Back to Earth SW Ltd
7 Tuns Lane
Silverton, Exeter
Devon. EX5 4HY

Project Information
Reference
Date 14 September 2018

Construction Type
Element : Wall - 0 Spec generator copies
Internal surface emissivity : High External surface emissivity : High

	Thickness (mm)	Thermal Conductivity (W/mK)	Thermal Resistance (m²K/W)	Pitch (º)	Bridge details Air gaps (Level, Delta U")
Outside surface resistance	-	-	0.130		
Brick inner leaf	225.0	0.560	0.402		
Clay or silt	5.0	1.499	0.003		
UdiTHERM	100.0	0.039	2.550		L:0 0.000W/m²K
Multigrund	4.0	0.550	0.007		
Inside surface resistance	-	-	0.130		
Total thickness	**334.0mm**				

U-value = 0.31W/m²K

U-value, Combined Method : 0.310W/m²K (upper/lower limit 3.222 / 3.222m²K/W, dUf 0.0000, dUg 0.0000, dUp0.0000, dUr0.0000, dUrc1 0.0000, dUrc2 0.0000)

Correction factors
Mechanical fasteners :-
Fixings
Alpha : 0.00 per m lambda f : 0.0010W/mK nf : 6.000 per m² Af : 0.000mm² Recess : 0.0mm
Delta Uf for UdiTHERM : 0.0000
nf = fasteners per m² Af = fasteners cross-sectional area
Air gaps, Delta Ug = 0.000W/m²K

	Thickness (mm)	Thermal Conductivity (W/mK)	Thermal Resistance (m^2K/W)	Vapour Resistivity (MNs/gm)	Vapour Resistance (MNs/g)
Outside surface resistance	-	-	0.130	-	-
Brick inner leaf	225.0	0.560	0.402	50.00	11.25
Clay or silt	5.0	1.499	0.003	250.00	1.25
UdiTHERM	100.0	0.039	2.550	25.00	2.50
Multigrund	4.0	0.550	0.007	600.00	2.40
Inside surface resistance	-	-	0.130	-	-
Total thickness	**334.0mm**				

Calculations are based on manufacturers information and for default structures.

Structure element : Wall
Condensation calculations performed in accordance with BS5250:2011

Condensation is occuring at the following layers interfaces:-
Interface 1 : Clay or silt / UdiTHERM

Month	Int (C°)	Int (%RH)	Ext (C°)	Ext (%RH)	Interface 1 Gc (Kg/m²)	Ma (Kg/m²)
Jan	21.00	54.70	3.50	86.00	0.21518	0.55088
Feb	21.00	53.80	3.80	82.50	0.17506	0.72594
Mar	21.00	53.90	5.70	80.00	0.13403	0.85996
Apr	21.00	54.40	8.00	77.00	-0.02693	0.83303
May	21.00	57.90	11.30	77.00	-0.12492	0.70812
Jun	21.00	62.20	14.40	76.00	-0.21945	0.48867
Jul	21.00	66.80	16.50	76.50	-0.28171	0.20695
Aug	21.00	67.40	16.10	78.50	-0.24217	0.00000
Sep	21.00	64.60	13.80	81.50	0.00000	0.00000
Oct	21.00	60.80	10.70	84.00	0.00000	0.00000
Nov	21.00	56.50	6.40	85.50	0.14064	0.14064
Dec	21.00	55.50	4.50	86.50	0.19506	0.33570

Gc = Monthly moisture accumulation per area at an interface
Ma = Accumulated moisture content per area at an interface

Peak accumulated moisture content per area at interface (Ma) = 0.85996 Kg/m²

Annual moisture accumulation = 0.00000 Kg/m²

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Thermal Mass Details

	Thickness assessed (actual) (mm)	Density (kg/m³)	Specific heat capacity (J/kgK)	Heat capacity (kJ/m²K)
Brick inner leaf	0.0 (225.0)	1700.0	840.0	0.0
Clay or silt	0.0 (5.0)	1500.0	2085.0	0.0
UdiTHERM	0.0 (100.0)	140.0	2100.0	0.0
Multigrund	4.0 (4.0)	1300.0	1000.0	5200000.0
Total				5200000.0
kappa value				5.2000

Limiting condition: insulation

Admittance : 1.07 W/m²K Decrement : 0.10 factor Decrement delay : -13.89 hours

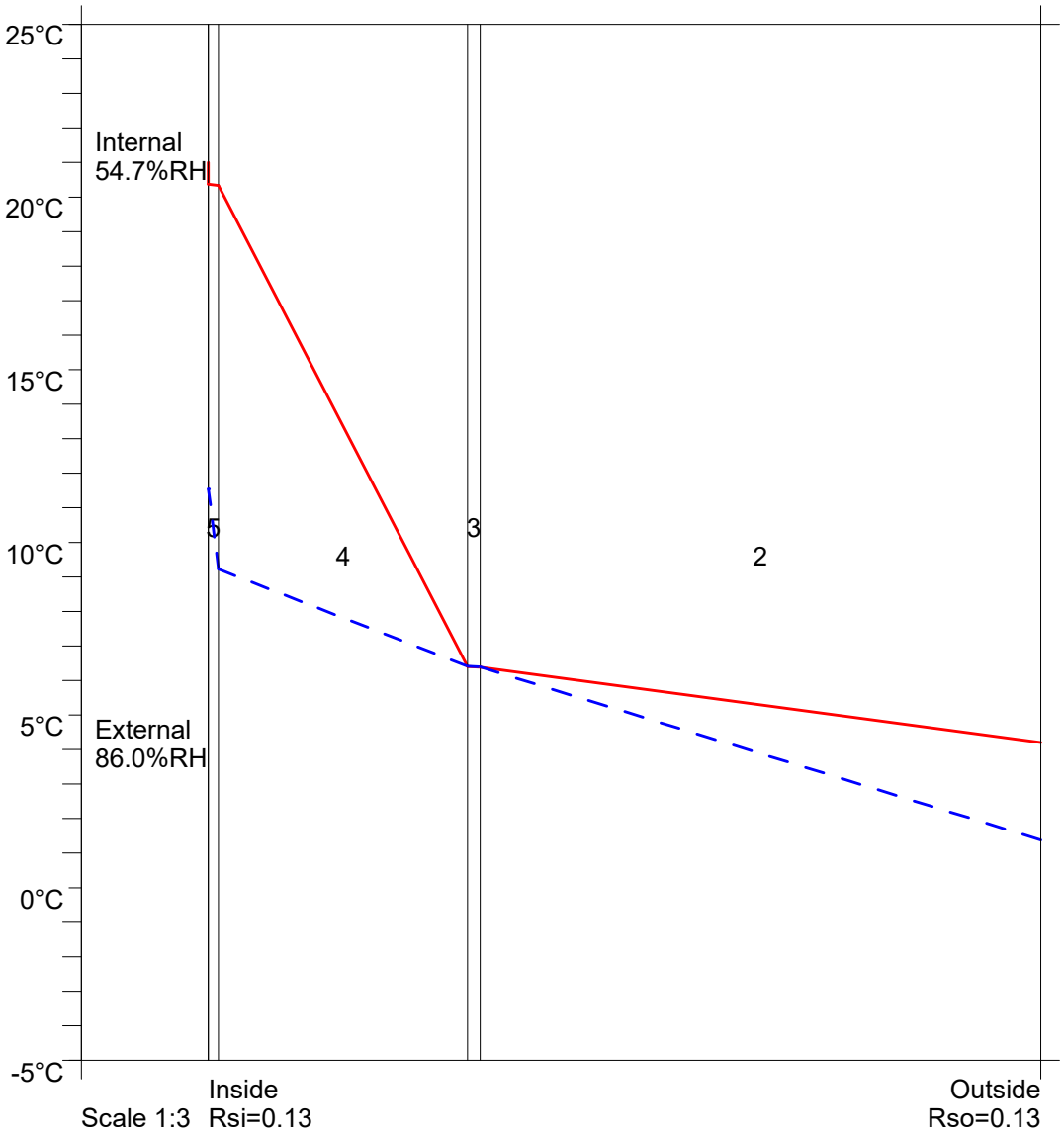
Condensation Risk Analysis (no account taken of thermal bridges)

3 - Dwellings with low occupancy

Jan (worst)	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21.0C 54.7%	21.0C 53.8%	21.0C 53.9%	21.0C 54.4%	21.0C 57.9%	21.0C 62.2%	21.0C 66.8%	21.0C 67.4%	21.0C 64.6%	21.0C 60.8%	21.0C 56.5%	21.0C 55.5%
3.5C 86.0%	3.8C 82.5%	5.7C 80.0%	8.0C 77.0%	11.3C 77.0%	14.4C 76.0%	16.5C 76.5%	16.1C 78.5%	13.8C 81.5%	10.7C 84.0%	6.4C 85.5%	4.5C 86.5%

	Interface Temp. ºC	Dewpoint Temp. ºC	Vapour Pressure (kPa)	Saturated V.P. (kPa)	Worst Cond. (g/m²)	Peak Buildup (g/m²)	Conden-sation
1 Outside surface resistance	4.2	1.4	0.67	0.82			No
2 Brick inner leaf	6.4	6.4	0.96	0.96			No
3 Clay or silt	6.4	6.4	0.96	0.96	215 in Jan	860 in Mar	Yes
4 UdiTHERM	20.3	9.2	1.16	2.39			No
5 Multigrund	20.4	11.5	1.36	2.39			No
6 Inside surface resistance							

Worst case internal / external conditions for graph : 21.0°C @ 54.7%RH / 3.5°C @ 86.0%RH



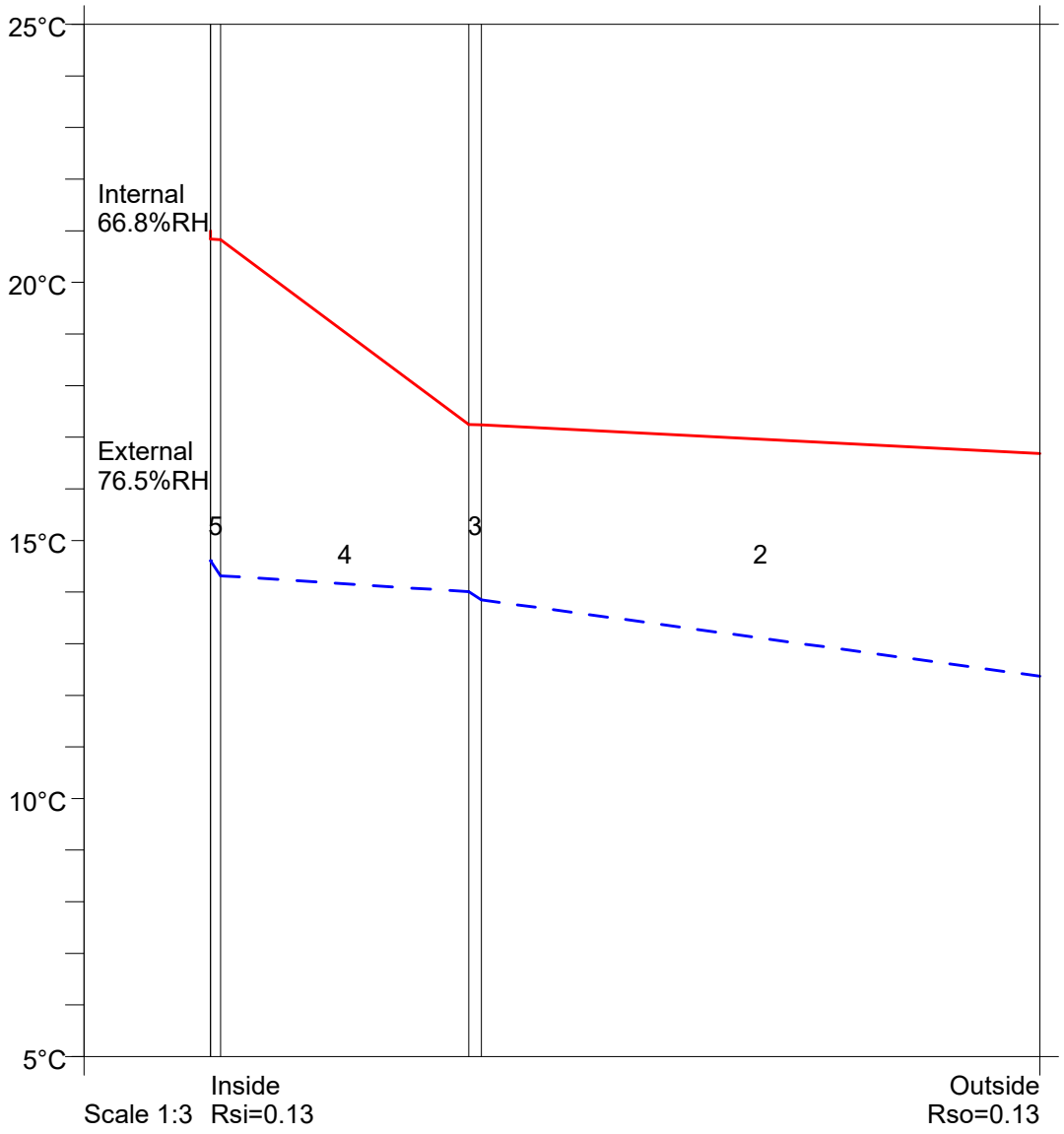
Condensation Risk Analysis (no account taken of thermal bridges)

3 - Dwellings with low occupancy

Jan (worst)	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21.0C 54.7%	21.0C 53.8%	21.0C 53.9%	21.0C 54.4%	21.0C 57.9%	21.0C 62.2%	21.0C 66.8%	21.0C 67.4%	21.0C 64.6%	21.0C 60.8%	21.0C 56.5%	21.0C 55.5%
3.5C 86.0%	3.8C 82.5%	5.7C 80.0%	8.0C 77.0%	11.3C 77.0%	14.4C 76.0%	16.5C 76.5%	16.1C 78.5%	13.8C 81.5%	10.7C 84.0%	6.4C 85.5%	4.5C 86.5%

	Interface Temp. ºC	Dewpoint Temp. ºC	Vapour Pressure (kPa)	Saturated V.P. (kPa)	Worst Cond. (g/m²)	Peak Buildup (g/m²)	Conden-sation
1 Outside surface resistance	16.7	12.4	1.44	1.90			No
2 Brick inner leaf	17.2	13.8	1.58	1.97			No
3 Clay or silt	17.2	14.0	1.60	1.97	215 in Jan	860 in Mar	Yes
4 UdiTHERM	20.8	14.3	1.63	2.46			No
5 Multigrund	20.8	14.6	1.66	2.46			No
6 Inside surface resistance							

Worst case internal / external conditions for graph : 21.0°C @ 66.8%RH / 16.5°C @ 76.5%RH



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