

U-VALUE CALCULATOR REPORT

Property Reference	Q13948	Issued on Date	28/02/2024
Assessment Reference		Prop Type Ref	
Project			
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. Joe Cantwell Dillon, Joe Dillon, Tel: , joe.dillon@atspaceltd.com	Assessor ID	BL89-0001
Client			

Building Elements

Wall 000001 - New Cavity Wall

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	Blockwork, medium				
	Main construction	100	0.5700	0.1754	93.43
	Main construction	100	0.8803	0.1136	6.57
Layer 2	Dritherm 32				
	Main construction	100	0.0320	3.1250	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 3	Blockwork, medium				
	Main construction	100	0.5700	0.1754	93.43
	Main construction	100	0.8803	0.1136	6.57
Layer 4	Polyisocyanurate				
	Main construction	50	0.0300	1.6667	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 5	Plasterboard, standard				
	Main construction	12.5	0.2100	0.0595	100.00
Layer 6	Plasterboard, standard				
	Main construction	12.5	0.2100	0.0595	100.00
Int surface				0.1300	

Total resistance: Upper limit = 5.423 m² K/W Lower limit = 5.419 m² K/W Average = 5.421 m² K/W
 Total correction = 0.0043 m² K/W U-value (unrounded) = 0.18 W/m² K

Unheated space:	None
Total thickness: 375 mm	U-value: 0.18 W/m² K
	Kappa: n/a

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Building Elements

Wall 000002 - Existing Cavity Wall

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	102.5	0.7700	0.1331	82.81
	Main construction	102.5	0.9407	0.1090	17.19
Layer 2	Standard cavity				
	Main construction	100	0.5556	0.1800	100.00
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 3	Brick, inner leaf				
	Main construction	102.5	0.5600	0.1830	82.81
	Main construction	102.5	0.8803	0.1164	17.19
Layer 4	Polyisocyanurate				
	Main construction	50	0.0220	2.2727	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 5	Plasterboard, standard				
	Main construction	25	0.2100	0.1190	100.00
Int surface				0.1300	

Total resistance: Upper limit = 3.042 m² K/W Lower limit = 3.037 m² K/W Average = 3.039 m² K/W
 Total correction = 0.0056 m² K/W U-value (unrounded) = 0.33 W/m² K

Unheated space:	None
Total thickness:	380 mm
U-value:	0.33 W/m ² 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 (%)
Ext surface				0.1700	
Layer 1	Tiling, clay				
	Main construction	15	1.0000	0.0000	100.00
Layer 2	Breather membrane				
	Main construction	0.5	0.0000	0.0000	100.00
Layer 3	Rafters				
	Main construction	50	0.0000	0.0000	91.67
	Main construction	50	0.1300	0.0000	8.33
	Corrections - Cavity Ventilated, Emissivity: Low Emissivity (BR443)				
Layer 4	Rafters // PIR				
	Main construction	120	0.0220	5.4545	91.67
	Main construction	120	0.1300	0.9231	8.33
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 5	PIR				
	Main construction	50	0.0220	2.2727	100.00
	Corrections - Air Gap: Level 0, Fasteners: None or plastic				
Layer 6	Plasterboard, standard				
	Main construction	12.5	0.2100	0.0595	100.00
Layer 7	Plaster, standard				
	Main construction	3	0.4000	0.0075	100.00
Int surface				0.1000	

Total resistance: Upper limit = 7.286 m² K/W Lower limit = 6.481 m² K/W Average = 6.883 m² K/W
 Total correction = 0.0032 m² K/W U-value (unrounded) = 0.15 W/m² K

Unheated space: None
Total thickness: 251 mm U-value: 0.15 W/m ² K Kappa: n/a

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Building Elements

Roof 000004 - Flat roof insulation above timber joists

Roof Type: Flat Roof standard (no precipitation)

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	Felt/bitumen layers				
	Main construction	3	0.2300	0.0130	100.00
Layer 2	Ply				
	Main construction	18	0.1300	0.1385	100.00
Layer 3	Polyisocyanurate				
	Main construction	150	0.0220	6.8182	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 4	Timber firrings				
	Main construction	22	0.1222	0.1800	89.63
	Main construction	22	0.1375	0.1600	10.37
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 5	Joists				
	Main construction	195	1.2188	0.1600	91.67
	Main construction	195	0.1300	1.5000	8.33
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 6	Plasterboard, standard				
	Main construction	15	0.2100	0.0714	100.00
Layer 7	Skim				
	Main construction	3	0.4000	0.0075	100.00
Int surface				0.1000	

Total resistance:	Upper limit = 7.623 m ² K/W	Lower limit = 7.539 m ² K/W	Average = 7.581 m ² K/W
	Total correction = 0.0081 m ² K/W	U-value (unrounded) = 0.14 W/m ² K	

Unheated space:	None	
Total thickness: 406 mm	U-value: 0.14 W/m² K	Kappa: n/a

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Building Elements

Wall 000005 - Dormer Wall

Wall Type: Timber framed Wall with I-beams

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	Orientated Strand Board				
	Main construction	12	0.1300	0.0923	100.00
Layer 2	Breather membrane				
	Main construction	1	0.0000	0.0000	100.00
Layer 3	Standard cavity				
	Main construction	10	0.0300	0.3328	87.50
	Main construction	10	0.1300	0.0769	12.50
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 4	Celotex XR4000 // Studwork				
	Main construction	165	0.0220	7.5000	87.50
	Main construction	165	0.1300	1.2692	12.50
	Corrections - Air Gap: Level 0, Fasteners: None or plastic				
Layer 5	Vapour control layer				
	Main construction	1	0.0000	0.0000	100.00
Layer 6	Polyisocyanurate				
	Main construction	25	0.0220	1.1364	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 7	Plasterboard,				
	Main construction	12.5	0.2100	0.0595	100.00
Layer 8	Plaster, standard				
	Main construction	3	0.4000	0.0075	100.00
Int surface				0.1300	

Total resistance: Upper limit = 7.372 m² K/W Lower limit = 6.349 m² K/W Average = 6.860 m² K/W
 Total correction = 0.0003 m² K/W U-value (unrounded) = 0.15 W/m² K

Unheated space: None
Total thickness: 230 mm U-value: 0.15 W/m ² K Kappa: n/a