



Project Information

Reference Render
 Date 30 June 2023
 Client Extension Kitz

Tel: 0330 166 0877

Construction Type

Element : Wall - SIP Panel

Internal surface emissivity : High External surface emissivity : High

	Thickness (mm)	Thermal Conductivity (W/mK)	Thermal Resistance (m ² K/W)	Pitch (°)	Bridge details Air gaps (Level, Delta U")
Outside surface resistance	-	-	0.040		
Render	10.0	0.800	0.012		
Renderboard	10.0	0.230	0.043		
Cavity >=25mm	-	-	0.180		6.000% Plastic (0.0mm)
Breather membrane	-	-	-		
Oriented strandboard (OSB)	11.0	0.130	0.085		
Polyurethane	125.0	0.022	5.650		L:0 0.000W/m ² K
Oriented strandboard (OSB)	11.0	0.130	0.085		
Cavity >=25mm	-	-	0.180		6.000% Softwood (~500kg/m ³) (0.0mm)
Foil backed plasterboard	12.5	-	0.066		
Inside surface resistance	-	-	0.130		
Total thickness	179.5mm				

U-value = 0.15W/m²K

U-value, Combined Method : 0.155W/m²K (upper/lower limit 6.448 / 6.493m²K/W, dUf 0.0000, dUg 0.0000, dUp0.0000, dUr0.0000, dUrc1 0.0000, dUrc2 0.0000)

Correction factors

Air gaps, Delta Ug = 0.000W/m²K

(Based on the combined method for determining U-values of structures containing repeating thermal bridges)

	Thickness (mm)	Thermal Conductivity (W/mK)	Thermal Resistance (m ² K/W)	Vapour Resistivity (MNs/gm)	Vapour Resistance (MNs/g)
Outside surface resistance	-	-	0.040	-	-
Render	10.0	0.800	0.012	100.00	1.00
Renderboard	10.0	0.230	0.043	250.00	2.50
Cavity >=25mm	-	-	0.180	-	0.00
Breather membrane	-	-	-	-	1.00
Oriented strandboard (OSB)	11.0	0.130	0.085	250.00	2.75
Polyurethane	125.0	0.022	5.650	557.00	69.63
Oriented strandboard (OSB)	11.0	0.130	0.085	250.00	2.75
Cavity >=25mm	-	-	0.180	-	0.00
Foil backed plasterboard	12.5	-	0.066	-	60.00
Inside surface resistance	-	-	0.130	-	-
Total thickness	179.5mm				

Structure element : Wall

Condensation calculations performed in accordance with BS5250:2021

Condensation is occurring at the following layers interfaces:-

Month	Int (C°)	Int (%RH)	Ext (C°)	Ext (%RH)
Jan	20.00	57.40	3.80	83.00
Feb	20.00	56.70	3.90	81.00
Mar	20.00	56.00	5.70	76.50
Apr	20.00	56.40	7.90	74.00
May	20.00	58.40	11.30	71.50
Jun	20.00	64.00	14.20	73.50
Jul	20.00	68.60	15.80	75.50
Aug	20.00	69.20	15.70	76.50
Sep	20.00	66.10	13.50	78.50
Oct	20.00	62.80	10.60	81.00
Nov	20.00	58.80	6.30	82.50
Dec	20.00	57.90	4.50	83.50

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/m²

Annual moisture accumulation = 0.00000 Kg/m²

Condensation Risk Analysis (no account taken of thermal bridges)

3 - Dwellings with high occupancy and other buildings with unknown occupancy

Jan (worst)	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
20.0C 57.4%	20.0C 56.7%	20.0C 56.0%	20.0C 56.4%	20.0C 58.4%	20.0C 64.0%	20.0C 68.6%	20.0C 69.2%	20.0C 66.1%	20.0C 62.8%	20.0C 58.8%	20.0C 57.9%
3.8C 83.0%	3.9C 81.0%	5.7C 76.5%	7.9C 74.0%	11.3C 71.5%	14.2C 73.5%	15.8C 75.5%	15.7C 76.5%	13.5C 78.5%	10.6C 81.0%	6.3C 82.5%	4.5C 83.5%

	Interface Temp. °C	Dewpoint Temp. °C	Vapour Pressure (kPa)	Saturated V.P. (kPa)	Worst Cond. (g/m ²)	Peak Buildup (g/m ²)	Condensation
1 Outside surface resistance							
2 Render	3.9	1.2	0.67	0.81			No
3 Render board	3.9	1.3	0.67	0.81			No
4 Cavity >=25mm	4.0	1.5	0.68	0.82			No
5 Breather membrane	4.5	1.5	0.68	0.84			No
6 Oriented strandboard (OSB)	4.5	1.6	0.69	0.84			No
7 Polyurethane	4.7	1.9	0.70	0.85			No
8 Oriented strandboard (OSB)	18.9	7.5	1.04	2.19			No
9 Cavity >=25mm	19.1	7.7	1.05	2.22			No
10 Foil backed plasterboard	19.6	7.7	1.05	2.28			No
11 Inside surface resistance	19.8	11.3	1.34	2.30			No

Worst case internal / external conditions for graph : 20.0°C @ 57.4%RH / 3.8°C @ 83.0%RH

