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Calculation of interstitial condensation

by ICond Calculator version 2.03

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Element type: Roof

Calculation Method: BS EN ISO 13788

Roof Type 1 - 219mm SIP

Construction Details

Layer	d mm	λ W/m·K	rv MN·s/g·m	R layer m ² K/W	Rv layer MN·s/g	Description
				0.100		Rsi
1	12.5	0.160	60.0	0.078	0.75	Vapourcheck plasterboard
2			Rv-value		689	Protect VC Foil Ultra Insulating AVCL Membrane
3	25	R-value	Rv-value	0.530	0.050	Air layer unventilated
4	11	0.130	50.0	0.085	0.55	SIP - OSB
5	197	0.030	7.00	6.567	1.4	SIP - Lambdatherm EPS
6	11	0.130	50.0	0.085	0.55	SIP - OSB
7			Rv-value		0.080	Protect VP400 Plus LR
8	50	R-value	Rv-value		##	Air layer ventilated
9	12	1.000	2.50		##	Roof Tiles
				0.100 #		Rse
	<u>319 mm (total roof thickness)</u>			<u>7.544</u>	<u>692</u>	

this resistance substitutes for Rse and the resistance of layers 8-9 because of the ventilated air layer (layer 8)

set to zero because of the ventilated air layer

Boundary conditions

Manchester (Edinburgh.hgt)
Return period 2 years (mean external temperature and RH)
Internal Humidity: BS 5250 Class 3

Results

No condensation

The U value result has been determined as follows:

Bridging:

A thermal bridge percentage for the timber studs of 12.5% has been used in accordance with BR 443: 2006 Conventions for U values (section 4.5.1 (ii)).

Correction level:

A correction level of 0 has been used in accordance with Table F1 of BS EN ISO 6946: 2017 Building components and Building elements - Thermal transmittance - Calculation methods.

Please check to confirm and advise if any amendments are required.

Calculated by Protect Technical Service

