

Building Regulations England Part L (BREL) Compliance Report

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

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Project Information			
Assessed By	Chitra Deshpande	Building Type	House, Detached
OCDEA Registration	EES/030051	Assessment Date	2024-11-18

Dwelling Details			
Assessment Type	As designed	Total Floor Area	236 m ²
Site Reference	Proposed House	Plot Reference	Revised Design
Address	Warren Creek Caversham, Reading, RG4 7TQ		

Client Details	
Name	Mr R Arnold
Company	NA
Address	Warren Creek, Caversham, Reading, RG4 7TQ

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	8.38 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	0.53 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	44.32 kWh _{PE} /m ²		
Dwelling primary energy	7.68 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	41.9 kWh/m ²		
Dwelling fabric energy efficiency	41.6 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	0.14	Walls (1) (0.14)	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	0.81	Front Door (1)	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 ²]	U-Value [W/m ² K]
Exposed wall: Walls (1)	195.175226	0.14 (!)
Upper floor: Heatloss Floor 1, Heatloss Floor 1	117.8	0.13
Exposed roof: Roof (1)	117.96	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]
North Windows, Windows	0.987	North	0.7	0.8 (!)
North Windows, Windows	3.15	North	0.7	0.8 (!)
North Windows, Windows	3.15	North	0.7	0.8 (!)
North Windows, Windows	1.6638	North	0.7	0.8 (!)
North Windows, Windows	0.914166	North	0.7	0.8 (!)
North Windows, Windows	0.914166	North	0.7	0.8 (!)
North Windows, Windows	2.94	North	0.7	0.8 (!)
North Windows, Windows	2.94	North	0.7	0.8 (!)
Front Door, Solid Door	2.156382	North	N/A	1 (!)
Utility Door , Glazed Doors	2.3256	North	0.7	0.8 (!)
South Windows, Windows	0.987	South	0.7	0.8 (!)
South Windows, Windows	0.987	South	0.7	0.8 (!)
South Windows, Windows	1.6638	South	0.7	0.8 (!)
Rear Glazed Doors, Glazed Doors	6.83544	South	0.7	0.8 (!)

Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
Rear Glazed Doors, Glazed Doors	6.83544	South	0.7	0.8 (!)
Rear Glazed Doors, Glazed Doors	5.996	South	0.7	0.8 (!)
Rear Glazed Doors, Glazed Doors	5.996	South	0.7	0.8 (!)
West openings, Windows	2.41674	West	0.7	0.8 (!)
West openings, Windows	2.41674	West	0.7	0.8 (!)
East Windows , Windows	0.3525	East	0.7	0.8 (!)
East Windows , Windows	0.987	East	0.7	0.8 (!)

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	0.306	
External wall	E3: Sill	Not government-approved scheme	0.016 (!)	
External wall	E4: Jamb	Not government-approved scheme	0.017 (!)	
External wall	E5: Ground floor (normal)	Not government-approved scheme	0.062	
External wall	E6: Intermediate floor within a dwelling	Not government-approved scheme	0 (!)	
External wall	E16: Corner (normal)	Not government-approved scheme	0.035 (!)	
External wall	E10: Eaves (insulation at ceiling level)	Not government-approved scheme	0.51	

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	4 m ³ /hm ² , Design value	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Heat pump with radiators or underfloor heating - Electricity

Efficiency	227.2%
Emitter type	Both radiators and underfloor
Flow temperature	55°C
System type	Heat Pump
Manufacturer	NIBE Energy Systems Ltd
Model	S2125
Commissioning	

Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: Cylinder

Capacity	300 litres
Declared heat loss	2.018 kWh/day
Primary pipework insulated	Yes
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: N/A		
Manufacturer		
Model		
7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	85 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	8 kWp	
Orientation	South	
Pitch	45°	
Overshading	None or very little	
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		