwellings (Cathedral Ceilings/Flat Roofs)	4.3
Roof Assemblies other than one and two family dwellings (Cathedral Ceilings / Flat Roofs)	5.28
Frame Walls	3.85

Effective thermal resistance (RSI_{eff}/R_{eff}) for building assemblies includes the effect of thermal bridging due to repetitive structural members such as wood framing and is calculated using the formula below as per 2012 BCBC, Appendix Note A-9.36.2.4.(1).

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

Insulspan SIP System Wall Assemblies

Table 2 provides RSI_{eff}/R_{eff} calculations for wall assemblies using 8 ¼" or 10 ¼" Insulspan SIPs that exceed requirements of City of Vancouver Building By-Law No. 11748.

Table 2 – RSI_{eff}/R_{eff} Calculation for Insulspan SIP System Wall Assemblies

Insulspan SIP Wall Assembly	8 ¼" Insulspan SIP			10 ¼" Insulspan SIP		
	RSI_F	RSI_C	Continuous Materials	RSI_F	RSI_C	Continuous Materials
Outside Air Film	----	----	0.03	----	----	0.03
Cladding	----	----	0.11	----	----	0.11
7/16" Oriented Strand Board	----	----	0.11	----	----	0.11
PlastiSpan® Type 1 Insulation	----	4.87	----	----	6.19	----
Wood Stud @ 1220 mm (48") o.c.	1.57	----	----	2.00	----	----
7/16" Oriented Strand Board	----	----	0.11	----	----	0.11
Gypsum Wall Board, 13 mm (1/2")	----	----	0.08	----	----	0.08
Inside Air Film	----	----	0.12	----	----	0.12
RSI Sub-totals	1.57	4.87	0.56	2.00	6.19	0.56
% Area of Each Component	14%	86%	100%	14%	86%	100%
Effective Thermal Resistance	RSI_{eff}	RSI-4.32			RSI-5.34	
	R_{eff}	R-24.5			R-30.3	

Insulspan SIP System Roof Assemblies:

Table 3 provides RSI_{eff}/R_{eff} calculations for roof assemblies using 10 ¼" and 12 ¼" Insulspan SIPs that exceed requirements of City of Vancouver Building By-Law No. 11748.

Table 3 – RSI_{eff}/R_{eff} Calculation for Insulspan SIP System Roof Assemblies

Insulspan SIP Roof Assembly	10 ¼" Insulspan SIP			12 ¼" Insulspan SIP		
	RSI_F	RSI_C	Continuous Materials	RSI_F	RSI_C	Continuous Materials
Outside Air Film	----	----	0.03	----	----	0.03
Asphalt Shingles	----	----	0.08	----	----	0.08
Roof Sheathing Membrane	----	----	0.03	----	----	0.03
7/16" Oriented Strand Board	----	----	0.11	----	----	0.11
PlastiSpan Type 1 Insulation	----	6.19	----	----	7.51	----
Wood Stud @ 1220 mm (48") o.c.	2.00	----	----	2.43	----	----
7/16" Oriented Strand Board	----	----	0.11	----	----	0.11
Gypsum Wall Board, 13 mm (1/2")	----	----	0.08	----	----	0.08
Inside Air Film	----	----	0.12	----	----	0.12
RSI Sub-totals	2.00	6.19	0.56	2.43	7.51	0.56
% Area of Each Component	9%	91%	100%	9%	91%	100%
Effective Thermal Resistance	RSI_{eff}	RSI-5.76			RSI-6.88	
	R_{eff}	R-32.7			R-39.1	