MONCTON | Building Inspection / Inspection des bâtiments

Cathedral Ceiling Assembly

Assembly # MC-02

Description: Cathedral ceiling with 38x286 (2x12) roof rafter spaced at 400mm (16") o/c with R31 fiberglass batt. Ceiling to be 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	0.17035
2	38x286 (2x12) rafter @ 406mm (16") o/c with R31 fiberglass batt*	4.48829	25.48569
3	19mm (3/4") Strapping	0.15	0.851739
3	6 mil. Polyethylene	N/A	N/A
4	12.7mm (1/2") gypsum board	0.07747	0.439895
5	Inside air film	0.11	0.624609
	Total	4.86	27.6

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	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	2.0485	
RSI Cavity	5.46	
RSI Parrallel *	4.48829	

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} = 4.86 ($m^2 \cdot K$)/W | **R_{eff} = 27.6 ($h \cdot f^2 \cdot {}^oF$)/Btu**

eff = effective thermal resistance