

Project Information

Reference
Date

Construction Type

Element : Pitched roof, ceiling at rafter line - 15.01.26 - Pitched Roof - Internal - SF40 x 2
75mm PIR - 0.11

Internal surface emissivity	: High	External surface emissivity	: High
		Thickness	Thermal Conductivity
		(mm)	(W/mK)
			Resistance
			(m²K/W)
			Pitch
			(°)
			Bridge details
			Air gaps
			(Level, Delta U")

Outside surface resistance	-	-	0.100	
Roof tiles	15.0	1.499	0.000	
Tile Batten Cavity	-	-	0.000	
Breather membrane (BS 5250)	-	-	-	
Rafter Cavity	25.0	-	0.454	11.750% softwood (~500kg/m³) (25.0mm)

(Bridged un-vented cavity - width=353.0mm, hro=5.100, E1=0.900, E2=0.050, upward heat flow)

Rigid Insulation Board	75.0	0.022	3.409	11.750% Softwood (75.0mm)
Joists Cavity	25.0	-	0.236	11.750% softwood (~500kg/m³) (25.0mm)

(Bridged un-vented cavity - width=353.0mm, hro=5.100, E1=0.050, E2=0.020, upward heat flow)

SuperFOIL SF40	11.2	-	2.570	1.500% SuperFOIL (11.2mm)
Batten Cavity	50.0	-	0.000	7.833% softwood (~500kg/m³) (50.0mm)
SuperFOIL SF40	11.2	-	2.570	1.500% SuperFOIL (11.2mm)
Batten Cavity	50.0	-	0.458	7.833% softwood (~500kg/m³) (50.0mm)

(Bridged un-vented cavity - width=553.0mm, hro=5.100, E1=0.020, E2=0.900, upward heat flow)

Plasterboard	12.5	0.179	0.070	
Skim	3.0	0.400	0.008	
Inside surface resistance	-	-	0.100	

Total thickness 290.4mm

U-value = 0.11W/m²K

U-value, Combined Method : 0.114W/m²K (upper/lower limit 9.397 / 8.177m²K/W, dUf 0.0000, dUg 0.0000, dUp 0.0000, dUr 0.0000, dUrc1 0.0000, dUrc2 0.0000)

Correction factors

Air gaps, Delta Ug = 0.000W/m²K

(Based on the combined method for determining U-values of structures containing repeating thermal bridges)

	Thickness (mm)	Thermal Conductivity (W/mK)	Thermal Resistance (m²K/W)	Vapour Resistivity (MNs/gm)	Vapour Resistance (MNs/g)
Outside surface resistance	-	-	0.100	-	-
Roof tiles	15.0	1.499	0.000	0.00	0.00
Tile Batten Cavity	-	-	0.000	-	0.00
Breather membrane (BS 5250)	-	-	-	-	0.50
Rafter Cavity	25.0	-	0.454	-	0.00
(Bridged un-vented cavity - width=353.0mm, hro=5.100, E1=0.900, E2=0.050, upward heat flow)					
Rigid Insulation Board	75.0	0.022	3.409	557.00	41.77
Joists Cavity	25.0	-	0.236	-	0.00
(Bridged un-vented cavity - width=353.0mm, hro=5.100, E1=0.050, E2=0.020, upward heat flow)					
SuperFOIL SF40	11.2	-	2.570	-	1200.00
Batten Cavity	50.0	-	0.000	-	0.00
SuperFOIL SF40	11.2	-	2.570	-	1200.00
Batten Cavity	50.0	-	0.458	-	0.00
(Bridged un-vented cavity - width=553.0mm, hro=5.100, E1=0.020, E2=0.900, upward heat flow)					
Plasterboard	12.5	0.179	0.070	50.00	0.63
Skim	3.0	0.400	0.008	50.00	0.15
Inside surface resistance	-	-	0.100	-	-
Total thickness	290.4mm				

This free U-value calculation is based on recipient-provided information. Every effort has been made to ensure accuracy, but Boulder Developments Ltd and associated parties are not liable. Project management and building control authorities must approve the specification. It demonstrates only the thermal transmittance of the specified construction. Other building regulation compliances, including fire safety, must be independently assessed.

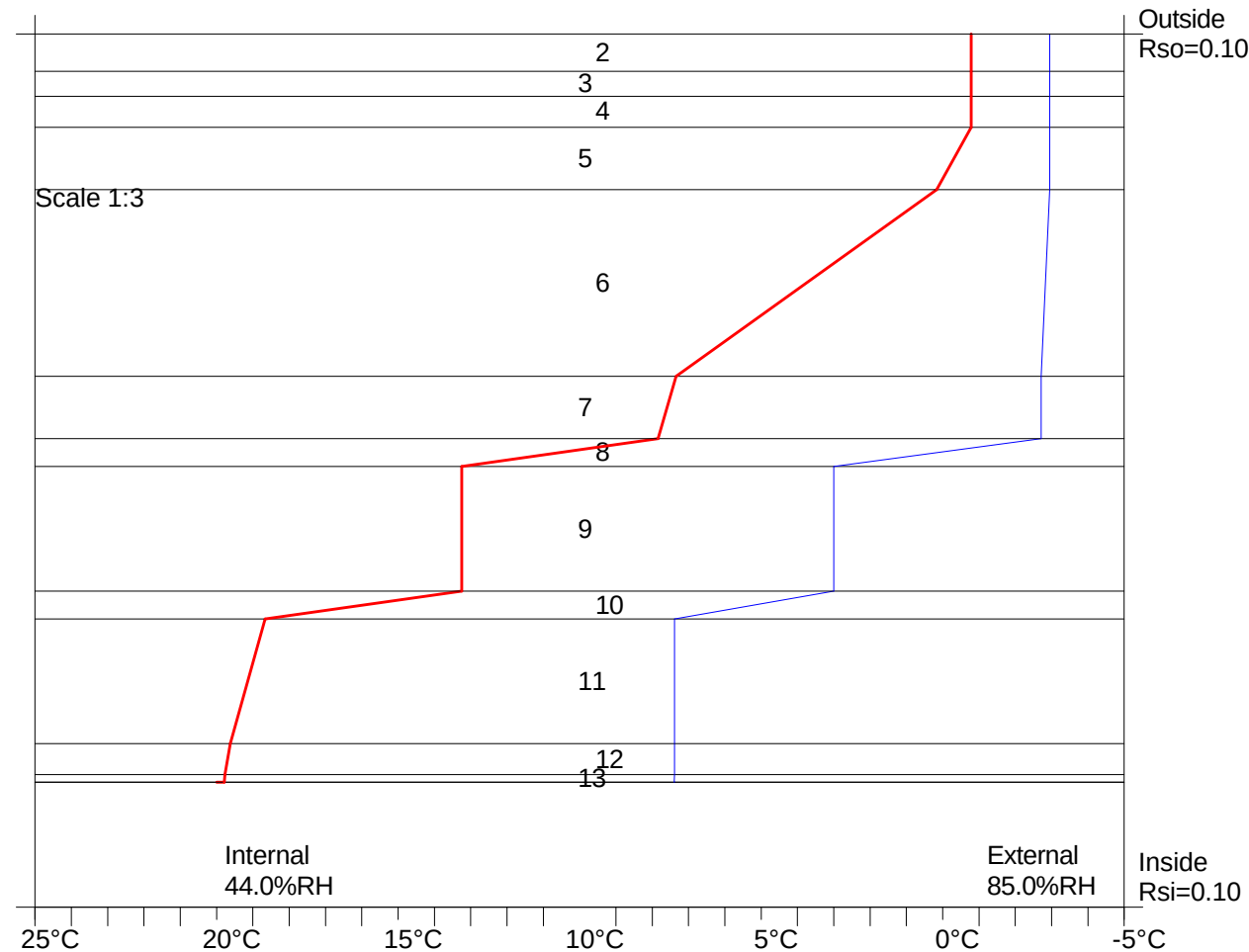
Condensation Risk Analysis (no account taken of thermal bridges)

3 - Dwellings with low occupancy

Jan (worst)	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
20.0C	44.0%	20.0C	45.0%	20.0C	49.0%	20.0C	54.0%	22.0C	59.0%	24.0C	63.0%	24.5C	64.0%	24.5C	64.0%	22.5C	60.0%	20.0C	55.0%	20.0C	50.0%	20.0C	46.0%
-1.0C	85.0%	0.0C	84.0%	4.0C	78.0%	9.0C	72.0%	14.0C	68.0%	18.0C	69.0%	19.0C	73.0%	19.0C	75.0%	15.0C	79.0%	10.0C	83.0%	5.0C	88.0%	1.0C	88.0%

	Interface Temp. °C	Dewpoint Temp. °C	Vapour Pressure (kPa)	Saturated V.P. (kPa)	Worst Cond. (g/m²)	Peak Buildup (g/m²)	Conden-sation
1 Outside surface resistance	-0.8	-2.9	0.48	0.57			No
2 Roof tiles	-0.8	-2.9	0.48	0.57			No
3 Tile Batten Cavity	-0.8	-2.9	0.48	0.57			No
4 Breather membrane (BS 5250)	-0.8	-2.9	0.48	0.57			No
5 Rafter Cavity	0.2	-2.9	0.48	0.62			No
6 Rigid Insulation Board	7.3	-2.7	0.49	1.03			No
7 Joists Cavity	7.8	-2.7	0.49	1.06			No
8 SuperFOIL SF40	13.3	3.0	0.76	1.52			No
9 Batten Cavity	13.3	3.0	0.76	1.52			No
10 SuperFOIL SF40	18.7	7.4	1.03	2.15			No
11 Batten Cavity	19.6	7.4	1.03	2.28			No
12 Plasterboard	19.8	7.4	1.03	2.30			No
13 Skim	19.8	7.4	1.03	2.31			No
14 Inside surface resistance							No

Worst case internal / external conditions for graph : 20.0°C @ 44.0%RH / -1.0°C @ 85.0%RH



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