

Building Regulations England Part L (BREL) Compliance Report

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

Date: Wed 12 Jun 2024 07:26:12

Project Information			
Assessed By	Christopher Luke	Building Type	House, Detached
OCDEA Registration	EES/022688	Assessment Date	2024-06-12

Dwelling Details			
Assessment Type	As designed	Total Floor Area	199 m ²
Site Reference	240507 - 05	Plot Reference	240507 - P5
Address	Plot 5 East of St. James Church, South Charlton , NE66 2NA		

Client Details	
Name	James Coleman
Company	Sine
Address	Derwent House , Mandale Business Park , Belmont , Durham , DH1 1TH

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	8.52 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	3.36 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	44.7 kWh _{PE} /m ²		
Dwelling primary energy	34.88 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	39.3 kWh/m ²		
Dwelling fabric energy efficiency	38.3 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	0.13	Walls (3) (0.18)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	0.14	Upper Floor (over garage) (0.21)	OK
Roofs	0.16	0.14	Roof (2) (0.16)	OK
Windows, doors, and roof windows	1.6	0.96	SW rooflight (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)	12.379	0.11 (!)
Exposed wall: Walls (2)	152.32505	0.14 (!)
Exposed wall: Walls (3)	0.95	0.18
Exposed wall: Walls (4)	21.75	0.11 (!)
Ground floor: Ground Floor , Ground Floor	86.26	0.11
Upper floor: Upper Floor (over garage) , Upper Floor (over garage)	29.21	0.21
Exposed roof: Roof (1)	89.02	0.13
Exposed roof: Roof (2)	29.73	0.16
Exposed roof: Roof (3)	2.96	0.14

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]
SW windows, Windows	2.295	South West	0.7	0.95 (!)
SW windows, Windows	1.485	South West	0.7	0.95 (!)
SW door , Partially glazed doors	2.1	South West	N/A	0.94 (!)
SW rooflight , Rooflights	0.78	South West	0.7	1 (!)
SE rooflights , Rooflights	0.78	South East	0.7	1 (!)
SE rooflights , Rooflights	0.78	South East	0.7	1 (!)
SE rooflights , Rooflights	0.78	South East	0.7	1 (!)

Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
SE window, Windows	1.377	South East	0.7	0.95 (!)
NE windows , Windows	3.91095	North East	0.7	0.95 (!)
NE windows , Windows	1.785	North East	0.7	0.95 (!)
NE windows , Windows	1.485	North East	0.7	0.95 (!)
NE windows , Windows	1.485	North East	0.7	0.95 (!)
NE windows , Windows	1.485	North East	0.7	0.95 (!)
NE glazed door , Windows	5.04	North East	0.7	0.95 (!)
NW windows , Windows	1.377	North West	0.7	0.95 (!)
NW windows , Windows	0.84	North West	0.7	0.95 (!)
NW windows , Windows	0.84	North West	0.7	0.95 (!)
NW door , Partially glazed doors	2.1	North West	N/A	0.94 (!)
Internal Garage ID01 , Internal Garage Door	1.911	South West	N/A	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)	Calculated by person with suitable expertise	0.099	irf energy
External wall	E3: Sill	Calculated by person with suitable expertise	0.053	irf energy
External wall	E4: Jamb	Calculated by person with suitable expertise	0.084	irf energy
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.155	irf energy
External wall	E6: Intermediate floor within a dwelling	Calculated by person with suitable expertise	0.064	irf energy
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.033 (!)	irf energy
Roof	R1: Head of roof window	SAP table default	0.24	
Roof	R2: Sill of roof window	SAP table default	0.24	
Roof	R3: Jamb of roof window	SAP table default	0.24	
External wall	E10: Eaves (insulation at ceiling level)	SAP table default	0.12	
External wall	E11: Eaves (insulation at rafter level)	Calculated by person with suitable expertise	0.067	irf energy
External wall	E13: Gable (insulation at rafter level)	Calculated by person with suitable expertise	0.023 (!)	irf energy
External wall	E17: Corner (inverted - internal area greater than external area)	SAP table default	0 (!)	
Roof	R4: Ridge (vaulted ceiling)	SAP table default	0.12	
Roof	R6: Flat ceiling	SAP table default	0.12	
Roof	R8: Roof to wall (rafter)	SAP table default	0.12	

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	264.5%
Emitter type	Both radiators and underfloor
Flow temperature	55°C
System type	Heat Pump
Manufacturer	Mitsubishi Electric Europe B.V.
Model	Ecodan 8.5 kW
Commissioning	
Secondary heating system: Closed room heater	
Fuel	Dual fuel appliance (mineral and wood)
Efficiency	65.0%
Commissioning	

5 Hot water		
Cylinder/store - type: Cylinder		
Capacity	300 litres	
Declared heat loss	2.09 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		
System type: Decentralised mechanical extract		
Maximum permitted specific fan power	0.7 W/(l/s)	
Specific fan power	0.35 W/(l/s)	OK
Minimum permitted heat recovery efficiency	N/A	
Heat recovery efficiency	N/A	N/A
Manufacturer/Model	FAITH-PLUS	
Commissioning		
9 Local generation		
N/A		
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.		yes
Signed: C Luke	Assessor ID: L785-0001	
Name: chris luke	Date: 12.06.24.	
b. Client Declaration		
N/A		

Predicted Energy Assessment



Plot 5, East of St. James Church , South Charlton ,
Northumberland , NE66 2NA

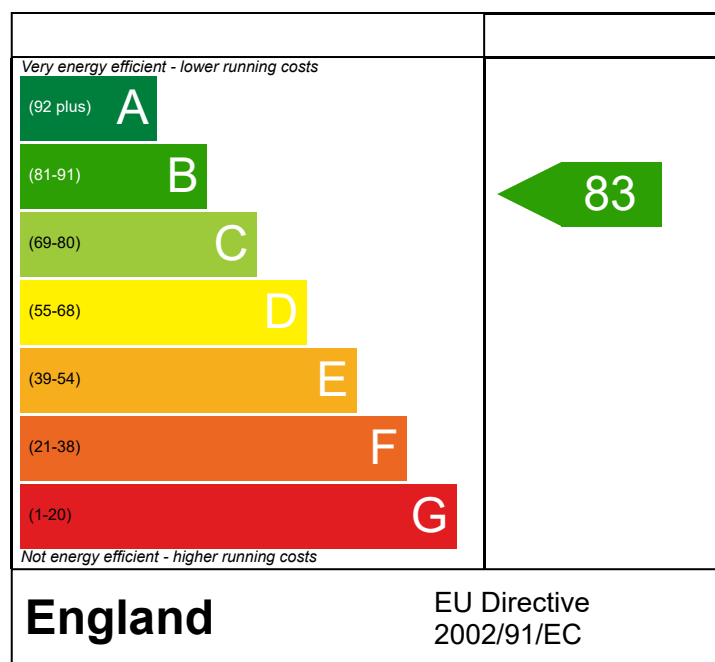
Dwelling type:
Date of assessment:
Produced by:
Total floor area:
DRRN:

House, Detached
12/06/2024
Christopher Luke
199.29 m²
1362-2806-9140

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.

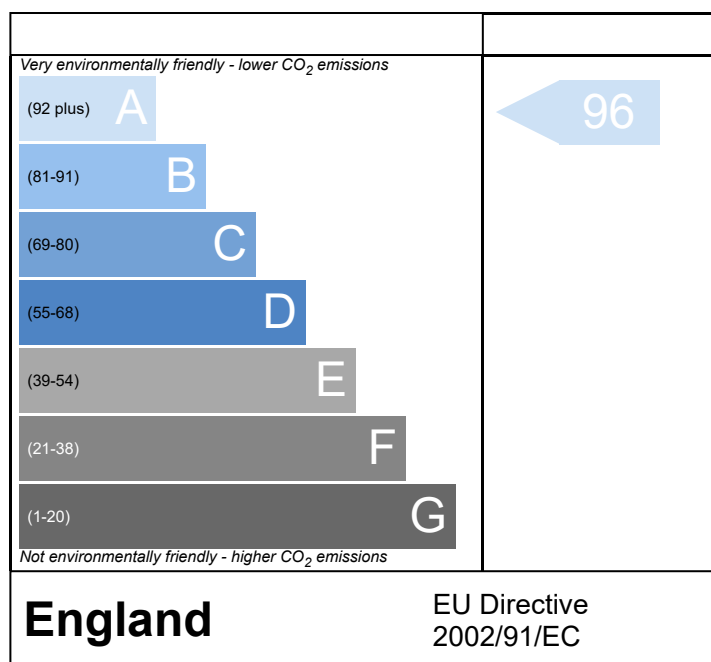
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.

Energy Efficiency Rating



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.

Environmental Impact (CO₂) Rating



The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.