

U-VALUE CALCULATOR REPORT

Energy Calculations Ltd
SAP • CODE • SBEM • DESIGN

Property Reference	000690		Issued on Date	13/08/2025	
Assessment Reference		Prop Type Ref			
Project	108, Elm Road , Reading				
Calculation Type	New Build (As Built)				
SAP Rating		DER		TER	
Environmental		% DER<TER			
CO ₂ Emissions (t/year)		DFEE		TFEE	
General Requirements Compliance		% DFEE<TFEE			
Assessor Details	Mr. Matthew Carter, Energy Calculations Limited, Tel: 01754 761 035, mcarter@energycalculations.co.uk			Assessor ID	7869-0001
Client					

Building Elements

Wall 000001

Wall Type: Standard Wall

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	Brick, outer leaf				
	Main construction	102	0.7700	0.1325	82.81
	Main construction	102	0.9407	0.1084	17.19
Layer 2	Earthwool Dritherm 32 Ultimate				
	Main construction	75	0.0320	2.3438	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 3	Earthwool Dritherm 32 Ultimate				
	Main construction	75	0.0320	2.3438	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 4	Celcon Standard - Normal - Trad joint 10mm				
	Main construction	100	0.1500	0.6667	93.18
	Main construction	100	0.8803	0.1136	6.82
Layer 5	airspace/plaster dabs				
	Main construction	15	0.0882	0.1700	80.00
	Main construction	15	0.0882	0.1700	20.00
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 6	Plasterboard, standard				
	Main construction	12.5	0.2100	0.0595	100.00
Int surface				0.1300	

Total resistance: Upper limit = 5.841 m² K/W Lower limit = 5.715 m² K/W Average = 5.778 m² K/W
Total correction = 0.0033 m² K/W U-value (unrounded) = 0.17 W/m² K

Unheated space: None

Total thickness: 380 mm

U-value: 0.17 W/m² K

Kappa: n/a

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Client	
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Building Elements

Floor 000002 - Floor - suspended beam-and-block floor

Floor Type: Suspended Floor

Area = 33.60 m², Perimeter = 17.30 m, Wall thickness = 350.00 mm, Soil: Clay

Depth of underfloor space below ground: 0.200 m Floor wind shielding: Average (suburban)

Floor height above ground: h = 0.000 m

U-value of walls above ground: U_w = 1.500 m

Ventilation openings per perimeter length: e = 0.0015 %

Mean wind speed: v = 5.000 m/s

Resistance on solum: R_g = 0.000 m²K/W

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
Ext surface				0.1700	
Layer 1	AAC (600 kg/m ³)/ concrete				
	Main construction	100	0.1800	0.5556	86.30
	Main construction	100	1.3500	0.0741	13.70
Layer 2	Thermafloor TF70 zero ODP				
	Main construction	150	0.0220	6.8182	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 3	Screed				
	Main construction	75	1.1500	0.0652	100.00
Int surface				0.1700	

Total resistance: Upper limit = 7.709 m² K/W Lower limit = 7.517 m² K/W Average = 7.613 m² K/W

Total correction = 0.0080 m² K/W

U-value (unrounded) = 0.11 W/m² K

Unheated space: None

Total thickness: 325 mm

U-value: 0.11 W/m² K

Kappa: n/a

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Building Elements

Roof 000003 - pitched roof - insulated slope, sloping

Roof Type: Pitched Roof, insulated sloping ceiling

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)	Density (kg/m ³)	Heat Cap. (J/kgK)
Ext surface				0.0400			
Layer 1	Tiles, clay						
	Main construction	15	1.0000	0.0150	100.00		
Layer 2	Air layer ventilated						
	Main construction	25	0.2500	0.1000	100.00		
	Corrections - Cavity Unventilated, Emissivity: Normal						
Layer 3	Sarking Felt						
	Main construction	1	0.2300	0.0043	100.00		
Layer 4	Air layer ventilated						
	Main construction	50	0.5000	0.1000	100.00		
	Corrections - Cavity Unventilated, Emissivity: Normal						
Layer 5	K107						
	Main construction	100	0.0190	5.2632	91.67		
	Main construction	100	0.1300	0.7692	8.33		
	Corrections - Air Gap: Level 1, Fasteners: None or plastic						
Layer 6	K118						
	Main construction	52.5	0.0233	2.2500	100.00		
Int surface				0.1000			

Total resistance: Upper limit = 7.087 m² K/W Lower limit = 6.149 m² K/W Average = 6.618 m² K/W
Total correction = 0.0029 m² K/W U-value (unrounded) = 0.15 W/m² K

Unheated space: None

Total thickness: 244 mm

U-value: 0.15 W/m² K

Kappa: 0.00 kJ/m² K

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Building Elements

Wall 000004 - Timber framed insulation between studs

Wall Type: Standard Wall

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)	Density (kg/m ³)	Heat Cap. (J/kgK)
Ext surface				0.0400			
Layer 1	Tiling, concrete						
	Main construction	10	1.5000	0.0067	100.00		
Layer 2	airspace/timber battens						
	Main construction	22	0.1222	0.1800	89.63		
	Main construction	22	0.1243	0.1770	10.37		
	Corrections - Cavity Unventilated, Emissivity: Normal						
Layer 3	Plywood						
	Main construction	18	0.1300	0.1385	100.00		
Layer 4	Breather membrane						
	Main construction	1	0.0000	0.0000	100.00		
Layer 5	K108						
	Main construction	100	0.0190	5.2632	91.67		
	Main construction	100	0.1300	0.7692	8.33		
	Corrections - Air Gap: Level 1, Fasteners: None or plastic						
Layer 6	Standard cavity						
	Main construction	30	0.1667	0.1800	87.50		
	Main construction	30	0.1300	0.2308	12.50		
	Corrections - Cavity Unventilated, Emissivity: Normal						
Layer 7	K118						
	Main construction	42.5	0.0250	1.7000	100.00		
Int surface				0.1300			

Total resistance:	Upper limit = 6.832 m ² K/W	Lower limit = 5.920 m ² K/W	Average = 6.376 m ² K/W
	Total correction = 0.0031 m ² K/W	U-value (unrounded) = 0.16 W/m ² K	

Unheated space: None

Total thickness: 224 mm

U-value: 0.16 W/m² K

Kappa: 0.00 kJ/m² K

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Building Elements

Roof 000005 - Flat

Roof Type: Flat Roof standard (no precipitation)

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)	Density (kg/m ³)	Heat Cap. (J/kgK)
Ext surface				0.0400			
Layer 1	Membrane						
	Main construction	2	0.0000	0.0000	100.00		
Layer 2	Ply						
	Main construction	18	0.1300	0.1385	100.00		
Layer 3	Standard cavity						
	Main construction	150	0.9375	0.1600	87.50		
	Main construction	150	0.1300	1.1538	12.50		
	Corrections - Cavity Unventilated, Emissivity: Normal						
Layer 4	Kingspan						
	Main construction	120	0.0220	5.4545	100.00		
	Corrections - Air Gap: Level 1, Fasteners: None or plastic						
Layer 5	K118						
	Main construction	42.5	0.0250	1.7000	100.00		
Int surface				0.1000			

Total resistance: Upper limit = 7.704 m² K/W Lower limit = 7.612 m² K/W Average = 7.658 m² K/W
Total correction = 0.0051 m² K/W U-value (unrounded) = 0.14 W/m² K

Unheated space: None

Total thickness: 333 mm

U-value: 0.14 W/m² K

Kappa: 0.00 kJ/m² K