

## Below Grade Wall Assembly

**Assembly # MB-02**

Description: 203.2mm (8") Concrete wall with 38mm (1.5") extruded polystyrene continuous insulation and 38x89 (2x4) studs at 610mm (24") o/c with RSI 2.11 (R 12) 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     | 38mm (1.5") extruded polystyrene                                     | 1.33      | 7.55209  |
| 3     | 38x89 (2X4) @ 610mm (24") o/c with RSI 2.11 (R 12) Fiberglass batt * | 1.711841  | 9.720283 |
| 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 **3.32** **18.9**

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       | 0.7565          |   |
| RSI Cavity        | 2.11            |   |
| RSI Parallel *    | <b>1.711841</b> |   |

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<sub>eff</sub> = 3.32 (m<sup>2</sup>·K)/W** | **R<sub>eff</sub> = 18.9 (h·ft<sup>2</sup>·°F)/Btu**

eff = effective thermal resistance