

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)



Property Reference	19-147 Oil Boiler	Issued on Date	11/09/2019
Assessment Reference	19-147	Prop Type Ref	Detached Dwelling
Property	Stove Online		

SAP Rating	75 C	DER	18.30	TER	17.42
Environmental	83 B	% DER<TER	-5.07		
CO₂ Emissions (t/year)	2.28	DFEE	49.75	TFEE	56.00
General Requirements Compliance	Fail	% DFEE<TFEE	11.16		

Assessor Details	Mr. William Simpson, Barlings Kwa Limited, Tel: 01522797344, william@barlingskwa.co.uk	Assessor ID	H077-0001
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Client	
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SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Bulk LPG		
Fuel factor	1.06 (LPG)		
Target Carbon Dioxide Emission Rate (TER)	17.42	kgCO ₂ /m ²	
Dwelling Carbon Dioxide Emission Rate (DER)	18.30	kgCO ₂ /m ²	
Excess emissions	0.88 (5.1%)	kgCO ₂ /m ²	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	56.00	kWh/m ² /yr	
Dwelling Fabric Energy Efficiency (DFEE)	49.75	kWh/m ² /yr	
	-6.2 (-11.1%)	kWh/m ² /yr	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.26 (max. 0.30)	0.26 (max. 0.70)	Pass
Floor	0.11 (max. 0.25)	0.11 (max. 0.70)	Pass
Roof	0.09 (max. 0.20)	0.09 (max. 0.35)	Pass
Openings	1.40 (max. 2.00)	1.40 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	4.00 (design value)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Boiler system with radiators or underfloor - Bulk LPG Data from database Worcester Greenstar CDi 27 CDi Combi boiler Efficiency: 90.4% SEDBUK2009 Minimum: 88.0%	Pass
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Secondary heating system

None

5 Cylinder insulation

Hot water storage

No cylinder

6 Controls

Space heating controls

Time and temperature zone control

Pass

Hot water controls

No cylinder

Boiler interlock

Yes

Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings

100

%

Minimum

75

%

Pass

8 Mechanical ventilation

Not applicable

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (East Pennines)

Not significant

Pass

Based on:

Overshading

Average

Windows facing North

9.13 m², No overhang

Windows facing East

1.30 m², No overhang

Windows facing South

9.66 m², No overhang

Windows facing West

3.26 m², No overhang

Air change rate

8.00 ach

Blinds/curtains

None

Criterion 4 – Building performance consistent with DER and DFEE rate

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals

4.00 (design value)

Maximum

10.0

Pass

10 Key features

Roof U-value

0.09

W/m²K

Floor U-value

0.11

W/m²K

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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Orientation	East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Suburban
1.0 Property Type	House, Detached
2.0 Number of Storeys	2
3.0 Date Built	2019
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:	35.41 m	69.19 m ²	2.40 m
1st Storey:	35.41 m	69.19 m ²	2.63 m

7.0 Living Area	52.83	m ²
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8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m ² K

9.0 External Walls

Description	Type	Construction	U-Value (W/m ² K)	Gross Area (m ²)	Nett Area (m ²)
External Wall	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.26	177.93	152.48

10.0 External Roofs

Description	Type	Construction	U-Value (W/m ² K)	Gross Area (m ²)	Nett Area (m ²)
Plane Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	69.19	69.19

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m ² K)	Area (m ²)
Ground Floor	Ground Floor - Solid	Slab on ground, screed over insulation	0.11	69.19

12.0 Opening Types

SUMMARY FOR INPUT DATA



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Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
Glazing	Manufacturer	Window	Double Low-E Hard 0.2			0.72		0.70	1.40
Door	Manufacturer	Half Glazed Door	Double Low-E Hard 0.2			0.72		0.70	1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m ²)	Curtain Closed
Front	Half Glazed Door	[1] External Wall	East							2.10	
Front	Window	[1] External Wall	East	None	0.00					1.30	
Rear	Window	[1] External Wall	West	None	0.00					3.26	
Side S	Window	[1] External Wall	South	None	0.00					9.66	
Side N	Window	[1] External Wall	North	None	0.00					9.13	

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	18.43	0.300	Yes
Independently assessed	E3 Sill	14.30	0.015	No
Independently assessed	E4 Jamb	38.90	0.010	Yes
Independently assessed	E5 Ground floor (normal)	35.41	0.097	Yes
Independently assessed	E6 Intermediate floor within a dwelling	35.41	0.000	Yes
Table K1 - Approved	E10 Eaves (insulation at ceiling level)	35.41	0.060	No
Independently assessed	E16 Corner (normal)	25.13	0.062	No
Independently assessed	E17 Corner (inverted – internal area greater than external area)	5.03	-0.106	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa

Property Tested ?

As Built AP₅₀ m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather

Cross ventilation possible

Night Ventilation

Air change rate

Mechanical Ventilation

Mechanical Ventilation System Present

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				3
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System

22.0 Lighting



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Internal

Total number of light fittings	32
Total number of L.E.L. fittings	32
Percentage of L.E.L. fittings	100.00

External

External lights fitted	Yes
Light and motion sensor	Yes

23.0 Electricity Tariff Standard

24.0 Main Heating 1	Database
Percentage of Heat	100
Database Ref. No.	15281
Fuel Type	Bulk LPG
Main Heating	BLW
SAP Code	104
In Winter	91.3
In Summer	81.2
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	Radiators
Flow Temperature	Normal (> 45°C)
Combi boiler type	Standard Combi
Combi keep hot type	None

25.0 Main Heating 2 None

Community Heating None

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 None

Recommendations

Lower cost measures

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None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating	£4,000 - £6,000	£61	C 78	
	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	B 85	