SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Designed)

Design SAP
elmhurst energy

Property Reference	S17212	**Issued on Date**	17/10/2017
Survey Reference	Original	**Prop Type Ref**	
Property	New Dwelling, Horseshoe Lane, Chadlington, OX7 3NB		

SAP Rating	82 B	**DER**	12.55	**TER**	15.95
Environmental	87 B	**% DER<TER**	21.33		
CO_2 Emissions (t/year)	3.01	**DFEE**	61.71	**TFEE**	65.78
General Requirements Compliance	Pass	**% DFEE<TFEE**	6.18		

Surveyor	Malcolm Lisle, Tel: 01142521995	**Surveyor ID**	8227-0002
Client			

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Orientation	North
Property Tenure	Unknown
Transaction Type	New dwelling
1.0 Property Type	House, Detached
2.0 Number of Storeys	2
3.0 Date Built	2017
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	51.60 m	148.02 m²	2.23 m
1st Storey:	47.20 m	121.15 m²	3.84 m

7.0 Living Area 102.66 m²

8.0 Thermal Mass Parameter Precise calculation

Thermal Mass 239.23 kJ/m²K

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area (m²)	Nett Area (m²)
Main Cottage	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	119.72	112.37
Lower Cottage	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	136.15	100.75
Retaining Wall	Cavity Wall	Cavity wall : plasterboard on dabs, dense block, filled cavity, any outside structure	0.20	150.00	12.20	11.40

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Internal - Insulating Block	Other	60.00	430.57

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area (m²)	Nett Area (m²)
Sloping Roof	External Slope Roof	Plasterboard, insulated slope	0.17	9.00	94.26	93.18
Plane Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.18	9.00	52.90	50.74
Flat Roof	External Flat Roof	Plasterboard, insulated flat roof	0.14	9.00	64.53	64.53

10.2 Internal Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Ceiling	Plasterboard ceiling, carpeted chipboard floor	9.00	81.62

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11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Upper Ground Floor	Ground Floor - Solid	Suspended concrete floor, carpeted	0.13	75.00	39.53
Lower Ground Floor	Ground Floor - Solid	Slab on ground, screed over insulation	0.12	110.00	148.02

11.2 Internal Floors

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor	Plasterboard ceiling, carpeted chipboard floor	18.00	81.62

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U Value (W/m²K)
Lower Cottage Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.45		0.70	1.44
Main Cottage Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.60
Solid Door	Manufacturer	Solid Door							1.47
Rooflights	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.60
Glazed Doors	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.60

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Windows	Window	[1] Main Cottage	North	None	0.00					1.20	
Windows	Window	[1] Main Cottage	East	None	0.00					2.82	
Windows	Window	[1] Main Cottage	South	None	0.00					1.44	
Front Door	Solid Door	[1] Main Cottage	North							1.89	
Windows	Window	[2] Lower Cottage	North	None	0.00					1.32	
Windows	Window	[2] Lower Cottage	South	None	0.00					0.90	
Windows	Window	[2] Lower Cottage	West	None	0.00					17.68	
Glazed Doors	Window	[2] Lower Cottage	West	None	0.00					15.50	
Workshop Window	Window	[3] Retaining Wall	South	None	0.00					0.80	
Rooflights	Roof Window	[1] Sloping Roof	East	None						1.08	
Rooflights	Roof Window	[2] Plane Roof	West	None						2.16	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

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Source Type	Bridge Type	Length	Psi	Imported
Independently assessed	E1 Steel lintel with perforated steel base plate	26.30	0.050	No
Table K1 - Approved	E3 Sill	18.30	0.040	No
Table K1 - Approved	E4 Jamb	56.80	0.050	No
Table K1 - Approved	E5 Ground floor (normal)	77.70	0.160	No
Table K1 - Approved	E6 Intermediate floor within a dwelling	21.10	0.070	No
Table K1 - Approved	E10 Eaves (insulation at ceiling level)	20.40	0.060	No
Table K1 - Approved	E11 Eaves (insulation at rafter level)	30.90	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	9.55	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	14.80	0.040	No
Table K1 - Default	E14 Flat roof	24.20	0.080	No
Table K1 - Approved	E16 Corner (normal)	29.10	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	18.20	-0.090	No
Table K1 - Default	R1 Head of roof window	2.70	0.080	No
Table K1 - Default	R2 Sill of roof window	2.70	0.060	No
Table K1 - Default	R3 Jamb of roof window	7.20	0.080	No
Table K1 - Default	R6 Flat ceiling	6.00	0.060	No

Y-value	0.043	W/m²K

18.0 Pressure Testing	Yes	
Designed q50	5.00	m³/m²/hr @ 50 Pa
Property Tested ?		
As Built q50		m³/m²/hr @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Windows fully open
Cross ventilation possible	Yes
Night Ventilation	Yes
Air change rate	8.00

Mechanical Ventilation

Mechanical Ventilation System Present	No

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0	0	0	0
Number of open flues	0	0	0	0
Number of intermittent fans				5
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting

Internal

Total number of light fittings	40	
Total number of L.E.L. fittings	40	
Percentage of L.E.L. fittings	100.00	%

External

External lights fitted	No	

23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	Database	
Description	Band A Gas Boiler	

Percentage of Heat	100	%
Database Ref. No.	16396	
Fuel Type	Mains gas	
Main Heating	BGB	
SAP Code	102	
In Winter	90.3	
In Summer	79.6	
Controls	CBI Time and temperature zone control	
PCDF Controls	0	
Delayed Start Stat	Yes	
Sap Code	2110	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heat Emitter	Underfloor	
Underfloor Heating	Yes - Pipes in thin screed	
Flow Temperature	Normal (> 45°C)	
25.0 Main Heating 2	None	
Community Heating	None	
27.0 Secondary Heating	RPP	
Secondary Heating	SAP table	
Description	Wood Pellets (in Bags) RPP Wood pellet Stove	
SHS efficiency	65.00	%
SAP Code	635	
HETAS Approved System	Yes	
Smoke Control Area	Unknown	
28.0 Water Heating	HWP From main heating 1	
Water Heating	Main Heating 1	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	901	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Foam	
Insulation Thickness	80 mm	
Cylinder Volume	300.00	L

Pipes insulation	Fully insulated primary pipework
31.0 Thermal Store	None
32.0 Photovoltaic Unit	One Dwelling

PV Cells kWp	Orientation	Elevation	Overshading	Connected to Dwelling
4.00	East	45°	Modest	No

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None