

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)



Property Reference	5163-SAP-BP-SOUTHCOTE LANE	Issued on Date	02/11/2021
Assessment Reference	001	Prop Type Ref	5163-SAP-BP-SOUTHCOTE LANE
Property	NEW DWELLING , 323, SOUTHCOTE LANE , READING , RG30 3BJ		
SAP Rating	85 B	DER	14.45
Environmental	87 B	TER	23.62
CO ₂ Emissions (t/year)	1.59	% DER<TER	38.81
General Requirements Compliance	Pass	DFEE	48.75
		TFEE	52.88
		% DFEE<TFEE	7.82
Assessor Details	Mr. Michael Andrews, Energy Saving Experts Ltd, Tel: 01225 862266, mike@energy-saving-experts.com		Assessor ID
			N388-0001
Client			

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	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.62	kgCO ₂ /m ²	
Dwelling Carbon Dioxide Emission Rate (DER)	14.45	kgCO ₂ /m ²	Pass
	-9.17 (-38.8%)	kgCO ₂ /m ²	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	52.88	kWh/m ² /yr	
Dwelling Fabric Energy Efficiency (DFEE)	48.75	kWh/m ² /yr	
	-4.2 (-7.9%)	kWh/m ² /yr	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.19 (max. 0.30)	0.19 (max. 0.70)	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Roof	0.13 (max. 0.20)	0.14 (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	5.00 (design value)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Heat pump with radiators or underfloor - Electric Vaillant aroTHERM 8kW VWL 85/3 A 230v	
Secondary heating system	None	

5 Cylinder insulation

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)



Hot water storage	Nominal cylinder loss: 1.95 kWh/day Permitted by DBSCG 2.24	Pass
Primary pipework insulated	Yes	Pass

6 Controls

Space heating controls	Time and temperature zone control	Pass
Hot water controls	Cylinderstat	Pass
	Independent timer for DHW	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 (Thames Valley)	Medium	Pass
Based on:		
Overshading	Average	
Windows facing North	6.22 m ² , No overhang	
Windows facing East	2.73 m ² , No overhang	
Windows facing South	18.33 m ² , No overhang	
Air change rate	4.00 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	5.00 (design value)	
Maximum	10.0	Pass

10 Key features

None	N/A
------	-----

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

SUMMARY FOR INPUT DATA

Calculation Type: New Build (As Designed)



Property Reference	5163-SAP-BP-SOUTHCOTE LANE				Issued on Date	02/11/2021
Assessment Reference	001	Prop Type Ref	5163-SAP-BP-SOUTHCOTE LANE			
Property	NEW DWELLING , 323, SOUTHCOTE LANE , READING , RG30 3BJ					
SAP Rating	85 B	DER	14.45	TER	23.62	
Environmental	87 B	% DER<TER	38.81			
CO ₂ Emissions (t/year)	1.59	DFEE	48.75	TFEE	52.88	
General Requirements Compliance	Pass	% DFEE<TFEE	7.82			
Assessor Details	Mr. Michael Andrews, Energy Saving Experts Ltd, Tel: 01225 862266, mike@energy-saving-experts.com				Assessor ID	N388-0001
Client						

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

Orientation	North
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	2021
4.0 Sheltered Sides	1
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	36.05 m	61.23 m ²	2.40 m
1st Storey:	36.05 m	61.23 m ²	2.51 m

7.0 Living Area	36.05	m ²
-----------------	-------	----------------

8.0 Thermal Mass Parameter	Simple calculation - Low	
Thermal Mass	100.00	kJ/m ² K

9.0 External Walls

Description	Type	U-Value (W/m ² K)	Gross Area (m ²)	Nett Area (m ²)
External Wall BRICK	Cavity Wall	0.19	74.63	53.45
External Wall RENDER	Cavity Wall	0.19	94.47	88.37

10.0 External Roofs

Description	Type	U-Value (W/m ² K)	Gross Area (m ²)	Nett Area (m ²)
External Roof INS AT CEILING	External Plane Roof	0.13	51.80	51.80
External Roof INS AT RAFTER	External Slope Roof	0.14	12.17	12.17

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m ² K)	Area (m ²)
Heat Loss Floor	Ground Floor - Solid		0.13	61.23

12.0 Opening Types

SUMMARY FOR INPUT DATA

Calculation Type: New Build (As Designed)



Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
GLAZED DOOR	Manufacturer	Window	Double Low-E Soft 0.1			0.63		0.70	1.40
BI FOLD DOORS	Manufacturer	Window	Double Low-E Soft 0.1			0.63		0.70	1.40
WINDOW	Manufacturer	Window	Double Low-E Soft 0.1			0.63		0.70	1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
EXD01	Window	[1] External Wall BRICK	North	None	0.00					1.74	
EXD02/3	Window	[1] External Wall BRICK	South	None	0.00					12.35	
EXD04	Window	[1] External Wall BRICK	East	None	0.00					1.95	
WG01	Window	[1] External Wall BRICK	North	None	0.00					1.54	
WG02	Window	[1] External Wall BRICK	North	None	0.00					0.70	
WG03/4	Window	[1] External Wall BRICK	South	None	0.00					2.90	
WF01	Window	[2] External Wall RENDER	North	None	0.00					1.54	
WF02	Window	[2] External Wall RENDER	North	None	0.00					0.70	
WF03/4	Window	[2] External Wall RENDER	South	None	0.00					3.08	
WF05	Window	[2] External Wall RENDER	East	None	0.00					0.78	

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)	15.85	0.300	Yes
Table K1 - Approved	E3 Sill	15.85	0.040	Yes
Table K1 - Approved	E4 Jamb	42.22	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	36.05	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	36.05	0.070	Yes
Table K1 - Approved	E10 Eaves (insulation at ceiling level)	16.47	0.060	No
Table K1 - Approved	E11 Eaves (insulation at rafter level)	3.59	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	10.10	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	6.78	0.040	No
Table K1 - Approved	E16 Corner (normal)	21.02	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	5.08	-0.090	No

Y-value	0.072	W/m²K
---------	------------------------------------	-------

18.0 Pressure Testing

Designed AP ₅₀	5.00	m³/(h.m²) @ 50 Pa
Property Tested ?		
As Built AP ₅₀		m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Windows half open
-----------------------------	--

SUMMARY FOR INPUT DATA

Calculation Type: New Build (As Designed)



Cross ventilation possible	Yes
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	No
---------------------------------------	----

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				4
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	14	
Total number of L.E.L. fittings	14	
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

Description	Database	
Percentage of Heat	ASHP TBC	%
Database Ref. No.	100	
Fuel Type	102615	
Main Heating	Electricity	
SAP Code	PET	
In Winter	224	
In Summer	325.6	
Controls	283.8	
PCDF Controls	CHD Time and temperature zone control	
Sap Code	0	
Is MHS Pumped	2207	
Heat Emitter	Pump in heated space	
Flow Temperature	Radiators	
	36° - 45°C	

25.0 Main Heating 2

None

Community Heating	None
-------------------	------

28.0 Water Heating

Water Heating	HWP From main heating 1
Flue Gas Heat Recovery System	Main Heating 1
Waste Water Heat Recovery	No
Instantaneous System 1	No

SUMMARY FOR INPUT DATA

Calculation Type: New Build (As Designed)



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
Immersion Only Heating Hot Water	No

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	200.00
Pipes insulation	Fully insulated primary pipework

31.0 Thermal Store	None
---------------------------	-----------------------------------

Recommendations

Lower cost measures

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	£99	B 87	
	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£357	A 95	

THERMAL BRIDGING

Calculation Type: New Build (As Designed)



Property Reference	5163-SAP-BP-SOUTHCOTE LANE	Issued on Date	02/11/2021
Assessment Reference	001	Prop Type Ref	5163-SAP-BP-SOUTHCOTE LANE
Property	NEW DWELLING , 323, SOUTHCOTE LANE , READING , RG30 3BJ		

SAP Rating	85 B	DER	14.45	TER	23.62
Environmental	87 B	% DER<TER	38.81		
CO ₂ Emissions (t/year)	1.59	DFEE	48.75	TFEE	52.88
General Requirements Compliance	Pass	% DFEE<TFEE	7.82		

Assessor Details	Mr. Michael Andrews, Energy Saving Experts Ltd, Tel: 01225 862266, mike@energy-saving-experts.com	Assessor ID	N388-0001
------------------	---	-------------	-----------

Client	
--------	--

	Junction detail	Source Type	Psi (W/mK)	Length (m)	Result	Reference
External wall	E2 Other lintels (including other steel lintels)	Table K1 - Approved	0.300	15.85	4.76	
External wall	E3 Sill	Table K1 - Approved	0.040	15.85	0.63	
External wall	E4 Jamb	Table K1 - Approved	0.050	42.22	2.11	
External wall	E5 Ground floor (normal)	Table K1 - Approved	0.160	36.05	5.77	
External wall	E6 Intermediate floor within a dwelling	Table K1 - Approved	0.070	36.05	2.52	
External wall	E10 Eaves (insulation at ceiling level)	Table K1 - Approved	0.060	16.47	0.99	
External wall	E11 Eaves (insulation at rafter level)	Table K1 - Approved	0.040	3.59	0.14	
External wall	E12 Gable (insulation at ceiling level)	Table K1 - Approved	0.240	10.10	2.42	
External wall	E13 Gable (insulation at rafter level)	Table K1 - Approved	0.040	6.78	0.27	
External wall	E16 Corner (normal)	Table K1 - Approved	0.090	21.02	1.89	
External wall	E17 Corner (inverted – internal area greater than external area)	Table K1 - Approved	-0.090	5.08	-0.46	

Total: **21.05** W/mK:
Y-Value: **0.072** W/m²K: