

# Ceiling Below Attic Assembly

Assembly # MA-05

Description: Flat ceiling with 38x184 (2x8) ceiling joist spaced at 610mm (24") o/c with 368mm (14.5") blown cellulose. Ceiling finished with 12.7mm (1/2") gypsum board.

| Layer | Assembly Components (layer listed from exterior to interior)           | RSI Value   | R Value     |
|-------|--|-------------|-------------|
| 1     | Outside Air Film   | 0.03        | 0.170348    |
| 2     | 38x184(2x8) joist @ 610mm (24") o/c with 368mm(14.5") blown cellulose* | 8.45222     | 47.99393    |
| 3     | 19mm (3/4") Strapping  | 0.15        | 0.851739    |
| 4     | 6 mil. Polyethylene  | N/A         | N/A         |
| 5     | 12.7mm (1/2") gypsum board   | 0.07747     | 0.439895    |
| 6     | Inside Air Film  | 0.11        | 0.681392    |
| Total |  | <b>8.82</b> | <b>50.1</b> |

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:

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

|                   |                |   |
|-------------------|----------------|---|
| % Area of Framing | 10%            | Value of the area of framing member obtained from Table A-9.36.2.4.(1)A |
| % Area of Cavity  | 90%            | Values of the area of cavity obtained from Table A-9.36.2.4.(1)A        |
| RSI Framing       | 1.564          |   |
| RSI Cavity        | 4.6            |   |
| RSI Parallel *    | <b>8.45222</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.

|   |   |
|---|---|
| <b>RSI<sub>eff</sub> = 8.82 (m<sup>2</sup>·K)/W</b> | <b>R<sub>eff</sub> = 50.1 (h·ft<sup>2</sup>·°F)/Btu</b> |
| eff = effective thermal resistance                  |   |