

# Building Regulations England Part L (BREL) Compliance Report

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

Date: Thu 22 Feb 2024 11:07:28

Project Information			
Assessed By	Faye Mitchell	Building Type	House, Detached
OCDEA Registration	EES/023209	Assessment Date	2024-02-22

Dwelling Details			
Assessment Type	As designed	Total Floor Area	368 m <sup>2</sup>
Site Reference	Maple Tree	Plot Reference	Design Stage ASHP + PV
Address	Maple Tree Woodlands Drive, East Horsley, KT24 5AN		

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	7.63 kgCO <sub>2</sub> /m <sup>2</sup>		
Dwelling carbon dioxide emission rate	1.13 kgCO <sub>2</sub> /m <sup>2</sup>	OK	
1b Target primary energy rate and dwelling primary energy			
Target primary energy	40.53 kWh <sub>PE</sub> /m <sup>2</sup>		
Dwelling primary energy	15.88 kWh <sub>PE</sub> /m <sup>2</sup>	OK	
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	40.0 kWh/m <sup>2</sup>		
Dwelling fabric energy efficiency	35.3 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	0.15	Walls (2) (0.16)	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	0.11	Roof (1) (0.11)	OK
Windows, doors, and roof windows	1.6	1.02	D1 (1.2)	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)	338.5204	0.15
Exposed wall: Walls (2)	4.71	0.16
Ground floor: Heatloss Floor 1, Heatloss Floor 1	155.83	0.12
Exposed roof: Roof (1)	55.938	0.11
Exposed roof: Roof (2)	47.76	0.11
Exposed roof: Roof (3)	1.75	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, Front Door	2.04	East	N/A	1.2
East Windows, Windows	3.9	East	0.7	1 (!)
East Windows, Windows	3.9	East	0.7	1 (!)
East Windows, Windows	0.936	East	0.7	1 (!)
East Windows, Windows	0.936	East	0.7	1 (!)
East Windows, Windows	3.38	East	0.7	1 (!)
East Windows, Windows	3.38	East	0.7	1 (!)
East Windows, Windows	3.276	East	0.7	1 (!)
East Velux, Velux	0.9604	East	0.7	1.2
East Velux, Velux	0.9604	East	0.7	1.2
West Windows, Windows	0.858	West	0.7	1 (!)

Name	Area [m <sup>2</sup> ]	Orientation	Frame factor	U-Value [W/m <sup>2</sup> K]
West Windows, Windows	0.858	West	0.7	1 (!)
West Windows, Windows	3.195	West	0.7	1 (!)
West Windows, Windows	9.7875	West	0.7	1 (!)
West Windows, Windows	3.51	West	0.7	1 (!)
West Windows, Windows	2.8575	West	0.7	1 (!)
West Windows, Windows	2.6035	West	0.7	1 (!)
West Windows, Windows	0.8636	West	0.7	1 (!)
West Windows, Windows	2.032	West	0.7	1 (!)
West Velux, Velux	0.9604	West	0.7	1.2
West Velux, Velux	0.9604	West	0.7	1.2
West Velux, Velux	0.9604	West	0.7	1.2
North Windows, Windows	1.0665	North	0.7	1 (!)
North Windows, Windows	0.6	North	0.7	1 (!)
North Windows, Windows	0.52	North	0.7	1 (!)
North Windows, Windows	0.9	North	0.7	1 (!)
South Windows, Windows	0.9	South	0.7	1 (!)
South Windows, Windows	0.6	South	0.7	1 (!)
South Windows, Windows	0.52	South	0.7	1 (!)
South Windows, Windows	0.52	South	0.7	1 (!)

### 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)	Government-approved scheme	0.006 (!)	610106
External wall	E3: Sill	Government-approved scheme	0.019 (!)	610109
External wall	E4: Jamb	Government-approved scheme	0.006 (!)	610108
External wall	E5: Ground floor (normal)	Government-approved scheme	0.093	610076
External wall	E6: Intermediate floor within a dwelling	Government-approved scheme	0 (!)	610006
External wall	E16: Corner (normal)	Government-approved scheme	0.035 (!)	610110
Roof	R1: Head of roof window	Government-approved scheme	0.113	610438
Roof	R2: Sill of roof window	Government-approved scheme	0.118	610437
Roof	R3: Jamb of roof window	Government-approved scheme	0.88	610439
External wall	E17: Corner (inverted - internal area greater than external area)	Government-approved scheme	0.055	610111
External wall	E11: Eaves (insulation at rafter level)	Government-approved scheme	0.02 (!)	610057
External wall	E13: Gable (insulation at rafter level)	Government-approved scheme	0.067	610024

### 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	4 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	345.1%
Emitter type	Both radiators and underfloor
Flow temperature	45°C
System type	Heat Pump
Manufacturer	Vaillant Group UK Ltd
Model	aroTHERM 8kW
Commissioning	

**Secondary heating system:** Closed room heater

Fuel	Wood logs
Efficiency	65.0%
Commissioning	

5 Hot water		
<b>Cylinder/store</b> - type: Cylinder		
Capacity	300 litres	
Declared heat loss	1.8 kWh/day	
Primary pipework insulated	Yes	
Manufacturer		
Model		
Commissioning		
<b>Waste water heat recovery system 1</b> - type: N/A		
Efficiency		
Manufacturer		
Model		
6 Controls		
<b>Main heating 1</b> - type: Time and temperature zone control by arrangement of plumbing and electrical services		
Function		
Ecodesign class		
Manufacturer		
Model		
<b>Water heating</b> - type: Cylinder thermostat and HW separately timed		
Manufacturer		
Model		
7 Lighting		
<i>Minimum permitted light source efficacy</i>	75 lm/W	
Lowest light source efficacy	80 lm/W	OK
External lights control	N/A	
8 Mechanical ventilation		
<b>System type:</b> N/A		
<i>Maximum permitted specific fan power</i>	N/A	
Specific fan power	N/A	N/A
<i>Minimum permitted heat recovery efficiency</i>	N/A	
Heat recovery efficiency	N/A	N/A
Manufacturer/Model		
Commissioning		
9 Local generation		
Technology type: <b>Photovoltaic system (1)</b>		
Peak power	4.8 kWp	
Orientation	South	
Pitch	30°	
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>b. Client Declaration</b>
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N/A
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