

# Building Regulations England Part L (BREL) Compliance Report

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

Date: Mon 10 Jun 2024 09:25:46

Project Information			
Assessed By	Demi Beneke	Building Type	House, End-terrace
OCDEA Registration	EES/027264	Assessment Date	2024-06-10

Dwelling Details			
Assessment Type	As designed	Total Floor Area	84 m <sup>2</sup>
Site Reference	Plot 25	Plot Reference	Plot 25
Address			

Client Details			
Name	AJC		
Company	AJC		
Address	4 Joshuas Vista, Poole, BH14 8HA		

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	Electricity		
Target carbon dioxide emission rate	11.15 kgCO <sub>2</sub> /m <sup>2</sup>		
Dwelling carbon dioxide emission rate	4.17 kgCO <sub>2</sub> /m <sup>2</sup>	OK	
1b Target primary energy rate and dwelling primary energy			
Target primary energy	58.16 kWh <sub>PE</sub> /m <sup>2</sup>		
Dwelling primary energy	47.07 kWh <sub>PE</sub> /m <sup>2</sup>	OK	
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	36.8 kWh/m <sup>2</sup>		
Dwelling fabric energy efficiency	33.3 kWh/m <sup>2</sup>	OK	

2a Fabric U-values				
Element	Maximum permitted average U-value [W/m <sup>2</sup> K]	Dwelling average U-Value [W/m <sup>2</sup> K]	Element with highest individual U-Value	
External walls	0.26	0.18	Walls (1) (0.18)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	0.12	Ground Floor (0.12)	OK
Roofs	0.16	0.11	Roof (1) (0.11)	OK
Windows, doors, and roof windows	1.6	1.29	W1 (1.3)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))			
Name	Net area [m <sup>2</sup> ]	U-Value [W/m <sup>2</sup> K]	
Exposed wall: Walls (1)	77.469195	0.18	
Party wall: Party Wall (1)	43.06	0 (!)	
Ground floor: Ground Floor, Ground Floor	42.05	0.12	
Exposed roof: Roof (1)	42.05	0.11	

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m <sup>2</sup> ]	Orientation	Frame factor	U-Value [W/m <sup>2</sup> K]
D1, Door	2.15853	North East	N/A	1.2
W1, Windows	0.2806	North East	1.0	1.3
W2, Windows	1.60368	North East	1.0	1.3
W4, Windows	0.7261	North West	1.0	1.3
W6, Windows	0.7261	South West	1.0	1.3
W7, Windows	4.29385	South West	1.0	1.3
W8, Windows	3.193225	North East	1.0	1.3
W9, Windows	0.7261	North West	1.0	1.3
W10, Windows	1.602395	South West	1.0	1.3
W11, Windows	0.880225	South West	1.0	1.3

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	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.02 (!)	RCD
External wall	E3: Sill	Calculated by person with suitable expertise	0.023 (!)	RCD
External wall	E4: Jamb	Calculated by person with suitable expertise	0.018 (!)	RCD
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.031 (!)	K
External wall	E6: Intermediate floor within a dwelling	Calculated by person with suitable expertise	0.001 (!)	- RCD
External wall	E10: Eaves (insulation at ceiling level)	Calculated by person with suitable expertise	0.055	RCD
External wall	E12: Gable (insulation at ceiling level)	Calculated by person with suitable expertise	0.037 (!)	RCD
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.04	RCD
External wall	E18: Party wall between dwellings	Calculated by person with suitable expertise	0.029 (!)	K
Party wall	P1: Ground floor	Calculated by person with suitable expertise	0.043	- RCD
Party wall	P2: Intermediate floor within a dwelling	SAP table default	0 (!)	
Party wall	P4: Roof (insulation at ceiling level)	Calculated by person with suitable expertise	0.033 (!)	RCD

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

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

### 4 Space heating

<b>Main heating system 1:</b> Room heaters - Electricity	
Efficiency	100.0%
Emitter type	
Flow temperature	
System type	Panel, convector or radiant heaters
Manufacturer	
Model	
Commissioning	
<b>Main heating system 2:</b> Heat pump with radiators or underfloor heating - Electricity	
Efficiency	0.0%
Emitter type	
Flow temperature	
System type	Heat Pump
Manufacturer	GDC Group Ltd
Model	EDL200UK-630
Commissioning	

### Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

### 5 Hot water

<b>Cylinder/store</b> - type: N/A	
Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	

<b>Waste water heat recovery system 1</b> - type: N/A		
Efficiency		
Manufacturer		
Model		
<b>6 Controls</b>		
<b>Main heating 1</b> - type: Programmer and appliance thermostats		
Function		
Ecodesign class		
Manufacturer		
Model		
<b>Main heating 2</b> - type: Not applicable		
Function		
Ecodesign class		
Manufacturer		
Model		
<b>Water heating</b> - type: N/A		
Manufacturer		
Model		
<b>7 Lighting</b>		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	80 lm/W	OK
External lights control	N/A	
<b>8 Mechanical ventilation</b>		
<b>System type:</b> N/A		
Maximum permitted specific fan power	N/A	
Specific fan power	N/A	
Minimum permitted heat recovery efficiency	N/A	
Heat recovery efficiency	N/A	N/A
Manufacturer/Model		
Commissioning		
<b>9 Local generation</b>		
<b>Technology type: Photovoltaic system (1)</b>		
Peak power	1.5 kWp	
Orientation	South West	
Pitch	45°	
Overshading	None or very little	
Manufacturer		
MCS certificate		
<b>10 Heat networks</b>		
N/A		
<b>11 Supporting documentary evidence</b>		
N/A		
<b>12 Declarations</b>		
<b>a. Assessor Declaration</b>		
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>b. Client Declaration</b>		
N/A		



# Summary for Input Data



Property Reference	Plot 25	Issued on Date	10/06/2024
Assessment Reference	Plot 25	Prop Type Ref	
Property			
SAP Rating	83 B	DER	4.17
Environmental	97 A	% DER < TER	11.15
CO <sub>2</sub> Emissions (t/year)	0.24	DFEE	33.34
Compliance Check	See BREL	% DFEE < TFEE	62.60
% DPER < TPER	19.07	DPER	47.07
TPER	58.16		

Assessor Details	Ms. Demi Beneke	Assessor ID	AV37-0001
Client			

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

Orientation	Northeast
Property Tenure	ND
Transaction Type	6
Terrain Type	Suburban
1.0 Property Type	House, End-Terrace
Which Floor	0
2.0 Number of Storeys	2
3.0 Date Built	2024
3.0 Property Age Band	L
4.0 Sheltered Sides	1
5.0 Sunlight/Shade	Average or unknown
6.0 Thermal Mass Parameter	Precise calculation
Thermal Mass	N/A
	kJ/m <sup>2</sup> K
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
Basement:		0.00 m	0.00 m <sup>2</sup>	0.00 m
Ground floor:		18.40 m	42.05 m <sup>2</sup>	2.42 m
1st Storey:		18.40 m	42.05 m <sup>2</sup>	2.67 m
2nd Storey:		0.00 m	0.00 m <sup>2</sup>	0.00 m
3rd Storey:		0.00 m	0.00 m <sup>2</sup>	0.00 m
4th Storey:		0.00 m	0.00 m <sup>2</sup>	0.00 m
5th Storey:		0.00 m	0.00 m <sup>2</sup>	0.00 m
6th Storey:		0.00 m	0.00 m <sup>2</sup>	0.00 m
7th Storey:		0.00 m	0.00 m <sup>2</sup>	0.00 m

8.0 Living Area	16.43	m <sup>2</sup>
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9.0 External Walls		Construction	U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m <sup>2</sup> K)	Gross Area(m <sup>2</sup> )	Nett Area (m <sup>2</sup> )	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall		Cavity Wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	93.66	77.47	0.00	None	16.19	Enter Gross Area

9.1 Party Walls		Construction	U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m <sup>2</sup> K)	Area (m <sup>2</sup> )	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs on both sides, dense blocks, cavity or cavity fill	0.00	70.00	43.06	0.00	None

9.2 Internal Walls		Construction	Kappa (kJ/m <sup>2</sup> K)	Area (m <sup>2</sup> )
Internal Wall		Plasterboard on timber frame	9.00	164.99

10.0 External Roofs		Construction	U-Value (W/m <sup>2</sup> K)	Kappa (kJ/m <sup>2</sup> K)	Gross Area(m <sup>2</sup> )	Nett Area	Shelter Code	Shelter Factor	Calulation	Openings Type
Description										

# Summary for Input Data

Plain Ceiling	External Plane Roof	Plasterboard, insulated at ceiling level	0.11	9.00	42.05	42.05	(m <sup>2</sup> )	None	0.00	Enter Gross Area	0.00						
<b>10.2 Internal Ceilings</b>																	
Description	Storey	Construction									Area (m <sup>2</sup> )						
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor									42.05						
<b>11.0 Heat Loss Floors</b>																	
Description	Type	Storey Index	Construction	U-Value (W/m <sup>2</sup> K)	Shelter Code	Shelter Factor	Kappa (kJ/m <sup>2</sup> K)	Area (m <sup>2</sup> )									
Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	42.05									
<b>11.2 Internal Floors</b>																	
Description	Storey Index	Construction									Kappa (kJ/m <sup>2</sup> K) Area (m <sup>2</sup> )						
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor									9.00 42.05						
<b>12.0 Opening Types</b>																	
Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m <sup>2</sup> K)								
Door Windows	Manufacturer BFRC, BSI or CERTASS data	Solid Door Window	Double Low-E Soft 0.05		Air Filled	0.00	Wood	0.70	1.20								
					Air Filled	0.45	Wood	1.00	1.30								
<b>13.0 Openings</b>																	
Name	Opening Type	Location	Orientation	Area (m <sup>2</sup> )							Pitch						
D1	Door	External Wall	North East	2.16							0						
W1	Windows	External Wall	North East	0.28							0						
W2	Windows	External Wall	North East	1.60							0						
W4	Windows	External Wall	North West	0.73							0						
W6	Windows	External Wall	South West	0.73							0						
W7	Windows	External Wall	South West	4.29							0						
W8	Windows	External Wall	North East	3.19							0						
W9	Windows	External Wall	North West	0.73							0						
W10	Windows	External Wall	South West	1.60							0						
W11	Windows	External Wall	South West	0.88							0						
<b>14.0 Conservatory</b>																	
None																	
<b>15.0 Draught Proofing</b>																	
100 %																	
<b>16.0 Draught Lobby</b>																	
No																	
<b>17.0 Thermal Bridging</b>																	
Calculate Bridges																	
<b>17.1 List of Bridges</b>																	
Bridge Type																	
E2 Other lintels (including other steel lintels)																	
E3 Sill																	
E4 Jamb																	
E5 Ground floor (normal)																	
E6 Intermediate floor within a dwelling																	
E10 Eaves (insulation at ceiling level)																	
E12 Gable (insulation at ceiling level)																	
E16 Corner (normal)																	
E18 Party wall between dwellings																	
P1 Party wall - Ground floor																	
P2 Party wall - Intermediate floor within a dwelling																	
P4 Party wall - Roof (insulation at ceiling level)																	
Source Type																	
Independently assessed																	
11.24																	
0.02																	
Length																	
11.24																	
Psi																	
0.02																	
Adjusted Reference:																	
RCD																	
Imported																	
No																	
Y-value																	
0.02																	
W/m <sup>2</sup> K																	
<b>18.0 Pressure Testing</b>																	
Yes																	
Designed AP <sub>50</sub>																	
5.00																	
m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa																	
Property Tested?																	
Yes																	
Test Method																	
Blower Door																	
<b>19.0 Mechanical Ventilation</b>																	
<b>Mechanical Ventilation</b>																	
Mechanical Ventilation System Present																	
No																	
<b>20.0 Fans, Open Fireplaces, Flues</b>																	
No																	
<b>21.0 Fixed Cooling System</b>																	
No																	
<b>22.0 Lighting</b>																	
No Fixed Lighting																	
Name																	
Lighting																	
Efficacy																	
80.00																	
Power																	
25																	
Capacity																	
2000																	
Count																	
10																	

# Summary for Input Data

## 24.0 Main Heating 1

Percentage of Heat	SAP table	
	100.00	%
Database Ref. No.	0	
Fuel Type	Electricity	
SAP Code	691	
In Winter	100.00	
In Summer	336.63	
Controls SAP Code	2603	
Delayed Start Stat	No	
HETAS approved System	No	
Oil Pump Inside	No	
Fan Assisted Flue	No	
Boiler Interlock	No	

## 25.0 Main Heating 2

Percentage of Heat	Database	
	0.00	%
Database Ref. No.	190006	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	336.63	
Model Name	EDL200UK-630	
Manufacturer	GDC Group Ltd	
Controls	2100	
Delayed Start Stat	No	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Flow Temperature	Enter value	

## 26.0 Heat Networks

None

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

## 28.0 Water Heating

Water Heating	Main Heating 2
SAP Code	914
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
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1

# Summary for Input Data

Supplementary Immersion	No
Immersion Only Heating Hot Water	No

## 28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Bath	Combi boiler or unvented hot water system	10.00		No	

## 28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	Internal Store
Cylinder Stat	No
Cylinder In Heated Space	No
Independent Time Control	No
Insulation Type	Measured Loss
Cylinder Volume	201.00
Loss	1.61
In Airing Cupboard	No

31.0 Thermal Store	None
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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
1.50	South West	45°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro	None
Electricity Generated	0.00
Apportioned	0.00
Connected to dwelling's electricity meter	Yes
Electricity Generation	Annual

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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## Recommendations

### Lower cost measures

None

### Further measures to achieve even higher standards

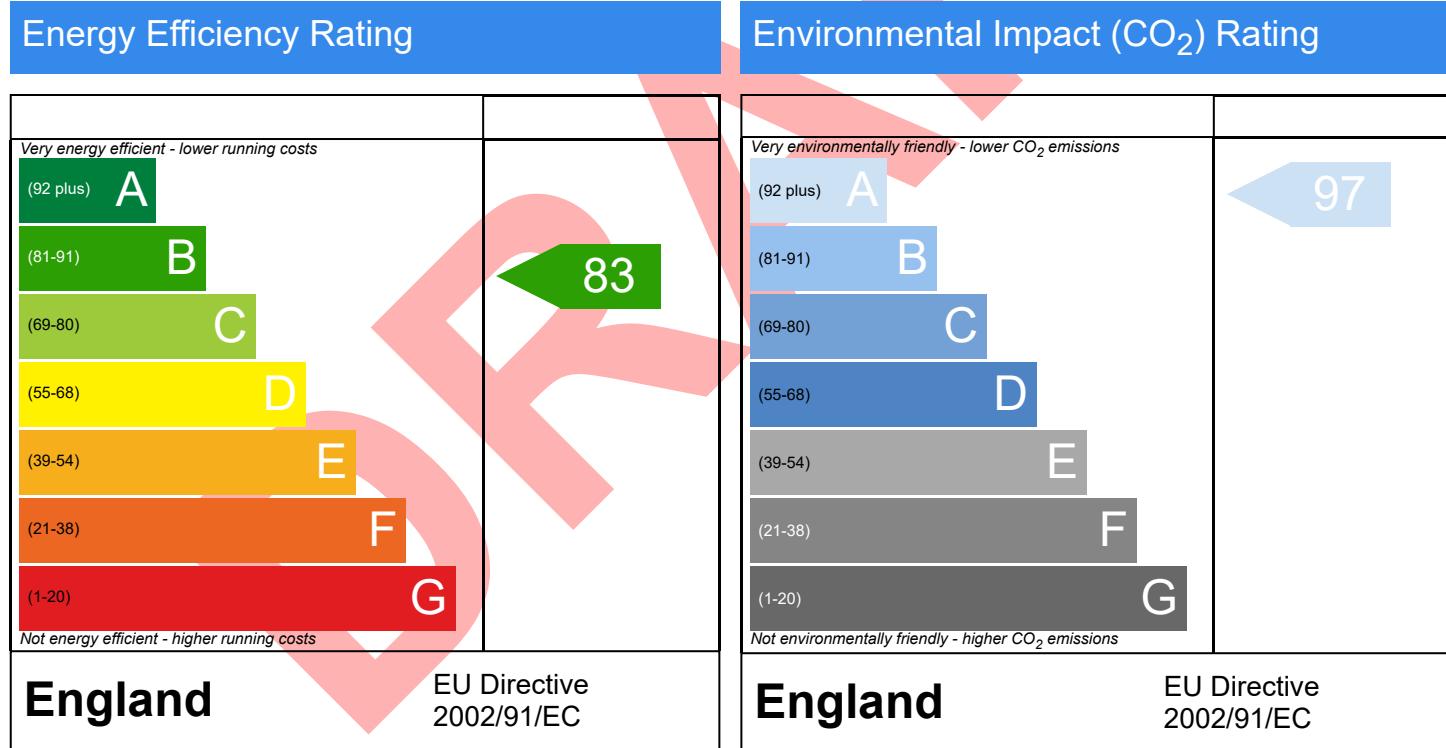
None

# Predicted Energy Assessment

Dwelling type: House, End-Terrace  
Date of assessment: 10/06/2024  
Produced by: Demi Beneke  
Total floor area: 84.1 m<sup>2</sup>  
DRRN:

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO<sub>2</sub>) emissions.



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO<sub>2</sub>) emissions. The higher the rating the less impact it has on the environment.