

U-VALUE CALCULATOR REPORT

Property Reference	7358-0001-GF-82CR-C		Issued on Date	25/09/2020
Assessment Reference	Proposed	Prop Type Ref		
Project	House C, 82 Chichester Road, , Tilehurst, ,			
Calculation Type	New Build (As Designed)			

SAP Rating	87 B	DER	15.42	TER	19.59
Environmental	89 B	% DER<TER	21.27		
CO ₂ Emissions (t/year)	0.89	DFEE	51.80	TFEE	57.17
General Requirements Compliance	Pass	% DFEE<TFEE	9.39		

Assessor Details	Mr. James Turner, J E Turner, Tel: 01437710954, jim.thinkinggreen@gmail.com	Assessor ID	7358-0001
Client	Greg Farrell, 052		

Building Elements

Roof Roof type 1 - Pitched roof - insulated at ceiling

Roof Type: Pitched Roof, insulated flat 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	Roof space						
	Main construction	0	0.0000	0.0000	100.00		
Layer 2	Mineral wool over joists						
	Main construction	150	0.0400	3.7500	100.00		
	Corrections - Air Gap: Level 0, Fasteners: None or plastic						
Layer 3	Mineral wool quilt between joists						
	Main construction	150	0.0400	3.7500	87.50		
	Main construction	150	0.1300	1.1538	12.50		
	Corrections - Air Gap: Level 0, Fasteners: None or plastic						
Layer 4	Plasterboard, standard						
	Main construction	12.5	0.2100	0.0595	100.00	950	840
Layer 5	Plaster, standard						
	Main construction	3	0.4000	0.0075	100.00	600	1000
Int surface				0.1000			

Total resistance: Upper limit = 7.247 m² K/W Lower limit = 6.884 m² K/W Average = 7.065 m² K/W
Total correction = 0.0000 m² K/W U-value (unrounded) = 0.14 W/m² K

Unheated space: None

Total thickness: 316 mm

U-value: 0.14 W/m² K

Kappa: 12.17 kJ/m² K

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Roof Slope ceiling - Pitched roof, insulated slope

Roof Type: Pitched Roof, insulated sloping ceiling

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
Ext surface				0.1000	
Layer 1	Tiles				
	Main construction	10	1.0000	0.0000	100.00
Layer 2	airspace/timber battens				
	Main construction	25	0.1000	0.0000	89.63
	Main construction	25	0.1563	0.0000	10.37
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 3	Breather membrane				
	Main construction	1	0.0000	0.0000	100.00
Layer 4	air gap between rafters				
	Main construction	50	0.0000	0.0000	87.50
	Main construction	50	0.1300	0.0000	12.50
	Corrections - Cavity Ventilated, Emissivity: Normal				
Layer 5	Celotex between rafters				
	Main construction	100	0.0220	4.5455	87.50
	Main construction	100	0.1300	0.7692	12.50
	Corrections - Air Gap: Level 0, Fasteners: None or plastic				
Layer 6	Celotex below rafters				
	Main construction	45	0.0220	2.0455	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 7	Plasterboard, standard				
	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				0.1000	

Total resistance:	Upper limit = 5.947 m ² K/W	Lower limit = 5.129 m ² K/W	Average = 5.538 m ² K/W
	Total correction = 0.0014 m ² K/W	U-value (unrounded) = 0.18 W/m ² K	

Unheated space: None

Total thickness: 247 mm

U-value: 0.18 W/m² K

Kappa: n/a

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Building Elements

Wall Main wall

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	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	125	0.0320	3.9063	100.00		
	Corrections - Air Gap: Level 1, Fasteners: Wall ties, Cross sectional area: 12.50 mm ² , Lambda: 17.000 W/m.K, per m ² : 2.500						
Layer 3	Standard Aircrete block						
	Main construction	100	0.1500	0.6667	93.18	650	1050
	Main construction	100	0.8803	0.1136	6.82	650	1050
Layer 4	Plaster, standard						
	Main construction	5	0.4000	0.0125	100.00	600	1000
Int surface				0.1300			

Total resistance:	Upper limit = 4.842 m ² K/W	Lower limit = 4.717 m ² K/W	Average = 4.779 m ² K/W
	Total correction = 0.0067 m ² K/W	U-value (unrounded) = 0.22 W/m ² K	

Unheated space: None

Total thickness: 332 mm

U-value: 0.22 W/m² K

Kappa: 67.84 kJ/m² K

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Building Elements

Floor Ground Floor - Floor - suspended beam-and-block floor

Floor Type: Suspended Floor

Area = 41.66 m², Perimeter = 18.26 m, Wall thickness = 325.00 mm, Soil: Clay

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

Floor height above ground: h = 0.500 m

U-value of walls above ground: U_w = 0.220 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 (%)	Density (kg/m ³)	Heat Cap. (J/kgK)
Ext surface				0.1700			
Layer 1	beam and block floor						
	Main construction	100	0.5700	0.1754	86.30		
	Main construction	100	1.3500	0.0741	13.70		
Layer 2	Celotex						
	Main construction	125	0.0220	5.6818	100.00		
	Corrections - Air Gap: Level 1, Fasteners: None or plastic						
Layer 3	Screed						
	Main construction	65	1.1500	0.0565	100.00	1200	840
Int surface				0.1700			

Total resistance: Upper limit = 6.240 m² K/W Lower limit = 6.226 m² K/W Average = 6.233 m² K/W

Total correction = 0.0083 m² K/W

U-value (unrounded) = 0.13 W/m² K

Unheated space: None

Total thickness: 290 mm

U-value: 0.13 W/m² K

Kappa: 65.52 kJ/m² K