

# Building Regulations England Part L (BREL) Compliance Report

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

Date: Mon 26 Feb 2024 12:55:24

Project Information			
Assessed By	Benjamin Marsh	Building Type	House, Detached
OCDEA Registration	EES/014806	Assessment Date	2024-02-26

Dwelling Details			
Assessment Type	As designed	Total Floor Area	414 m <sup>2</sup>
Site Reference	Plot 1	Plot Reference	Plot 1
Address	Higher Churchtown Farm Plot 1 Tresmeer, Launceston, PL15 8QT		

Client Details	
Name	Client
Company	Company
Address	Address, Town, AA11 1AA

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	7.96 kgCO <sub>2</sub> /m <sup>2</sup>	
Dwelling carbon dioxide emission rate	0.33 kgCO <sub>2</sub> /m <sup>2</sup>	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	42.83 kWh <sub>PE</sub> /m <sup>2</sup>	
Dwelling primary energy	4.48 kWh <sub>PE</sub> /m <sup>2</sup>	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	45.0 kWh/m <sup>2</sup>	
Dwelling fabric energy efficiency	37.8 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	0.15	Walls (1) (0.15)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	0.12	Heatloss Floor 1 (0.12)	OK
Roofs	0.16	0.09	Roof (1) (0.09)	OK
Windows, doors, and roof windows	1.6	1.2	South West (1.2)	OK
Rooflights	2.2	1.2	North West, North West (1.2)	OK

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)	350.79	0.15
Ground floor: Heatloss Floor 1, Heatloss Floor 1	202.39	0.12
Exposed roof: Roof (1)	260.48	0.09 (!)
Exposed roof: Roof (2)	10.44	0.09 (!)

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]
South West, Windows	30.54	South West	0.8	1.2
North West, Windows	18.91	North West	0.8	1.2
North West, Solid Door	2.02	North West	N/A	1.2
North West, Roof Light	2.82	North West	0.8	1.2
North East, Windows	37.29	North East	0.8	1.2
South East, Windows	39.87	South East	0.8	1.2
South East, Roof Light	8.15	South East	0.8	1.2

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	0.019 (!)	
External wall	E3: Sill	Calculated by person with suitable expertise	0.016 (!)	
External wall	E4: Jamb	Calculated by person with suitable expertise	0.018 (!)	
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.054	
External wall	E6: Intermediate floor within a dwelling	Calculated by person with suitable expertise	0.008 (!)	
External wall	E11: Eaves (insulation at rafter level)	Calculated by person with suitable expertise	0.052	
External wall	E13: Gable (insulation at rafter level)	Calculated by person with suitable expertise	0.056	
External wall	E14: Flat roof	Calculated by person with suitable expertise	0.046	
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.04	
External wall	E17: Corner (inverted - internal area greater than external area)	Calculated by person with suitable expertise	-0.068	

### 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	3 m <sup>3</sup> /hm <sup>2</sup> , Design value (!)	OK
Air permeability test certificate reference		

### 4 Space heating

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

Efficiency	451.4%
Emitter type	Radiators
Flow temperature	35°C
System type	Heat Pump
Manufacturer	Vaillant Group UK Ltd
Model	aroTHERM plus 10kW & AI
Commissioning	

#### Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

### 5 Hot water

#### Cylinder/store - type: Cylinder

Capacity	188 litres
Declared heat loss	1.191 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: Cylinder thermostat and HW separately timed

Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	100 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
<b>System type:</b> Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	1.08 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	86%	OK
Manufacturer/Model	HRV4 Q Plus Eco	
Commissioning		

9 Local generation		
Technology type: <b>Photovoltaic system (1)</b>		
Peak power	7 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		
<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		