

Below Grade Wall Assembly

Assembly # MB-03

Description: 203.2mm (8") Concrete wall with 12.7mm (1/2") expanded polystyrene (Type 1) continuous insulation and 38x140 (2x6) studs at 610mm (24") o/c with RSI 3.34 (R 19) compressed fiberglass cavity insulation. Interior finished with 12.7mm (1/2") gypsum board.

Layer	Assembly Components (layer listed from exterior to interior)	RSI Value	R Value
1	203.2mm (8") concrete wall	0.08128	0.461529
2	12.7mm (1/2") expanded polystyrene (Type 1)	0.3302	1.874962
3	38x140 (2X6) @ 610mm (24") o/c with RSI 3.34 (R 19) compressed fiberglass batt *	2.70473	15.35817
4	6 mil. Polyethylene	N/A	N/A
5	12.7mm (1/2") gypsum board	0.07747	0.439895
6	Inside Air Film	0.12	0.681392
Total		3.31	18.8

Note:

The thermal resistance values of each continuous layer incorporated in the assembly are from A-9.36.2.4.(1)D.

Parallel Heat Flow Calculation:

$$RSI_{\text{parallel}} = \frac{100}{\frac{\% \text{ area of framing}}{RSI_F} + \frac{\% \text{ area of cavity}}{RSI_C}}$$

% Area of Framing	13%	Value of the area of framing member obtained from Table A-9.36.2.4.(1)A
% Area of Cavity	87%	Values of the area of cavity obtained from Table A-9.36.2.4.(1)A
RSI Framing	1.19	
RSI Cavity	3.34	
RSI Parallel *	2.70473	

Note: The above values and references are from the 2010 National Building Code of Canada. This document is intended to be used for reference purposes. The assembly components shall be detailed in a cross section on the submitted plans.

RSI_{eff} = 3.31 (m²·K)/W	R_{eff} = 18.8 (h·ft²·°F)/Btu
eff = effective thermal resistance	