

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Tue 30 Jan 2024 11:57:27

Project Information			
Assessed By	Jack Castley	Building Type	House, Detached
OCDEA Registration	EES/028035	Assessment Date	2024-01-30

Dwelling Details			
Assessment Type	As designed	Total Floor Area	61 m ²
Site Reference	239 Barlow Moor Road	Plot Reference	Dwelling Proposed Boiler & PV
Address	239 Barlow Moor Road, Manchester		

Client Details	
Name	Rosie Tadman
Company	-
Address	239 Barlow Moor Road, Chorlton, M21 7QL

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Mains gas		
Target carbon dioxide emission rate	16.51 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	14.58 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	87.03 kWh _{PE} /m ²		
Dwelling primary energy	84.35 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	51.4 kWh/m ²		
Dwelling fabric energy efficiency	46.0 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	0.13	Heatloss Floor 1 (0.13)	OK
Roofs	0.16	0.11	Roof (1) (0.11)	OK
Windows, doors, and roof windows	1.6	1.18	Opening (1.2)	OK
Rooflights	2.2	1.7	Opening, South East (1.7)	OK

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	Net area [m ²]	U-Value [W/m ² K]
Exposed wall: Walls (1)	91.1	0.18
Ground floor: Heatloss Floor 1, Heatloss Floor 1	31.78	0.13
Exposed roof: Roof (1)	32.6	0.11
Exposed roof: Roof (2)	2.31	0.11

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
Opening, Opening Type 1	9.33	North West	0.7	1.2
Opening, Opening Type 1	11.14	South East	0.7	1.2
Opening, Opening Type 2	2.07	North West	N/A	1 (!)
Opening, Opening Type 3	1.1	South East	0.7	1.7
Opening, Opening Type 3	1.1	South West	0.7	1.7

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1 - Main Dwelling: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E1: Steel lintel with perforated steel base plate	Not government-approved scheme	0.01 (!)	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E3: Sill	Not government-approved scheme	0.013 (!)	
External wall	E4: Jamb	Not government-approved scheme	0.008 (!)	
External wall	E5: Ground floor (normal)	Not government-approved scheme	0.081	
External wall	E6: Intermediate floor within a dwelling	Not government-approved scheme	0 (!)	
External wall	E24: Eaves (insulation at ceiling level - inverted)	Not government-approved scheme	0.088	
External wall	E11: Eaves (insulation at rafter level)	Not government-approved scheme	-0.004 (!)	
External wall	E13: Gable (insulation at rafter level)	Not government-approved scheme	0.075	
External wall	E15: Flat roof with parapet	SAP table default	0.3	
External wall	E16: Corner (normal)	Not government-approved scheme	0.067	
External wall	E17: Corner (inverted - internal area greater than external area)	Not government-approved scheme	-0.117	
Roof	R1: Head of roof window	Not government-approved scheme	0.08	
Roof	R2: Sill of roof window	Not government-approved scheme	0.06	
Roof	R3: Jamb of roof window	Not government-approved scheme	0.08	
Roof	R4: Ridge (vaulted ceiling)	Not government-approved scheme	0.08	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	5 m ³ /hm ² , Design value	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Boiler with radiators or underfloor heating - Mains gas	
Efficiency	89.5%
Emitter type	Radiators
Flow temperature	55°C
System type	
Manufacturer	N/A
Model	N/A
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: N/A	
Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	
Waste water heat recovery system 1 - type: N/A	
Efficiency	
Manufacturer	
Model	

6 Controls		
Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services		
Function		
Ecodesign class		
Manufacturer		
Model		
Water heating - type: Cylinder thermostat and HW separately timed		
Manufacturer		
Model		
7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	79.8 lm/W	OK
External lights control	N/A	
8 Mechanical ventilation		
System type: N/A		
Maximum permitted specific fan power	N/A	
Specific fan power	N/A	N/A
Minimum permitted heat recovery efficiency	N/A	
Heat recovery efficiency	N/A	N/A
Manufacturer/Model		
Commissioning		
9 Local generation		
Technology type: Photovoltaic system (1)		
Peak power	0.68 kWp	
Orientation	South West	
Pitch	30°	
Overshading	Modest	
Manufacturer		
MCS certificate		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Summary for Input Data

Property Reference	239 Barlow Moor Road		Issued on Date	30/01/2024
Assessment Reference	Dwelling Proposed Boiler & PV	Prop Type Ref		
Property	239, Barlow Moor Road, Manchester			

SAP Rating	84 B	DER	14.58	TER	16.51
Environmental	89 B	% DER < TER			11.69
CO ₂ Emissions (t/year)	0.83	DFEE	46.02	TFEE	51.39
Compliance Check	See BREL	% DFEE < TFEE			10.45
% DPER < TPER	3.08	DPER	84.35	TPER	87.03

Assessor Details	Mr. Jack Castley	Assessor ID	BE88-0001
Client	E72, Rosie Tadman		

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

Orientation	Northwest
Property Tenture	ND
Transaction Type	6
Terrain Type	Suburban
1.0 Property Type	House, Detached
2.0 Number of Storeys	2
3.0 Date Built	2024
4.0 Sheltered Sides	4
5.0 Sunlight/Shade	Average or unknown
6.0 Thermal Mass Parameter	Precise calculation
7.0 Electricity Tariff	Standard
Smart electricity meter fitted	Yes
Smart gas meter fitted	Yes

7.0 Measurements	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	23.51 m	29.18 m ²	2.68 m
1st Storey:	22.00 m	31.78 m ²	2.33 m

8.0 Living Area	20.87	m ²
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9.0 External Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
	External Wall 1	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18	70.00	113.64	91.10	0.00	None	22.54	Enter Gross Area

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	Internal Wall 1	Dense block, dense plaster	100.00	103.23

10.0 External Roofs	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
	External Roof 1	External Slope Roof	Plasterboard, insulated slope	0.11	9.00	34.80	32.60	None	0.00	Enter Gross Area	2.20
	External Roof 2	External Flat Roof	Plasterboard, insulated flat roof	0.11	9.00	2.31	2.31	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings	Description	Storey	Construction	Area (m ²)
	Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	29.18

11.0 Heat Loss Floors	Description	Type	Storey Index	Construction	U-Value (W/m ² K)	Shelter Code	Shelter Factor	Kappa (kJ/m ² K)	Area (m ²)
	Heatloss Floor 1	Ground Floor - Solid	Lowest occupied	Slab on ground, screed over insulation	0.13	None	0.00	110.00	31.78

11.2 Internal Floors	Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)
	Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	29.18

Summary for Input Data

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Opening Type 1	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Opening Type 2	Manufacturer	Solid Door							1.00
Opening Type 3	Manufacturer	Roof Light	Double Low-E Soft 0.05			0.63		0.70	1.70

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Opening	Opening Type 1	External Wall 1	North West	9.33	
Opening	Opening Type 1	External Wall 1	South East	11.14	
Opening	Opening Type 2	External Wall 1	North West	2.07	
Opening	Opening Type 3	External Roof 1	South East	1.10	0
Opening	Opening Type 3	External Roof 1	South West	1.10	0

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	14.29	0.01	0.01	No
E3 Sill	Non Gov Approved Schemes	2.85	0.01	0.01	No
E4 Jamb	Non Gov Approved Schemes	38.06	0.01	0.01	No
E5 Ground floor (normal)	Non Gov Approved Schemes	23.51	0.08	0.08	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	29.18	0.00	0.00	No
E24 Eaves (insulation at ceiling level - inverted)	Non Gov Approved Schemes	5.63	0.09	0.09	No
E11 Eaves (insulation at rafter level)	Non Gov Approved Schemes	7.86	-0.00	-0.00	No
E13 Gable (insulation at rafter level)	Non Gov Approved Schemes	19.41	0.07	0.07	No
E15 Flat roof with parapet	Table K1 - Default	5.94	0.30	0.30	No
E16 Corner (normal)	Non Gov Approved Schemes	34.69	0.07	0.07	No
E17 Corner (inverted – internal area greater than external area)	Non Gov Approved Schemes	14.66	-0.12	-0.12	No
R1 Head of roof window	Non Gov Approved Schemes	1.66	0.08	0.08	No
R2 Sill of roof window	Non Gov Approved Schemes	1.66	0.06	0.06	No
R3 Jamb of roof window	Non Gov Approved Schemes	6.12	0.08	0.08	No
R4 Ridge (vaulted ceiling)	Non Gov Approved Schemes	8.95	0.08	0.08	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa

Test Method

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System

22.0 Lighting

No Fixed Lighting

Name	Efficacy	Power	Capacity	Count
Lighting 1	79.80	5	400	16

24.0 Main Heating 1

Percentage of Heat %

Fuel Type

SAP Code

In Winter

In Summer

Model Name

Manufacturer

Controls SAP Code

Delayed Start Stat

Burner Control

Summary for Input Data

Flue Type	None or Unknown
Fan Assisted Flue	No
Is MHS Pumped	Pump in heated space
Heating Pump Age	2013 or later
Heat Emitter	Radiators
Flow Temperature	Enter value
Flow Temperature Value	55.00
Boiler Interlock	Yes
Combi boiler type	Standard Combi
Combi keep hot type	None

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1									
Heat source 2									
Heat source 3									
Heat source 4									
Heat source 5									

28.0 Water Heating	
Water Heating	Main Heating 1
SAP Code	901
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
Cold Water Source	From mains
Bath Count	1

28.1 Showers							
Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To		

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None
In Airing Cupboard	No

32.0 Photovoltaic Unit	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.68	South West	30°	Modest		No	0.80		

34.0 Small-scale Hydro	None											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

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	

B 84
0
0

B 91
0
0

Overview Report

Dwelling Address	239, Barlow Moor Road, Manchester
Report Date	30/01/2024
Property Type	House, Detached
Floor Area [m ²]	61

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Rating

The current energy rating represents the overall energy efficiency of the dwelling. The potential energy rating is the overall energy rating of the dwelling after all of the recommend measures provided on the next page have been installed. A higher score represents a more energy efficient dwelling with lower fuel bills.

Most energy efficient - lower running costs

CURRENT

POTENTIAL

(92 plus)

A

(81-91)

B

(69-80)

C

(55-68)

D

(39-54)

E

(21-38)

F

(1-20)

G

84

84

Least energy efficient - higher running costs

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good
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Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m ² K	Very Good
Roof	Average thermal transmittance 0.11 W/m ² K	Very Good
Floor	Average thermal transmittance 0.13 W/m ² K	Very Good
Windows	High performance glazing	Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Very Good
Lighting	Good lighting efficiency	Good
Air tightness	Air permeability [AP50] = 5.0 m ³ /h.m ² (assumed)	Good

Primary Energy use

The primary energy use for this property per year is 79 kilowatt hour (kWh) per square metre

Estimated CO₂ emissions of the dwelling

The estimated CO rating provides an indication of the dwelling's impact on the environment in terms of carbon dioxide emissions; the higher the rating the less impact it has on the environment.

The estimated CO emissions for this dwellings is: **0.8** per year

Overview Report

With the recommended measures the potential CO emissions could be: **0.0** per year

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling. To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed. Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measure	Typical Yearly Saving	Potential Rating after measure installed	Cumulative savings (per year)	Cumulative Potential Rating
Solar water heating		 0	£14	 B 84
Photovoltaic		 -84	£448	 G 0

Estimated energy use and potential savings

Estimated energy cost for
this property over a year

£435

Over a year you could
save

£0

The estimated cost and savings show how much the average household would spend in this property for heating, lighting and hot water. It is not based on how energy is used by the people living at the property.

Contacting the assessor and the accreditation scheme

Overview Report

Assessor contact details

Assessor name	Mr. Jack Castley
Assessor's accreditation number	
Email Address	

Accreditation scheme contact details

Accreditation scheme	
Telephone	
Email Address	

Assessment details

Related party disclosure	
Date of assessment	30/01/2024
Date of certificate	30/01/2024
Type of assessment	SAP, new dwelling