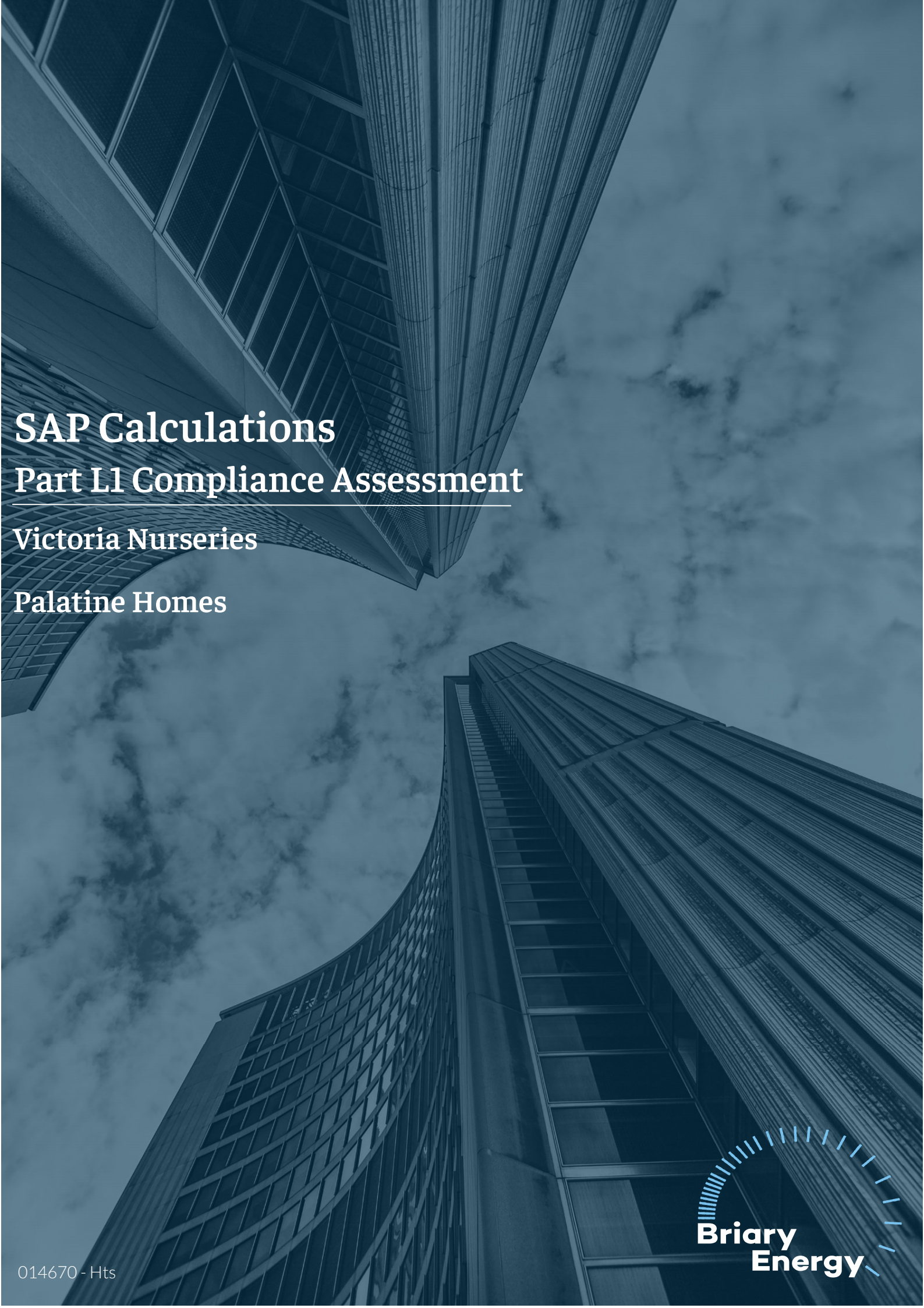


SAP Calculations

Part L1 Compliance Assessment

Victoria Nurseries

Palatine Homes

Briary Energy

014670 - Hts

Bishops Court, 17a The Broadway, Old Hatfield,
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Specification - Hts

	Description	U Value W/m²K	Element	Specification
Floors	Flr - Ground	0.12	Floor	Screed 75mm, PIR (0.022) 150mm, Blockwork (0.57) 150mm
Walls	Wl - Brick	0.2	Wall	Plaster Skim 3mm, Plasterboard 12.5mm, Plaster Dabs 15mm, Blockwork (0.57) 100mm, Knauf - Supafil 34 Blown Glass Wool Cavity 150mm, Brickwork (Outer Leaf) 102.5mm
	Wl - Render	0.19	Wall	Plaster Skim 3mm, Plasterboard 12.5mm, Plaster Dabs 15mm, Blockwork (0.57) 100mm, Knauf - Supafil 34 Blown Glass Wool Cavity 150mm, Blockwork, medium (0.57) 100mm, Render (Sand/Cement) 20mm
	Wl - Tile	0.19	Wall	Plaster Skim 3mm, Plasterboard 12.5mm, Plaster Dabs 15mm, Blockwork (0.57) 100mm, Knauf - Supafil 34 Blown Glass Wool Cavity 150mm, Blockwork, medium (0.57) 100mm, Well Ventilated Layer 25mm, Plain Tiles (Concrete) 20mm
Roofs	Rf - Ins Rafter	0.15	Roof	Plaster Skim 3mm, Plasterboard 15mm, PIR (0.022) 30mm, PIR (0.022) 150mm, Unventilated Air LowE 50mm
	Rf - Flat Bay	0.15	Roof	Plaster Skim 3mm, Plasterboard 12.5mm, Mineral Wool Quilt (12kg/m3) 150mm, Mineral Wool Quilt (12kg/m3) 150mm
	Rf - Flat Roof	0.15	Roof	Plaster Skim 3mm, Plasterboard 15mm, Unventilated Cavity 222mm, Plywood 18mm, PIR (0.022) 140mm
Openings	Solid Doors	U-Value 1.4		Frame Factor = 0.7 G-Value = 0.63
	Half Glazed Doors	U-Value 1.3		Frame Factor = 1 G-Value = 0.47
	Windows Type 1	U-Value 1.3		Frame Factor = 1 G-Value = 0.47
	Windows Type 2	U-Value 1.3		Frame Factor = 1 G-Value = 0.47
	Roof Windows	U-Value 1.3		Frame Factor = 1 G-Value = 0.47

Specifics				
	Airtightness m³/(hr.m²)	4.00	Mechanical Ventilation	Vent Axia Lo-Carbon dMEV
	Thermal Mass	Calculated Thermal Mass	Renewables	ASHPs to all Plots
	Heating Fuel	Electric		
	Lighting	101.25 lm/w	Additional Notes:	HWC to All Plots

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Construction Details - Hts

SAP Reference	Description	Source	Ψ
E2	Other Lintels	Calculated	0.064
E3	Sill	Calculated	0.021
E4	Jamb	Calculated	0.016
E5	Ground Floor Normal	Calculated	0.112
E6	Internal Floor	Calculated	0.002
E11	Eaves At Rafter	Calculated	0.017
E13	Gable At Rafter	Calculated	0.062
E15	Flat Roof with Parapet	Default Table K1	0.560
E16	Corner Normal	Calculated	0.054
E17	Corner Inverted	Calculated	-0.097
E24	Eaves at Ceiling Inverted	Default Table K1	0.240
R1	Roof Head	Calculated	0.058
R2	Roof Sill	Calculated	0.049
R3	Roof Jamb	Calculated	0.058
R4	Roof Ridge Vaulted	Default Table K1	0.080
R5	Roof Ridge Inverted	Default Table K1	0.040
R7	Roof Flat Inverted	Default Table K1	0.040

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Specification - FOG

	Description	U Value W/m²K	Element	Specification
Floors	Flr - Ground	0.13	Floor	Screed 75mm, PIR (0.022) 150mm, Blockwork (0.57) 150mm
	Flr - Exposed Garage	0.18	Floor	Chipboard 22mm, Mineral Wool Quilt (12kg/m3) 222mm, PIR (0.022) 20mm, Plasterboard 12.5mm, Plaster Skim 3mm
Walls	Wl - Clad	0.19	Wall	Plaster Skim 3mm, Plasterboard 12.5mm, Plaster Dabs 15mm, Blockwork (0.57) 100mm, Knauf - Supafil 34 Blown Glass Wool Cavity 150mm, Blockwork, medium (0.57) 100mm, Well Ventilated Layer 25mm, Timber (Hardwood) 20mm
	Wl - Garage	0.18	Wall	Plaster Skim 3mm, Plasterboard 12.5mm, Plaster Dabs 15mm, Blockwork (0.57) 100mm, Knauf - Supafil 34 Blown Glass Wool Cavity 150mm, Blockwork (0.57) 100mm, Plaster Dabs 15mm, Plasterboard 12.5mm, Plaster Skim 3mm
	Wl - Dormer	0.20	Wall	Plaster Skim 3mm, Plasterboard 12.5mm, PIR (0.022) 30mm, PIR (0.022) 90mm, Unventilated Air LowE 10mm, Plywood 12mm
Roofs	Rf - Ins Joist	0.11	Roof	Plaster Skim 3mm, Plasterboard 12.5mm, Mineral Wool Quilt (12kg/m3) 100mm, Mineral Wool Quilt (12kg/m3) 150mm, Mineral Wool Quilt (12kg/m3) 150mm
	Rf - Ins Rafter	0.15	Roof	Plaster Skim 3mm, Plasterboard 15mm, PIR (0.022) 30mm, PIR (0.022) 150mm, Unventilated Air LowE 50mm
	Rf - Flat Dormer	0.15	Roof	Plaster Skim 3mm, Plasterboard 12.5mm, Mineral Wool Quilt (12kg/m3) 150mm, Mineral Wool Quilt (12kg/m3) 150mm
Openings	Solid Doors	U-Value 1.4		Frame Factor = 0.7 G-Value = 0.63
	Windows	U-Value 1.3		Frame Factor = 1 G-Value = 0.47
	Roof Windows	U-Value 1.3		Frame Factor = 1 G-Value = 0.47

Specifics				
	Airtightness m³/(hr.m²)	4.00	Mechanical Ventilation	Vent Axia Lo-Carbon dMEV
	Thermal Mass	Calculated Thermal Mass	Renewables	aroSTOR Heat Pump Cylinder
	Heating Fuel	Electric		
	Lighting	101.25 lm/w	Additional Notes:	

Construction Details - FOG

SAP Reference	Description	Source	Ψ
E2	Other Lintels	Calculated	0.064
E4	Jamb	Calculated	0.016
E5	Ground Floor Normal	Calculated	0.112
E10	Eaves At Ceiling	Calculated	0.063
E11	Eaves At Rafter	Calculated	0.017
E13	Gable At Rafter	Calculated	0.062
E16	Corner Normal	Calculated	0.054
E20	Exposed Floor Normal	Calculated	0.116
E21	Exposed Floor Inverted	Default Table K1	0.320
R1	Roof Head	Calculated	0.058
R2	Roof Sill	Calculated	0.049
R3	Roof Jamb	Calculated	0.058
R6	Roof Flat	Default Table K1	0.060
R7	Roof Flat Inverted	Default Table K1	0.040
R9	Roof Wall Ceiling	Default Table K1	0.040

Plot Report - Victoria Nurseries, Wargrave

Plot	Housetype	Build	DAP	Thermal Elements			Door	HG Door		Roof Window		Window		Heating Info	Ctrls	Cyl Vol	Loss	PV	LED	Fans	Showers	WWHRS	DER	DFEE	DPER	SAP
				Floor UV	Wall UV	Roof UV	UV	UV	GV	UV	GV	UV	GV	Model		Litres	kWh/day	kWp/Orient	(W)		Amt/Flow		(%)	(%)	(%)	Rating
001	Plot 01	House	4.00	0.12	0.14	0.14	1.40			1.30	0.47	1.30	0.47	Vaillant aroTHERM plus 12kW & AI VIH RW VWL125/6A230VS2+VWZAIMB2 ...	Zoned	230.20	1.58	No PV	8.00	6	3 / 8.00	None	73.5	10.3	47.8	86 B
002	Plot 02	House	4.00	0.11	0.16	0.14	1.40	1.30	0.47	1.30	0.47	1.30	0.47	Vaillant aroTHERM plus 12kW & AI VIH RW VWL125/6A230VS2+VWZAIMB2 ...	Zoned	230.20	1.58	No PV	8.00	6	3 / 8.00	None	71.6	9.3	43.3	88 B
003	Plot 03	House	4.00	0.11	0.16	0.14	1.40	1.30	0.47	1.30	0.47	1.30	0.47	Vaillant aroTHERM plus 12kW & AI VIH RW VWL125/6A230VS2+VWZAIMB2 ...	Zoned	230.20	1.58	No PV	8.00	6	3 / 8.00	None	71.7	8.8	43.6	88 B
004	Plot 04	House	4.00	0.11	0.16	0.14	1.40	1.30	0.47	1.30	0.47	1.30	0.47	Vaillant aroTHERM plus 12kW & AI VIH RW VWL125/6A230VS2+VWZAIMB2 ...	Zoned	230.20	1.58	No PV	8.00	6	3 / 8.00	None	72.0	8.9	44.3	88 B
005	Plot 05	House	4.00	0.11	0.16	0.14	1.40	1.30	0.47	1.30	0.47	1.30	0.47	Vaillant aroTHERM plus 12kW & AI VIH RW VWL125/6A230VS2+VWZAIMB2 ...	Zoned	230.20	1.58	No PV	8.00	6	3 / 8.00	None	72.1	8.3	44.5	88 B
006	Plot 06	House	4.00	0.11	0.16	0.14	1.40	1.30	0.47	1.30	0.47	1.30	0.47	Vaillant aroTHERM plus 12kW & AI VIH RW VWL125/6A230VS2+VWZAIMB2 ...	Zoned	230.20	1.58	No PV	8.00	6	3 / 8.00	None	72.1	7.1	44.8	87 B
007	Plot 07	House	4.00	0.11	0.16	0.14	1.40	1.30	0.47	1.30	0.47	1.30	0.47	Vaillant aroTHERM plus 12kW & AI VIH RW VWL125/6A230VS2+VWZAIMB2 ...	Zoned	230.20	1.58	No PV	8.00	6	3 / 8.00	None	72.1	7.8	44.7	88 B
008	Plot 08	Maisonette	4.00	0.15	0.16	0.14	1.40			1.30	0.47	1.30	0.47	Room heaters, electric	Single	270.00	1.77	2.025kWp SW	8.00	2	1 / 8.00	None	54.4	0.1	0.1	77 C

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U-Value Calculation

Flr - Ground

U-Value (W/m^2K): U_V = 0.12

Heat Capacity ($kJ/[m^2k]$): H_C = 110.00

Internal surface resistance R_{si} (m^2K/W)	0.17				
External surface resistance R_{si} (m^2K/W)	0.17				
No. of Layers	3	Direction of heat flow	Downwards		
Total Thickness (mm)	375	Element Type	Floor		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Screed	75	1.150	0.065
Layer 2	PIR (0.022)	150	0.022	6.818
Layer 3	Blockwork (0.57)	150	0.570	0.263
	**Bridged Layer*			
External surface				

Calculations are based on BS EN ISO 6946, BS EN ISO 13370, BRE 443, BRE 497

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U-Value Calculation

Wl - Brick

U-Value (W/m^2K): 0.2

Heat Capacity ($kJ/[m^2k]$): 60.00

Internal surface resistance R_{si} (m^2K/W)	0.13				
External surface resistance R_{si} (m^2K/W)	0.04				
No. of Layers	6	Direction of heat flow	Horizontal		
Total Thickness (mm)	383	Element Type	Wall		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	12.5	0.210	0.060
Layer 3	Plaster Dabs	15	0.088	0.170
	*Bridged Layer			
Layer 4	Blockwork (0.57)	100	0.570	0.175
	*Bridged Layer			
Layer 5	Knauf - Supafil 34 Blown Glass Wool Cavity	150	0.034	4.412
Layer 6	Brickwork (Outer Leaf)	102.5	0.570	0.180
External surface				

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U-Value Calculation

Wl - Render

U-Value (W/m^2K): 0.19

Heat Capacity ($kJ/[m^2k]$): 60.00

Internal surface resistance R_{si} (m^2K/W)	0.13				
External surface resistance R_{si} (m^2K/W)	0.04				
No. of Layers	7	Direction of heat flow	Horizontal		
Total Thickness (mm)	401	Element Type	Wall		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	12.5	0.210	0.060
Layer 3	Plaster Dabs	15	0.088	0.170
	**Bridged Layer*			
Layer 4	Blockwork (0.57)	100	0.570	0.175
	**Bridged Layer*			
Layer 5	Knauf - Supafil 34 Blown Glass Wool Cavity	150	0.034	4.412
Layer 6	Blockwork, medium (0.57)	100	0.570	0.175
	**Bridged Layer*			
Layer 7	Render (Sand/Cement)	20	1.000	0.020
External surface				

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U-Value Calculation

W1 - Tile

U-Value (W/m^2K): 0.19

Heat Capacity ($kJ/[m^2k]$): 60.00

Internal surface resistance R_{si} (m^2K/W)	0.13				
External surface resistance R_{si} (m^2K/W)	0.04				
No. of Layers	8	Direction of heat flow	Horizontal		
Total Thickness (mm)	426	Element Type	Wall		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	12.5	0.210	0.060
Layer 3	Plaster Dabs	15	0.088	0.170
	**Bridged Layer*			
Layer 4	Blockwork (0.57)	100	0.570	0.175
	**Bridged Layer*			
Layer 5	Knauf - Supafil 34 Blown Glass Wool Cavity	150	0.034	4.412
Layer 6	Blockwork, medium (0.57)	100	0.570	0.175
	**Bridged Layer*			
Layer 7	Well Ventilated Layer	25		0.130
	**Bridged Layer*			
Layer 8	Plain Tiles (Concrete)	20	0.180	0.111
External surface				

Calculations are based on BS EN ISO 6946, BS EN ISO 13370, BRE 443, BRE 497

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U-Value Calculation

Rf - Ins Rafter

U-Value (W/m²K)	0.15
Heat Capacity (kJ/[m²k])	9.00

Internal surface resistance R_{si} (m²K/W)	0.1				
External surface resistance R_{si} (m²K/W)	0.04				
No. of Layers	5	Direction of heat flow	Upwards		
Total Thickness (mm)	248	Element Type	Roof		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	15	0.210	0.071
Layer 3	PIR (0.022)	30	0.022	1.364
Layer 4	PIR (0.022) **Bridged Layer*	150	0.022	6.818
Layer 5	Unventilated Air LowE **Bridged Layer*	50	0.114	0.440
External surface				

Calculations are based on BS EN ISO 6946, BS EN ISO 13370, BRE 443, BRE 497

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U-Value Calculation

Rf - Flat Bay

U-Value (W/m²K)	Heat Capacity (kJ/[m²k])
0.15	9.00

Internal surface resistance R_{si} (m²K/W)	0.1				
External surface resistance R_{si} (m²K/W)	0.04				
No. of Layers	4	Direction of heat flow	Upwards		
Total Thickness (mm)	316	Element Type	Roof		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	12.5	0.210	0.060
Layer 3	Mineral Wool Quilt (12kg/m3)	150	0.044	3.409
	*Bridged Layer			
Layer 4	Mineral Wool Quilt (12kg/m3)	150	0.044	3.409
External surface				

Calculations are based on BS EN ISO 6946, BS EN ISO 13370, BRE 443, BRE 497

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U-Value Calculation

Rf - Flat Roof

U-Value (W/m^2K): 0.15

Heat Capacity ($kJ/[m^2k]$): 9.00

Internal surface resistance R_{si} (m^2K/W)	0.1				
External surface resistance R_{si} (m^2K/W)	0.04				
No. of Layers	5	Direction of heat flow	Upwards		
Total Thickness (mm)	398	Element Type	Roof		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	15	0.210	0.071
Layer 3	Unventilated Cavity **Bridged Layer*	222	1.954	0.114
Layer 4	Plywood	18	0.130	0.138
Layer 5	PIR (0.022)	140	0.022	6.364
External surface				

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U-Value Calculation

Flr - Ground

U-Value (W/m^2K): U_V 0.13

Heat Capacity ($kJ/[m^2k]$): H_C 110.00

Internal surface resistance R_{si} (m^2K/W)	0.17				
External surface resistance R_{si} (m^2K/W)	0.17				
No. of Layers	3	Direction of heat flow	Downwards		
Total Thickness (mm)	375	Element Type	Floor		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Screed	75	1.150	0.065
Layer 2	PIR (0.022)	150	0.022	6.818
Layer 3	Blockwork (0.57)	150	0.570	0.263
	**Bridged Layer*			
External surface				

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U-Value Calculation

Flr - Exposed Garage

U-Value (W/m²K)	Heat Capacity (kJ/[m²k])
0.18	20.00

Internal surface resistance R_{si} (m²K/W)	0.17				
External surface resistance R_{si} (m²K/W)	0.04				
No. of Layers	5	Direction of heat flow	Downwards		
Total Thickness (mm)	280	Element Type	Floor		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Chipboard	22	0.130	0.169
Layer 2	Mineral Wool Quilt (12kg/m3)	222	0.044	5.045
	**Bridged Layer*			
Layer 3	PIR (0.022)	20	0.022	0.909
Layer 4	Plasterboard	12.5	0.210	0.060
Layer 5	Plaster Skim	3	0.180	0.017
External surface				

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U-Value Calculation

W1 - Clad

U-Value (W/m^2K): 0.19

Heat Capacity ($kJ/[m^2k]$): 60.00

Internal surface resistance R_{si} (m^2K/W)	0.13				
External surface resistance R_{si} (m^2K/W)	0.04				
No. of Layers	8	Direction of heat flow	Horizontal		
Total Thickness (mm)	426	Element Type	Wall		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	12.5	0.210	0.060
Layer 3	Plaster Dabs	15	0.088	0.170
	**Bridged Layer*			
Layer 4	Blockwork (0.57)	100	0.570	0.175
	**Bridged Layer*			
Layer 5	Knauf - Supafil 34 Blown Glass Wool Cavity	150	0.034	4.412
Layer 6	Blockwork, medium (0.57)	100	0.570	0.175
	**Bridged Layer*			
Layer 7	Well Ventilated Layer	25		0.130
	**Bridged Layer*			
Layer 8	Timber (Hardwood)	20	0.180	0.111
External surface				

Calculations are based on BS EN ISO 6946, BS EN ISO 13370, BRE 443, BRE 497

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U-Value Calculation

W1 - Garage

U-Value (W/m²K)	Heat Capacity (kJ/[m²k])
0.18	60.00

Internal surface resistance R_{si} (m²K/W)	0.13				
External surface resistance R_{si} (m²K/W)	0.04				
No. of Layers	9	Direction of heat flow	Horizontal		
Total Thickness (mm)	411	Element Type	Wall		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	12.5	0.210	0.060
Layer 3	Plaster Dabs	15	0.088	0.170
	**Bridged Layer*			
Layer 4	Blockwork (0.57)	100	0.570	0.175
	**Bridged Layer*			
Layer 5	Knauf - Supafil 34 Blown Glass Wool Cavity	150	0.034	4.412
Layer 6	Blockwork (0.57)	100	0.570	0.175
	**Bridged Layer*			
Layer 7	Plaster Dabs	15	0.088	0.170
	**Bridged Layer*			
Layer 8	Plasterboard	12.5	0.210	0.060
Layer 9	Plaster Skim	3	0.180	0.017
External surface				

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U-Value Calculation

W1 - Dormer

	U-Value (W/m²K)	Heat Capacity (kJ/[m²k])
	0.20	9.00

Internal surface resistance R_{si} (m²K/W)	0.13				
External surface resistance R_{si} (m²K/W)	0.04				
No. of Layers	6	Direction of heat flow	Horizontal		
Total Thickness (mm)	158	Element Type	Wall		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	12.5	0.210	0.060
Layer 3	PIR (0.022)	30	0.022	1.364
Layer 4	PIR (0.022) *Bridged Layer*	90	0.022	4.091
Layer 5	Unventilated Air LowE *Bridged Layer*	10	0.023	0.440
Layer 6	Plywood	12	0.130	0.092
External surface				

Calculations are based on BS EN ISO 6946, BS EN ISO 13370, BRE 443, BRE 497

Briary Energy
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Hertfordshire, AL9 5HZ, T: 0330 223 6960 | E: info@briaryenergy.co.uk

U-Value Calculation

Rf - Ins Joist

U-Value (W/m^2K): 0.11

Heat Capacity ($kJ/[m^2k]$): 9.00

Internal surface resistance R_{si} (m^2K/W)	0.1				
External surface resistance R_{si} (m^2K/W)	0.04				
No. of Layers	5	Direction of heat flow	Upwards		
Total Thickness (mm)	416	Element Type	Roof		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	12.5	0.210	0.060
Layer 3	Mineral Wool Quilt (12kg/m3) *Bridged Layer	100	0.044	2.273
Layer 4	Mineral Wool Quilt (12kg/m3)	150	0.044	3.409
Layer 5	Mineral Wool Quilt (12kg/m3)	150	0.044	3.409
External surface				

Calculations are based on BS EN ISO 6946, BS EN ISO 13370, BRE 443, BRE 497

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U-Value Calculation

Rf - Ins Rafter

U-Value (W/m²K)	0.15
Heat Capacity (kJ/[m²k])	9.00

Internal surface resistance R_{si} (m²K/W)	0.1				
External surface resistance R_{si} (m²K/W)	0.04				
No. of Layers	5	Direction of heat flow	Upwards		
Total Thickness (mm)	248	Element Type	Roof		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	15	0.210	0.071
Layer 3	PIR (0.022)	30	0.022	1.364
Layer 4	PIR (0.022) **Bridged Layer*	150	0.022	6.818
Layer 5	Unventilated Air LowE **Bridged Layer*	50	0.114	0.440
External surface				

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U-Value Calculation

Rf - Flat Dormer

U-Value (W/m^2K)

U_V

0.15

Heat Capacity ($kJ/[m^2k]$)

H_C

9.00

Internal surface resistance R_{si} (m^2K/W)	0.1				
External surface resistance R_{si} (m^2K/W)	0.04				
No. of Layers	4	Direction of heat flow	Upwards		
Total Thickness (mm)	316	Element Type	Roof		

Layer	Description	Thickness (mm)	Conductvity (W/mK)	Resistance (mK/W)
Internal Surface				
Layer 1	Plaster Skim	3	0.180	0.017
Layer 2	Plasterboard	12.5	0.210	0.060
Layer 3	Mineral Wool Quilt (12kg/m3)	150	0.044	3.409
	**Bridged Layer*			
Layer 4	Mineral Wool Quilt (12kg/m3)	150	0.044	3.409
External surface				

Calculations are based on BS EN ISO 6946, BS EN ISO 13370, BRE 443, BRE 497