

Calculation of interstitial condensation

by ICond Calculator version 2.00

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Filename: 225mm Standard U Value SWIP IWI System.uva (File saved: 28 Mar 2019 15:24)

Element type: Wall

Calculation Method: BS EN ISO 13788

Example Wall System

Construction Details

<u>Layer</u>	<u>d</u> mm	<u>λ</u> W/m·K	<u>rv</u> MN·s/g·m	<u>R layer</u> m ² K/W	<u>Rv layer</u> MN·s/g	<u>Description</u>
				0.130		Rsi
1	12.5	0.210	60.0	0.060	0.75	Plasterboard (standard wallboard)
2			Rv-value		250	Vapour control layer
3	15	0.032	5.00	0.469	0.075	SWIP(95mm)/15mm OSB(on SWIP)
4	80	0.032	5.00	2.500	0.40	SWIP(95mm)/SWIP
5	13	0.570	40.0	0.023	0.52	Gypsum plaster (1300 kg/m ³)
6	255	0.770	50.0	0.331	13	Brick outer leaf
				<u>0.040</u>		Rse
	<u>376 mm</u> (total wall thickness)			3.552	264	

Boundary conditions

London (Kew.hgt)

Return period 10 years (T -1°C, RH +4%)

Internal Humidity: BS 5250 Class 3

Results

No condensation

<u>Month</u>	<u>Internal</u> <u>T °C</u>	<u>Internal</u> <u>RH %</u>	<u>External</u> <u>T °C</u>	<u>External</u> <u>RH %</u>	<u>RH % at</u> <u>internal surface</u>
October	20.0	60	10.7	82	61
November	20.0	58	6.5	87	60
December	20.0	58	4.4	89	60
January	20.0	56	3.6	86	58
February	20.0	55	3.7	83	57
March	20.0	53	5.8	76	55
April	20.0	50	7.9	68	51
May	20.0	53	11.3	68	54
June	20.0	57	14.5	69	58
July	20.0	61	16.6	70	61
August	20.0	63	16.3	73	64
September	20.0	62	13.9	77	63

Temperatures and dewpoints at interfaces

Interfaces (first line = temperature, second line = dewpoint)

<u>Month</u>	<u>Int.Surf.</u>	<u>1-2</u>	<u>2-3</u>	<u>3-4</u>	<u>4-5</u>	<u>5-6</u>	<u>Ext.Surf.</u>
October	19.66	19.50	19.50	18.28	11.73	11.67	10.80
	12.00	11.99	8.01	8.00	8.00	7.99	7.76
November	19.51	19.28	19.28	17.50	8.00	7.91	6.65
	11.49	11.47	4.94	4.94	4.93	4.91	4.50
December	19.43	19.17	19.17	17.11	6.13	6.03	4.58
	11.49	11.47	3.34	3.34	3.32	3.30	2.75
January	19.40	19.13	19.13	16.96	5.42	5.31	3.78
	10.96	10.94	2.14	2.13	2.12	2.09	1.48

February	19.40 10.69	19.13 10.67	19.13 1.75	16.98 1.75	5.51 1.73	5.40 1.71	3.88 1.09
March	19.48 10.14	19.24 10.12	19.24 2.45	17.37 2.45	7.37 2.43	7.28 2.41	5.96 1.91
April	19.56 9.27	19.35 9.25	19.35 2.81	17.76 2.81	9.24 2.80	9.16 2.78	8.04 2.37
May	19.68 10.14	19.54 10.13	19.54 5.88	18.39 5.88	12.26 5.88	12.21 5.87	11.40 5.62
June	19.80 11.23	19.71 11.22	19.71 9.02	18.98 9.02	15.11 9.01	15.07 9.01	14.56 8.89
July	19.88 12.25	19.82 12.25	19.82 11.17	19.37 11.17	16.98 11.17	16.96 11.17	16.64 11.11
August	19.86 12.75	19.80 12.74	19.80 11.52	19.31 11.52	16.71 11.52	16.69 11.52	16.34 11.46
September	19.78 12.50	19.67 12.50	19.67 10.08	18.87 10.08	14.58 10.08	14.54 10.07	13.97 9.94

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