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Calculation of interstitial condensation

by ICond Calculator version 2.03 - Printed on 10 Apr 2018 at 15:51

Element type: Roof – Structural Insulated Panel

Calculation Method: BS EN ISO 13788

Roof Type 3 - 219mm Flat Roof with EPDM and 50mm Thermaline

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	50	0.021	60.0	2.381	3.0	Gyproc Thermaline Super
2	22	R-value	Rv-value	0.530	0.050	Air layer unventilated
3			Rv-value		689	Protect VC Foil Ultra Insulating AVCL m
4	11	0.130	50.0	0.085	0.55	SIP - OSB
5	197	0.030	7.00	6.567	1.4	Lambdatherm
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	19	0.130	450		##	Plywood sheathing
10	1	0.200	250000		##	EPDM Rubber
				0.100 #		Rse
	<u>361 mm</u> (total roof thickness)			9.847	695	

Boundary conditions Manchester (Manchester.hgt)

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

Results

No condensation

Month	Internal T °C	Internal RH %	External T °C	External RH %	RH % at internal surface
October	20.0	62	10.6	83	62
November	20.0	59	6.4	85	60
December	20.0	58	4.6	86	59
January	20.0	57	3.9	85	58
February	20.0	56	3.9	82	57
March	20.0	56	5.7	79	57
April	20.0	55	8.0	75	55
May	20.0	57	11.3	73	57
June	20.0	62	14.2	75	62
July	20.0	65	15.8	75	65
August	20.0	66	15.7	77	66
September	20.0	64	13.5	80	64

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 **Connor Smith** – Technical Officer

