

Building Regulations England Part L (BREL) Compliance Report

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

Date: Wed 16 Aug 2023 11:03:59

Project Information			
Assessed By	Peter Kinsella	Building Type	House, Detached
OCDEA Registration	EES/022672	Assessment Date	2023-08-16

Dwelling Details			
Assessment Type	As designed	Total Floor Area	803 m ²
Site Reference	10294 1	Plot Reference	v0
Address	27 Aylmer Road, London		

Client Details	
Name	Mark Smith
Company	GMS Eng Design Ltd
Address	

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	6.9 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	2.05 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	36.7 kWh _{PE} /m ²		
Dwelling primary energy	23.73 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	37.7 kWh/m ²		
Dwelling fabric energy efficiency	37.1 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 (4) (0.2)	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	1.2	W2 basement (1.2)	OK
Rooflights	2.2	1.7	V53, North (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)	309.9225	0.18
Exposed wall: Walls (2)	52.7	0.18
Exposed wall: Walls (3)	32.35	0.18
Exposed wall: Walls (4)	40	0.2
Exposed wall: Walls (5)	42.38	0.2
Ground floor: Heatloss Floor 1, Heatloss Floor 1	234	0.13
Exposed roof: Roof (1)	62.98	0.11
Exposed roof: Roof (2)	38.95	0.11
Exposed roof: Roof (3)	133	0.11
Exposed roof: Roof (4)	40	0.11
Exposed roof: Roof (5)	2.16	0.11
Exposed roof: Roof (6)	18.4	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]
D1, Front door	2.205	North	N/A	1.1 (!)
W2 basement, Windows	1.3	East	1.0	1.2
W3 basement, Windows	1.9	East	1.0	1.2
W4 basement, Windows	1.9	East	1.0	1.2
W5 basement, Windows	4.9	East	1.0	1.2

Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
W6 basement , Windows	4.9	East	1.0	1.2
W7 basement , Windows	3.4	South	1.0	1.2
W8 basement , Windows	1.9	West	1.0	1.2
W9 basement , Windows	1.9	West	1.0	1.2
W10 basement , Windows	1.9	South	1.0	1.2
W11 basement , Windows	4.6	South	1.0	1.2
W12 basement , Windows	1.9	West	1.0	1.2
W13 basement , Windows	1.9	West	1.0	1.2
W14 basement , Windows	3.3	West	1.0	1.2
W15 basement , Windows	1.2	West	1.0	1.2
W16 GF, Windows	1.225	North	1.0	1.2
W17 GF, Windows	0.6	East	1.0	1.2
W18 GF, Windows	1.8	North	1.0	1.2
W19 GF, Windows	4	North	1.0	1.2
W20 GF, Windows	1.8	North	1.0	1.2
W21 GF, Windows	0.6	West	1.0	1.2
W22 GF, Windows	2	West	1.0	1.2
W23 GF, Windows	1.14	West	1.0	1.2
W24 GF, Windows	4.37	South	1.0	1.2
W25 GF, Windows	1.615	South	1.0	1.2
W26 GF slider, Sliders	8.1	West	0.7	1.2
W27 GF slider, Sliders	23.49	South	0.7	1.2
W28 GF, Windows	1.4	East	1.0	1.2
W29 GF, Windows	4.8	East	1.0	1.2
W30 GF FF SF front, Windows	4.25	North	1.0	1.2
W31 FF, Windows	2.4	North	1.0	1.2
W32 FF, Windows	1.2	North	1.0	1.2
W33 FF, Windows	1.32	North	1.0	1.2
W34 FF, Windows	1.155	North	1.0	1.2
W35 FF, Windows	3.3	North	1.0	1.2
W36 FF, Windows	1.155	North	1.0	1.2
W37 FF, Windows	0.91	West	1.0	1.2
W38 FF, Windows	0.91	West	1.0	1.2
W39 FF rear, Windows	2.56	South	1.0	1.2
W39 FF rear, Windows	1.36	South	1.0	1.2
W40 - 44 FF rear, Windows	0.855	South	1.0	1.2
W40 - 44 FF rear, Windows	0.855	South	1.0	1.2
W40 - 44 FF rear, Windows	0.855	South	1.0	1.2
W40 - 44 FF rear, Windows	0.855	South	1.0	1.2
W40 - 44 FF rear, Windows	0.855	South	1.0	1.2
W45 FF rear doors, Windows	2.185	South	1.0	1.2
W46 FF rear doors, Windows	5.98	South	1.0	1.2
W47 FF, Windows	1.0725	West	1.0	1.2
W48 49 dormers, Windows	1.54	North	1.0	1.2
W48 49 dormers, Windows	1.54	North	1.0	1.2
W50 -52 dormers, Windows	1.54	South	1.0	1.2
V53, Roof lights	1.1	North	0.7	1.7
V54, Roof lights	0.88	North	0.7	1.7
V55, Roof lights	1.12	West	0.7	1.7
V56, Roof lights	1.12	East	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	0.05	tbc
External wall	E3: Sill	Calculated by person with suitable expertise	0.05	tbc
External wall	E4: Jamb	Government-approved scheme	0.05	tbc
External wall	E5: Ground floor (normal)	Not government-approved scheme	0.05	tbc

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E6: Intermediate floor within a dwelling	Not government-approved scheme	0.05	tbc
External wall	E16: Corner (normal)	Not government-approved scheme	0.05	tbc
Roof	R11: Upstands or kerbs of rooflights	SAP table default	0.24	
External wall	E16: Corner (normal)	Not government-approved scheme	0.05	tbc timber
External wall	E14: Flat roof	SAP table default	0.16	tbc
Roof	R4: Ridge (vaulted ceiling)	Not government-approved scheme	0.05	tbc
External wall	E14: Flat roof	SAP table default	0.16	Main flat roof
External wall	E11: Eaves (insulation at rafter level)	Not government-approved scheme	0 (!)	tbc to roof void
External wall	E14: Flat roof	SAP table default	0.16	dormers
Roof	R8: Roof to wall (rafter)	SAP table default	0.12	
External wall	E17: Corner (inverted - internal area greater than external area)	Not government-approved scheme	0 (!)	

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: Heat pump with radiators or underfloor heating - Electricity

Efficiency	294.8%
Emitter type	Underfloor
Flow temperature	45°C
System type	Heat Pump
Manufacturer	Mitsubishi Electric Europe B.V.
Model	Ecodan 14.0 kW
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	1.89 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	95 lm/W	OK
External lights control	N/A	
8 Mechanical ventilation		
System type: Balanced whole-house mechanical ventilation with heat recovery		
Maximum permitted specific fan power	1.5 W/(l/s)	
Specific fan power	0.99 W/(l/s)	OK
Minimum permitted heat recovery efficiency	73%	
Heat recovery efficiency	88%	OK
Manufacturer/Model	Sentinel Kinetic Plus B	
Commissioning		
9 Local generation		
Technology type: Photovoltaic system (1)		
Peak power	3.6 kWp	
Orientation	Horizontal	
Pitch	Horizontal	
Overshading	None or very little	
Manufacturer		
MCS certificate		
Technology type: Photovoltaic system (2)		
Peak power	3.6 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. Client Declaration		
N/A		