

**Project Information**

Reference

Date 20 Dec 2005

**Construction type**

Element : Wall - 100mm Diffutherm Option

Concrete Wall

Internal surface emissivity : High External surface emissivity : High

**Construction**

	Thickness (mm)	Thermal Conductivity (W/mK)	Thermal Resistance (m <sup>2</sup> K/W)	Vapour Resistivity (MNs/gm)	Vapour Resistance (MNs/g)
Outside surface resistance	-	-	0.040	-	-
Lime Render Finish	8.0	0.700	0.011	40.00	0.32
Diffutherm 100mm	100.0	0.044	2.273	25.00	2.50
Lime Bonding Coat	10.0	0.700	0.014	40.00	0.40
Concrete, dense (BS5250)	305.0	1.701	0.179	200.00	61.00
Inside surface resistance	-	-	0.130	-	-

**U-value - 0.38W/m<sup>2</sup>K**

U-value, Combined Method : 0.38 W/m<sup>2</sup>K (upper/lower limit 2.647 / 2.647 m<sup>2</sup>K/W, dUf 0.0000, dUg 0.0000, dUp0.0000, dUr0.0000)

(Correction for mechanical fasteners, Delta Uf = 0.000W/m<sup>2</sup>K)

(Correction for air gaps, Delta Ug = 0.000W/m<sup>2</sup>K)

Structure element : Wall  
Description : Concrete Wall  
Condensation calculations performed in accordance with BS5250:2002

Condensation is occurring at the following layers interfaces:-

Month	Int (C°)	Int (%RH)	Ext (C°)	Ext (%RH)
Jan	20.00	60.80	5.90	85.50
Feb	20.00	60.00	5.70	83.50
Mar	20.00	59.90	6.90	82.00
Apr	20.00	59.90	8.80	79.50
May	20.00	62.10	11.50	79.00
Jun	20.00	66.30	14.30	79.50
Jul	20.00	70.40	16.10	80.50
Aug	20.00	71.00	16.00	81.50
Sep	20.00	68.70	14.30	83.00
Oct	20.00	66.10	11.90	85.00
Nov	20.00	62.00	8.50	84.50
Dec	20.00	61.40	7.00	85.50

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) = 0.00000 Kg/m<sup>2</sup>

Annual moisture accumulation = 0.00000 Kg/m<sup>2</sup>

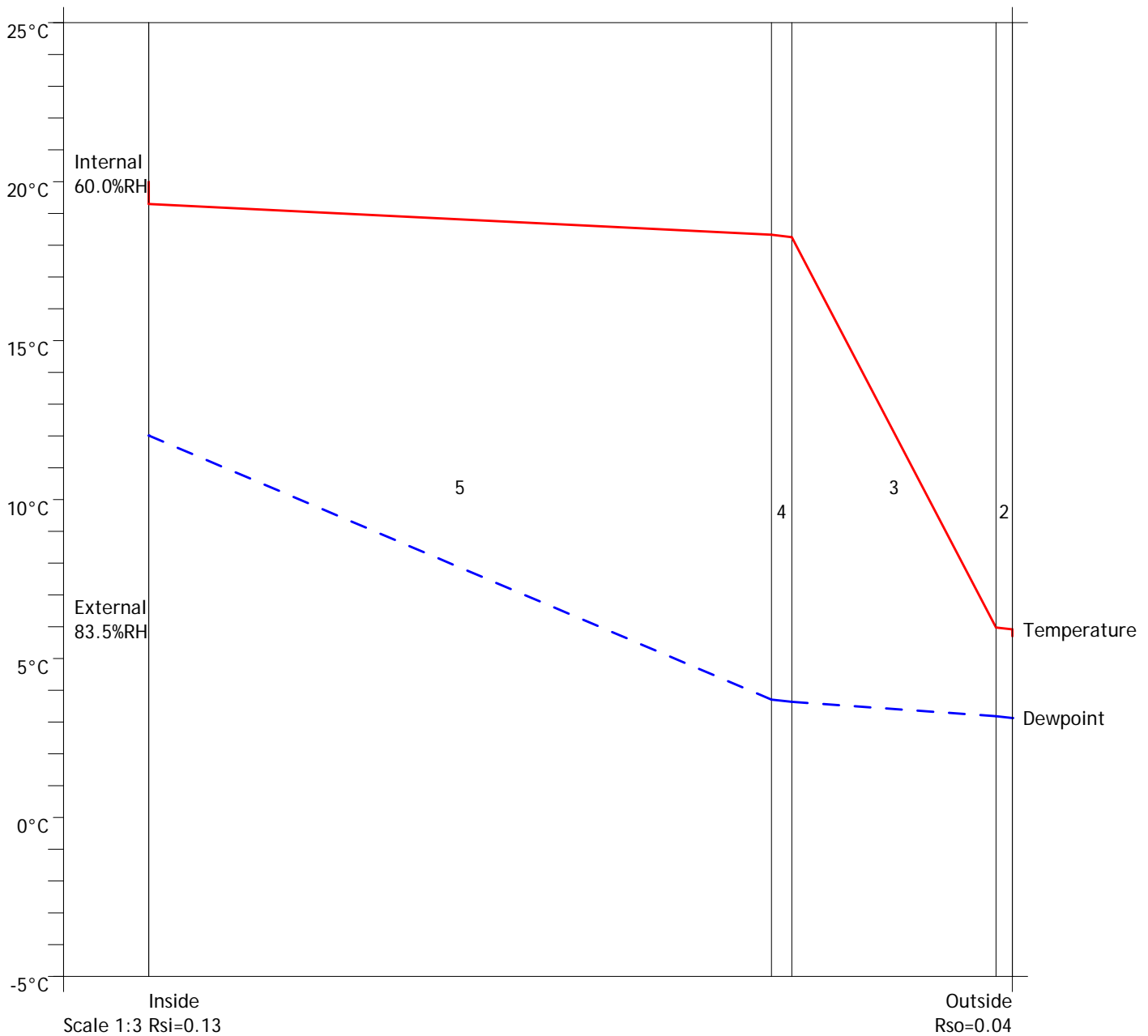
**Condensation Risk Analysis (no account taken of thermal bridges)**

**3 - Dwellings with low occupancy**

Jan	Feb (worst)	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
20.0C 60.8%	20.0C 60.0%	20.0C 59.9%	20.0C 59.9%	20.0C 62.1%	20.0C 66.3%	20.0C 70.4%	20.0C 71.0%	20.0C 68.7%	20.0C 66.1%	20.0C 62.0%	20.0C 61.4%
5.9C 85.5%	5.7C 83.5%	6.9C 82.0%	8.8C 79.5%	11.5C 79.0%	14.3C 79.5%	16.1C 80.5%	16.0C 81.5%	14.3C 83.0%	11.9C 85.0%	8.5C 84.5%	7.0C 85.5%

	Interface Temp. °C	Dewpoint Temp. °C	Vapour Pressure (kPa)	Saturated V.P. (kPa)	Worst Cond. (g/m <sup>2</sup> )	Peak Buildup (g/m <sup>2</sup> )	Condensation
1 Outside surface resistance							
2 Lime Render Finish	5.9	3.1	0.76	0.93			No
3 Diffutherm 100mm	6.0	3.2	0.77	0.93			No
4 Lime Bonding Coat	18.3	3.6	0.79	2.10			No
5 Concrete, dense (BS5250)	18.3	3.7	0.80	2.11			No
6 Inside surface resistance	19.3	12.0	1.40	2.24			No

Worst case internal / external conditions for graph : 20.0°C @ 60.0%RH / 5.7°C @ 83.5%RH



**Condensation Risk Analysis (no account taken of thermal bridges)**

**3 - Dwellings with low occupancy**

Jan	Feb (worst)	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
20.0C 60.8%	20.0C 60.0%	20.0C 59.9%	20.0C 59.9%	20.0C 62.1%	20.0C 66.3%	20.0C 70.4%	20.0C 71.0%	20.0C 68.7%	20.0C 66.1%	20.0C 62.0%	20.0C 61.4%
5.9C 85.5%	5.7C 83.5%	6.9C 82.0%	8.8C 79.5%	11.5C 79.0%	14.3C 79.5%	16.1C 80.5%	16.0C 81.5%	14.3C 83.0%	11.9C 85.0%	8.5C 84.5%	7.0C 85.5%

	Interface Temp. °C	Dewpoint Temp. °C	Vapour Pressure (kPa)	Saturated V.P. (kPa)	Worst Cond. (g/m <sup>2</sup> )	Peak Buildup (g/m <sup>2</sup> )	Condensation
1 Outside surface resistance	16.2	12.8	1.47	1.84			No
2 Lime Render Finish	16.2	12.8	1.47	1.84			No
3 Diffutherm 100mm	19.5	12.8	1.48	2.27			No
4 Lime Bonding Coat	19.5	12.8	1.48	2.27			No
5 Concrete, dense (BS5250)	19.8	14.5	1.65	2.31			No
6 Inside surface resistance							No

Worst case internal / external conditions for graph : 20.0°C @ 70.4%RH / 16.1°C @ 80.5%RH

