

Property Reference	S17212				Issued on Date	17/10/2017
Survey Reference	Original		Pro	op Type Ref		
Project	New Dwelling, Horseshoe	Lane, Chadlir	ngton, OX7 3NB			
Calculation Type	New Build (As Designed)					
SAP Rating		82 B	DER	12.55	TER	15.95
Environmental		87 B	% DER <ter< th=""><th></th><th>21.33</th><th></th></ter<>		21.33	
CO ₂ Emissions (t/year)		3.01	DFEE	61.71	TFEE	65.78
General Requirements	S Compliance	Pass	% DFEE <tfee< th=""><th></th><th>6.18</th><th></th></tfee<>		6.18	
Surveyor Malco	olm Lisle, Tel: 01142521995)			Surveyor ID	8227-0002
Client						

Building Elements

Roof Sloping Roof

Roof Type: Pitched Roof, insulated sloping ceiling

Tiling, clay Main construction Standard cavity Main construction Corrections - Cavity Ventilated, Emissivity: Normal	(mm) 1 50	(W/m²K)	(m²K/W) 0.1000 0.0000	100.00
Main construction Standard cavity Main construction		1.0000		100.00
Main construction Standard cavity Main construction		1.0000	0.0000	100.00
Standard cavity Main construction		1.0000	0.0000	100.00
Main construction	50			
	50			
Corrections - Cavity Ventilated, Emissivity: Normal		0.0000	0.0000	100.00
Celotex FR5000				
Main construction	100	0.0210	4.7619	87.50
Main construction	100	0.1300	0.7692	12.50
Corrections - Air Gap: Level 1, Fasteners: None or				
plastic				
Celotex FR5000				
Main construction	50	0.0210	2.3810	100.00
Corrections - Air Gap: Level 1, Fasteners: None or				
plastic				
Plasterboard, standard				
Main construction	12.5	0.2100	0.0595	100.00
			0.1000	
	Celotex FR5000 Main construction Main construction Corrections - Air Gap: Level 1, Fasteners: None or plastic Celotex FR5000 Main construction Corrections - Air Gap: Level 1, Fasteners: None or plastic Plasterboard, standard	Celotex FR5000 Main construction 100 Main construction 100 Corrections - Air Gap: Level 1, Fasteners: None or plastic Celotex FR5000 Main construction 50 Corrections - Air Gap: Level 1, Fasteners: None or plastic Plasterboard, standard	Celotex FR5000 Main construction 100 0.0210 Main construction 100 0.1300 Corrections - Air Gap: Level 1, Fasteners: None or plastic Celotex FR5000 Main construction 50 0.0210 Corrections - Air Gap: Level 1, Fasteners: None or plastic Plasterboard, standard	Celotex FR5000 Main construction 100 0.0210 4.7619 Main construction 100 0.1300 0.7692 Corrections - Air Gap: Level 1, Fasteners: None or plastic Celotex FR5000 Main construction 50 0.0210 2.3810 Corrections - Air Gap: Level 1, Fasteners: None or plastic Plasterboard, standard Main construction 12.5 0.2100 0.0595

Total resistance: Upper limit = 6.457 m² K/W Lower limit = 5.529 m² K/W Average = 5.993 m² K/W

 $\label{eq:correction} \textbf{Total correction} = \ 0.0039 \ \text{m}^2 \ \text{K/W} \qquad \qquad \textbf{U-value (unrounded)} = \ 0.17 \ \ \text{W/m}^2 \ \text{K}$

Unheated space: None

Total thickness: 214 mm U-value: 0.17 W/m² K Kappa: n/a





Property Reference	S17212				Issued on Date	17/10/2017
Survey Reference	Original			Prop Type Ref		
Project	New Dwelling, Horseshoe	Lane, Chadlin	igton, OX7 3NB	3		
Calculation Type	New Build (As Designed)					
SAP Rating		82 B	DER	12.55	TER	15.95
Environmental		87 B	% DER <ter< th=""><th></th><th>21.33</th><th></th></ter<>		21.33	
CO₂ Emissions (t/year)		3.01	DFEE	61.71	TFEE	65.78
General Requirements	Compliance	Pass	% DFEE <tfe< th=""><th>E</th><th>6.18</th><th></th></tfe<>	E	6.18	
Surveyor Malco	olm Lisle, Tel: 01142521995	5			Surveyor ID	8227-0002
Client						

Building Elements

Roof Plane Roof

Roof Type: Pitched Roof, insulated flat ceiling

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
Ext surface		, ,		0.0346	. ,
Layer 1	Tiling, clay				
	Main construction	1	1.0000	0.0009	100.00
Layer 2	Loft Space				
	Main construction	0	0.0600	0.0600	100.00
Layer 3	ROCKWOOL ROLL				
	Main construction	150	0.0440	3.4091	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or				
	plastic				
Layer 4	ROCKWOOL ROLL				
	Main construction	100	0.0440	2.2727	87.50
	Main construction	100	0.1300	0.7692	12.50
	Corrections - Air Gap: Level 1, Fasteners: None or				
	plastic				
Layer 5	Plasterboard, standard				
	Main construction	12.5	0.2100	0.0595	100.00
Int surface				0.1000	

Total resistance: Upper limit = 5.695 m² K/W Lower limit = 5.491 m² K/W Average = 5.593 m² K/W

Total correction = $0.0048 \text{ m}^2 \text{ K/W}$ U-value (unrounded) = $0.18 \text{ W/m}^2 \text{ K}$

Unheated space: None

Total thickness: 264 mm U-value: 0.18 W/m² K Kappa: n/a





Property Reference	S17212				Issued on Date	17/10/2017
Survey Reference	Original		Pro	p Type Ref		
Project	New Dwelling, Horseshoe	Lane, Chadlin	gton, OX7 3NB			
Calculation Type	New Build (As Designed)					
SAP Rating		82 B	DER	12.55	TER	15.95
Environmental		87 B	% DER <ter< th=""><th></th><th>21.33</th><th></th></ter<>		21.33	
CO ₂ Emissions (t/year)		3.01	DFEE	61.71	TFEE	65.78
General Requirements	Compliance	Pass	% DFEE <tfee< th=""><th></th><th>6.18</th><th></th></tfee<>		6.18	
Surveyor Malco	olm Lisle, Tel: 01142521995	;			Surveyor ID	8227-0002
Client						

Building Elements

Roof Flat Roof

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	Plywood				
	Main construction	22	0.1300	0.1692	100.00
Layer 2	Celotex FR5000				
	Main construction	100	0.0210	4.7619	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 3	Celotex FR5000				
	Main construction	40	0.0210	1.9048	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 4	Standard cavity				
	Main construction Corrections - Cavity Unventilated, Emissivity: Normal	150	0.9375	0.1600	100.00
Lavor E	Plasterboard, standard				
Layer 5	Main construction	12.5	0.2100	0.0595	100.00
Int surface				0.1000	

Total resistance: Upper limit = $7.195 \text{ m}^2 \text{ K/W}$ Lower limit = $7.195 \text{ m}^2 \text{ K/W}$ Average = $7.195 \text{ m}^2 \text{ K/W}$

Total correction = $0.0051 \text{ m}^2 \text{ K/W}$ U-value (unrounded) = $0.14 \text{ W/m}^2 \text{ K}$

Unheated space: None

Total thickness: 325 mm U-value: 0.14 W/m² K Kappa: n/a



Regs Region: England Elmhurst Energy Systems SAP2012 Calculator (Design System) version 4.04r08



Property Reference	S17212				Issued on Date	17/10/2017
Survey Reference	Original		Pro	p Type Ref		
Project	New Dwelling, Horseshoe	Lane, Chadlin	gton, OX7 3NB			
Calculation Type	New Build (As Designed)					
SAP Rating		82 B	DER	12.55	TER	15.95
Environmental		87 B	% DER <ter< th=""><th></th><th>21.33</th><th></th></ter<>		21.33	
CO ₂ Emissions (t/year)		3.01	DFEE	61.71	TFEE	65.78
General Requirements	Compliance	Pass	% DFEE <tfee< th=""><th></th><th>6.18</th><th></th></tfee<>		6.18	
Surveyor Malco	olm Lisle, Tel: 01142521995	5			Surveyor ID	8227-0002
Client						

Building Elements

Wall Main Cottage

Wall Type: Standard Wall

Layer	Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
Ext surface				0.1300	
Layer 1	Sandstone				
	Main construction	150	2.3000	0.0000	100.00
Layer 2	Standard cavity				
	Main construction	50	0.0000	0.0000	100.00
	Corrections - Cavity Ventilated, Emissivity: Normal				
Layer 3	Celotex CW4000				
	Main construction	100	0.0220	4.5455	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or				
	plastic				
ayer 4	Thermalite Turbo				
	Main construction	100	0.1100	0.9091	93.43
	Main construction	100	0.8803	0.1136	6.57
	Corrections - Air Gap: Level 1, Fasteners: None or				
_	plastic				
ayer 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				
ayer 6	Plasterboard, standard				
	Main construction	12.5	0.2100	0.0595	100.00
Int surface				0.1300	

Total resistance: Upper limit = 5.884 m² K/W Lower limit = 5.658 m² K/W Average = 5.771 m² K/W

Total correction = 0.0063 m² K/W U-value (unrounded) = 0.18 W/m² K

Unheated space: None

Total thickness: 428 mm U-value: 0.18 W/m² K Kappa: n/a





Property Reference	S17212				Issued on Date	17/10/2017
Survey Reference	Original		Pro	p Type Ref		
Project	New Dwelling, Horseshoe	Lane, Chadlin	gton, OX7 3NB			
Calculation Type	New Build (As Designed)					
SAP Rating		82 B	DER	12.55	TER	15.95
Environmental		87 B	% DER <ter< th=""><th></th><th>21.33</th><th></th></ter<>		21.33	
CO ₂ Emissions (t/year)		3.01	DFEE	61.71	TFEE	65.78
General Requirements	Compliance	Pass	% DFEE <tfee< th=""><th></th><th>6.18</th><th></th></tfee<>		6.18	
Surveyor Malco	olm Lisle, Tel: 01142521995	;			Surveyor ID	8227-0002
Client						

Building Elements

Wall Lower Cottage

Wall Type: Standard Wall

Layer	Description		Conductivity		
	200	(mm)	(W/m²K)	(m ² K/W)	(%)
Ext surface				0.1300	
Layer 1	Render - Cement and Sand				
	Main construction	20	1.0000	0.0000	100.00
Layer 2	Blockwork, medium				
	Main construction	100	0.5700	0.0000	93.43
	Main construction	100	0.8803	0.0000	6.57
Layer 3	Standard cavity				
	Main construction	50	0.0000	0.0000	100.00
	Corrections - Cavity Ventilated, Emissivity: Normal				
Layer 4	Celotex GA4000				
	Main construction	100	0.0220	4.5455	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or				
	plastic				
Layer 5	Thermalite Turbo				
	Main construction	100	0.1100	0.9091	93.43
	Main construction	100	0.8803	0.1136	6.57
	Corrections - Air Gap: Level 1, Fasteners: None or				
	plastic				
Layer 6	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 7	Plasterboard, standard				
	Main construction	12.5	0.2100	0.0595	100.00
Int surface				0.1300	

Unheated space: None

Total correction = 0.0063 m² K/W

Total thickness: 398 mm U-value: 0.18 W/m² K Kappa: n/a



U-value (unrounded) = 0.18 W/m² K



Property Reference	S17212				Issued on Date	17/10/2017
Survey Reference	Original		Pro	p Type Ref		
Project	New Dwelling, Horseshoe	Lane, Chadlin	gton, OX7 3NB			
Calculation Type	New Build (As Designed)					
SAP Rating		82 B	DER	12.55	TER	15.95
Environmental		87 B	% DER <ter< th=""><th></th><th>21.33</th><th></th></ter<>		21.33	
CO ₂ Emissions (t/year)		3.01	DFEE	61.71	TFEE	65.78
General Requirements	Compliance	Pass	% DFEE <tfee< th=""><th></th><th>6.18</th><th></th></tfee<>		6.18	
Surveyor Malco	olm Lisle, Tel: 01142521995	5			Surveyor ID	8227-0002
Client						

Building Elements

Wall Retaining Wall

Wall Type: Standard Wall

Description	Thickness (mm)	Conductivity (W/m ² K)	Resistance (m ² K/W)	Fraction (%)
			0.1300	
Blockwork, medium				
Main construction	100	0.5700	0.0000	93.43
Main construction	100	0.8803	0.0000	6.57
Standard cavity				
Main construction	50	0.0000	0.0000	100.00
Corrections - Cavity Ventilated, Emissivity: Normal				
Celotex CW4000				
Main construction	100	0.0220	4.5455	100.00
Corrections - Air Gap: Level 1, Fasteners: None or				
plastic				
Blockwork, medium				
Main construction	100	0.5700	0.1754	93.43
Main construction	100	0.8803	0.1136	6.57
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				
Plasterboard, standard				
Main construction	12.5	0.2100	0.0595	100.00
			0.1300	
	Blockwork, medium Main construction Standard cavity Main construction Corrections - Cavity Ventilated, Emissivity: Normal Celotex CW4000 Main construction Corrections - Air Gap: Level 1, Fasteners: None or plastic Blockwork, medium Main construction Main construction Main construction airspace/plaster dabs Main construction Main construction Corrections - Cavity Unventilated, Emissivity: Normal Plasterboard, standard	Blockwork, medium Main construction 100 Main construction 100 Standard cavity Main construction 50 Corrections - Cavity Ventilated, Emissivity: Normal Celotex CW4000 Main construction 100 Corrections - Air Gap: Level 1, Fasteners: None or plastic Blockwork, medium Main construction 100 Main construction 100 airspace/plaster dabs Main construction 15 Main construction 15 Corrections - Cavity Unventilated, Emissivity: Normal Plasterboard, standard	Blockwork, medium Main construction 100 0.5700 Main construction 50 0.0000 Corrections - Cavity Ventilated, Emissivity: Normal Celotex CW4000 Main construction 100 0.0220 Corrections - Air Gap: Level 1, Fasteners: None or plastic Blockwork, medium Main construction 100 0.5700 Main construction 100 0.5700 Main construction 100 0.8803 airspace/plaster dabs Main construction 15 0.0882 Corrections - Cavity Unventilated, Emissivity: Normal Plasterboard, standard	Main construction 100 0.5700 0.0000

Total resistance: Upper limit = 5.206 m² K/W Lower limit = 5.204 m² K/W Average = 5.205 m² K/W

Total correction = 0.0076 m² K/W U-value (unrounded) = 0.2 W/m² K

Unheated space: None

Total thickness: 378 mm U-value: 0.20 W/m² K Kappa: n/a





Property Reference	S17212				Issued on Date	17/10/2017	
Survey Reference	Original		Pro	p Type Ref			
Project	New Dwelling, Horseshoe	Lane, Chadlin	gton, OX7 3NB				
Calculation Type	New Build (As Designed)						
SAP Rating	82 B	DER	12.55	TER	15.95		
Environmental		87 B	% DER <ter< th=""><th></th><th>21.33</th><th></th></ter<>		21.33		
CO ₂ Emissions (t/year)		3.01	DFEE	61.71	TFEE	65.78	
General Requirements	Pass	% DFEE <tfee< th=""><th colspan="5">6.18</th></tfee<>	6.18				
Surveyor Malcolm Lisle, Tel: 01142521995 Surveyor ID 8227-00					8227-0002		
Client							

Building Elements

Floor Upper Ground Floor

Floor Type: Suspended Floor

Area = 39.35 m², Perimeter = 26.10 m, Wall thickness = 275.00 mm, Soil: Unknown

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

Floor height above ground:h = 0.200 m U-value of walls above ground:Uw = 1.500 m

Ventilation openings per perimeter length:e = 0.0015 %

Mean wind speed:v = 5.000 m/s

Resistance on solum:Rg = 0.000 m²K/W

Layer	Description	Thickness	Conductivity		Fraction
		(mm)	(W/m²K)	(m ² K/W)	(%)
Ext surface				0.1700	
ayer 1	Screed				
	Main construction	100	1.1500	0.0870	100.00
Layer 2	Celotex SL5000 (86mm +)				
	Main construction	86	0.0220	3.9091	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or				
	plastic				
ayer 3	Celotex SL5000 (56mm)				
	Main construction	56	0.0230	2.4348	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or				
	plastic				
Layer 4	Blockwork, dense				
	Main construction	100	1.5900	0.0629	100.00
Int surface				0.1700	

otal resistance: Upper limit = 6.834 m² K/W Lower limit = 6.834 m² K/W Average = 6.834 m² K/W

Total correction = $0.0045 \text{ m}^2 \text{ K/W}$ U-value (unrounded) = $0.13 \text{ W/m}^2 \text{ K}$

Unheated space: None

Total thickness: 342 mm U-value: 0.13 W/m² K Kappa: n/a





Property Reference	S17212				Issued on Date	17/10/2017		
Survey Reference	Original			Prop Type Ref				
Project	New Dwelling, Horseshoe	Lane, Chadlin	igton, OX7 3NB	3				
Calculation Type	New Build (As Designed)							
SAP Rating		82 B	DER	12.55	TER	15.95		
Environmental		87 B	% DER <ter< th=""><th></th><th>21.33</th><th></th></ter<>		21.33			
CO₂ Emissions (t/year)		3.01	DFEE	61.71	TFEE	65.78		
General Requirements	Compliance	Pass	% DFEE <tfe< th=""><th>E</th><th colspan="4">6.18</th></tfe<>	E	6.18			
Surveyor Malcolm Lisle, Tel: 01142521995				Surveyor ID 8227-0002				
Client								

Building Elements

Floor Lower Ground Floor

Floor Type: Slab On Ground Floor

Area = 148.02 m², Perimeter = 51.60 m, Wall thickness = 275.00 mm, Soil: Unknown

Horizontal edge insulation: none Vertical edge insulation: none

. c. a.ca. ca.g.	in out a state of the state of				
Layer	Description	Thickness	Conductivity	Resistance	Fraction
zaye.	2001.1011	(mm)	(W/m²K)	(m ² K/W)	(%)
Ext surface				0.0400	
Layer 1	Screed				
	Main construction	100	1.1500	0.0870	100.00
Layer 2	Celotex SL5000 (56mm)				
	Main construction	56	0.0230	2.4348	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or				
	plastic				
Layer 3	Celotex SL5000 (86mm +)				
	Main construction	86	0.0220	3.9091	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or				
	plastic				
Layer 4	Concrete, reinforced (2% steel)				
	Main construction	140	2.5000	0.0560	100.00
Int surface				0.1700	
Total resistance	e: Upper limit = 6.487 m ² K/W Lower limit =	= 6.487 m ²	K/W	Average =	6.487 m² K,
	Total correction = 0.0050 m ² K/W	U-value (ı	unrounded) =	0.12 W/m ²	K

Unheated space: None

Total thickness: 382 mm U-value: 0.12 W/m² K Kappa: n/a

