Building Regulations England Part L (BREL) Compliance Report

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

Date: Fri 08 Nov 2024 19:39:09

Project Information			
Assessed By	Rory Bergin	Building Type	House, Semi-detached
OCDEA Registration	EES/022586	Assessment Date	2024-11-08

Dwelling Details			
Assessment Type	As designed	Total Floor Area	151 m^2
Site Reference	Semi-detached_Type D_4B-8P_27	Plot Reference	Semi-detached_Type D_4B-8P_27
Address			

Client Details	
Name	Francis Construction
Company	Francis Construction
Address	Armour House, Thatcham, RG19 4PD

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	*11.19 $kgCO_2/m^2$*	
Dwelling carbon dioxide emission rate	1.15 $kgCO_2/m^2$	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	*58.76 kWh_{PE}/m^2*	
Dwelling primary energy	11.38 kWh_{PE}/m^2	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	*46.9 kWh/m^2*	
Dwelling fabric energy efficiency	35.8 kWh/m^2	OK

2a Fabric U-values

Element	*Maximum permitted average U-Value [W/m^2K]*	Dwelling average U-Value [W/m^2K]	Element with highest individual U-Value	
External walls	*0.26*	0.13	Walls (1) (0.13)	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	GF-01 (0.13)	OK
Roofs	*0.16*	0.1	Roof (1) (0.1)	OK
Windows, doors, and roof windows	*1.6*	0.89	D1 (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^2K]
Exposed wall: Walls (1)	140.67684	0.13 **(!)**
Ground floor: GF-01, GF-01	69.79	0.13
Exposed roof: Roof (1)	40.78	0.1 **(!)**
Exposed roof: Roof (2)	28.57	0.1 **(!)**

2c Openings (better than typically expected values are flagged with a subsequent (!))

Name	Area [m^2]	Orientation	Frame factor	U-Value [W/m^2K]
W7, D2, W6, W2, Window	1.78233	North	0.8	0.88 **(!)**
W7, D2, W6, W2, Window	4.0906	North	0.8	0.88 **(!)**
W7, D2, W6, W2, Window	0.82885	North	0.8	0.88 **(!)**
W7, D2, W6, W2, Window	0.82885	North	0.8	0.88 **(!)**
W7, D2, W6, W2, Window	2.22423	North	0.8	0.88 **(!)**
W6, W2, W3, Window	0.82885	West	0.8	0.88 **(!)**
W6, W2, W3, Window	0.82885	West	0.8	0.88 **(!)**
W6, W2, W3, Window	0.82885	West	0.8	0.88 **(!)**
W6, W2, W3, Window	2.22423	West	0.8	0.88 **(!)**
W6, W2, W3, Window	1.23783	West	0.8	0.88 **(!)**
W6, W2, W3, Window	1.23783	West	0.8	0.88 **(!)**
D1 , Door	3.3796	West	N/A	1 **(!)**

Name	Area [m²]	Orientation	Frame factor	U-Value [W/m²K]
W9, W5 / W4, W10, Window	3.41185	South	0.8	0.88 **(!)**
W9, W5 / W4, W10, Window	3.41185	South	0.8	0.88 **(!)**
W9, W5 / W4, W10, Window	1.928355	South	0.8	0.88 **(!)**
W9, W5 / W4, W10, Window	1.928355	South	0.8	0.88 **(!)**
W9, W5 / W4, W10, Window	3.41185	South	0.8	0.88 **(!)**

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	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.268	
External wall	E6: Intermediate floor within a dwelling	Not government-approved scheme	0.07	
External wall	E18: Party wall between dwellings	Not government-approved scheme	0.12	
Party wall	P4: Roof (insulation at ceiling level)	Not government-approved scheme	0.24	
External wall	E15: Flat roof with parapet	Not government-approved scheme	0.15	
External wall	E16: Corner (normal)	Not government-approved scheme	0.09	
Party wall	P1: Ground floor	Not government-approved scheme	0.16	
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.003 **(!)**	
External wall	E3: Sill	Calculated by person with suitable expertise	0.02 **(!)**	
External wall	E4: Jamb	Calculated by person with suitable expertise	0.02 **(!)**	
External wall	E24: Eaves (insulation at ceiling level - inverted)	Not government-approved scheme	0.075	
Party wall	P2: Intermediate floor within a dwelling	SAP table default	0 **(!)**	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))

Maximum permitted air permeability at 50Pa	*8 m³/hm²*	
Dwelling air permeability at 50Pa	1 m³/hm², Design value **(!)**	OK
Air permeability test certificate reference		

4 Space heating

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

Efficiency	337.9%
Emitter type	Underfloor
Flow temperature	35°C
System type	Heat Pump
Manufacturer	Mitsubishi Electric Europe B.V.
Model	Ecodan 6.0 kW
Commissioning	

Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: Cylinder

Capacity	250 litres
Declared heat loss	1.15 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: Programmer and room thermostat	
Function	
Ecodesign class	
Manufacturer	
Model	
Water heating - type: Cylinder thermostat	
Manufacturer	Mitsubishi
Model	

7 Lighting		
Minimum permitted light source efficacy	*75 lm/W*	
Lowest light source efficacy	75 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	0.68 W/(l/s)	OK
Minimum permitted heat recovery efficiency	*73%*	
Heat recovery efficiency	88%	OK
Manufacturer/Model	MRXBOXAB-ECO5	
Commissioning		

9 Local generation	
Technology type: **Photovoltaic system (1)**	
Peak power	4.83 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: Name:	Assessor ID: Date:
b. Client Declaration	
N/A	

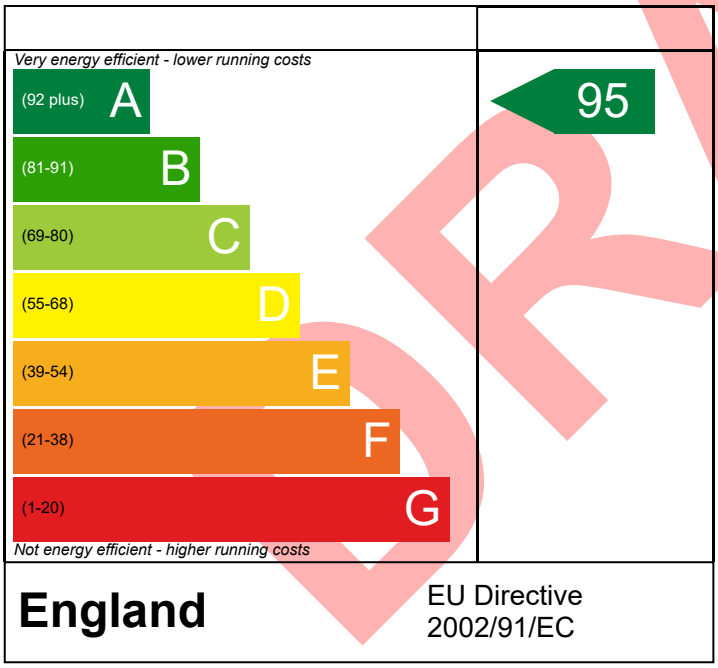
Predicted Energy Assessment

Dwelling type:	House, Semi-Detached
Date of assessment:	08/11/2024
Produced by:	Rory Bergin
Total floor area:	151.35 m²
DRRN:	

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.

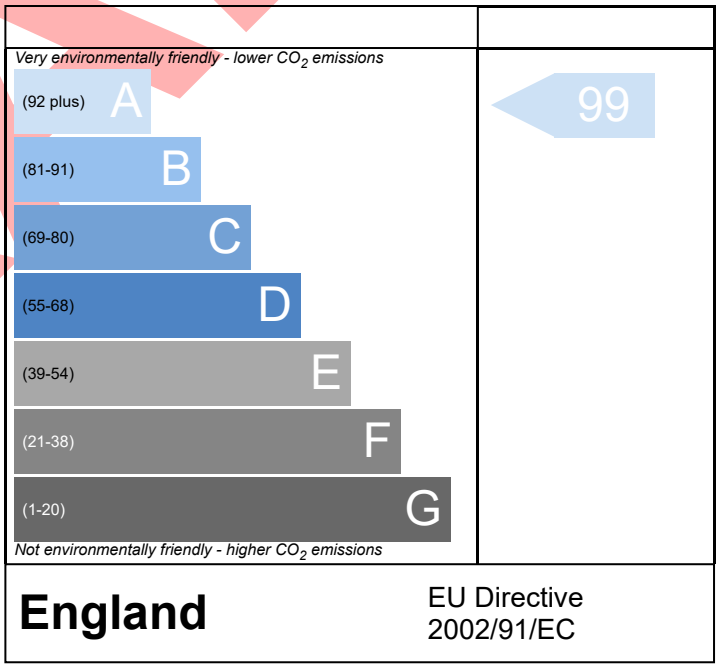
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

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 (CO_2) Rating



The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO_2) emissions. The higher the rating the less impact it has on the environment.

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