Building Regulations England Part L (BREL) Compliance Report

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

Date: Wed 09 Oct 2024 09:22:51

Project Information			
Assessed By	Lorraine Goodwin	Building Type	House, Semi-detached
OCDEA Registration	EES/030145	Assessment Date	2024-10-09

Dwelling Details			
Assessment Type	As designed	Total Floor Area	93 m^2
Site Reference	C2324159/027 HT2 B	Plot Reference	As Designed
Address	St Neots		

Client Details	
Name	Lodge Park Homes
Company	Lodge Park Homes
Address	20 Kent Road, Northampton, NN5 4DR

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	*10.62 $kgCO_2/m^2$*	
Dwelling carbon dioxide emission rate	2.09 $kgCO_2/m^2$	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	*55.38 kWh_{PE}/m^2*	
Dwelling primary energy	22.18 kWh_{PE}/m^2	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	*36.0 kWh/m^2*	
Dwelling fabric energy efficiency	31.1 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*	0.22	Walls (1) (0.22)	OK
Party walls	*0.2*	0	Party Wall (1) (0)	**N/A**
Curtain walls	*1.6*	0	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*	1.17	Front Windows (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^2]**	**U-Value [W/m^2K]**
Exposed wall: Walls (1)	80.5957	0.22
Party wall: Party Wall (1)	42.03	0 **(!)**
Ground floor: Heatloss Floor 1, Heatloss Floor 1	46.45	0.12
Exposed roof: Roof (1)	46.450000762939 45	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^2K]**
Front Door, Solid Door	2.448	North West	N/A	1 **(!)**
Front Windows, Windows	2.88	North West	1.0	1.2
Front Windows, Windows	0.8763	North West	1.0	1.2
Front Windows, Windows	1.5875	North West	1.0	1.2
Side Windows, Windows	0.5985	North East	1.0	1.2
Side Windows, Windows	0.5985	North East	1.0	1.2
Side Windows, Windows	0.855	North East	1.0	1.2
Rear Windows, Windows	0.8832	South East	1.0	1.2
Rear Windows, Windows	1.6	South East	1.0	1.2
Rear Windows, Windows	1.3125	South East	1.0	1.2
Rear Windows, Windows	3.2548	South East	1.0	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	0.025 **(!)**	RCD FF125/0.034/0.15
External wall	E3: Sill	Calculated by person with suitable expertise	0.02 **(!)**	RCD FF125/0.034/0.15
External wall	E4: Jamb	Calculated by person with suitable expertise	0.015 **(!)**	RCD FF125/0.034/0.15
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.042	RCD FF125/0.034/0.15
External wall	E6: Intermediate floor within a dwelling	Calculated by person with suitable expertise	0.001 **(!)**	RCD FF125/0.034/0.15
External wall	E10: Eaves (insulation at ceiling level)	Calculated by person with suitable expertise	0.05	RCD FF125/0.034/0.15
External wall	E12: Gable (insulation at ceiling level)	Calculated by person with suitable expertise	0.039 **(!)**	RCD FF125/0.034/0.15
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.043	RCD FF125/0.034/0.15
External wall	E18: Party wall between dwellings	Calculated by person with suitable expertise	0.017 **(!)**	RCD FF125/0.034/0.15
Party wall	P1: Ground floor	Calculated by person with suitable expertise	0.021 **(!)**	RCD FF125/0.034/0.15
Party wall	P2: Intermediate floor within a dwelling	SAP table default	0 **(!)**	
Party wall	P4: Roof (insulation at ceiling level)	Calculated by person with suitable expertise	0.016 **(!)**	RCD FF125/0.034/0.15

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	227.0%
Emitter type	Radiators
Flow temperature	45°C
System type	
Manufacturer	Vaillant Group UK Ltd
Model	aroTHERM plus 3.5kW & AI 200l
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water	
Cylinder/store - type: Cylinder	
Capacity	200 litres
Declared heat loss	1.2 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: N/A		
Maximum permitted specific fan power	*N/A*	
Specific fan power	N/A	**N/A**
Minimum permitted heat recovery efficiency	*N/A*	
Heat recovery efficiency	N/A	**N/A**
Manufacturer/Model		
Commissioning		

9 Local generation	
Technology type: **Photovoltaic system (1)**	
Peak power	2.1 kWp
Orientation	South East
Pitch	45°
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

Summary for Input Data

elmhurst energy

Property Reference	C2324159/027 HT2 B	**Issued on Date**	09/10/2024
Assessment Reference	As Designed	**Prop Type Ref**	As Designed
Property	St Neots, Cambridgeshire		

SAP Rating	92 A	**DER**	2.09	**TER**	10.62
Environmental	98 A	**% DER < TER**			80.32
CO_2 Emissions (t/year)	0.15	**DFEE**	31.14	**TFEE**	35.99
Compliance Check	See BREL	**% DFEE < TFEE**			13.45
% DPER < TPER	59.96	**DPER**	22.18	**TPER**	55.38

Assessor Details	Ms. Lorraine Goodwin	**Assessor ID**	CH40-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

Orientation	Northwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2023	
3.0 Property Age Band	L	
4.0 Sheltered Sides	1	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	0.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	No	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	19.46 m	46.45 m²	2.36 m
1st Storey:	19.46 m	46.45 m²	2.65 m

8.0 Living Area	15.37	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.22	110.00	97.49	80.60	0.00	None	16.89	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	42.03	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Wall 1	Plasterboard on timber frame	9.00	154.12
Internal Wall 2	Dense block, plasterboard on dabs	75.00	26.15

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.11	9.00	46.45	46.45	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Summary for Input Data

Description	Storey	Construction	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	46.45

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Heatloss Floor 1	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	46.45

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	46.45

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05			0.52		1.00	1.20
Solid Door	Manufacturer	Solid Door				0.00			1.00

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Door	External Wall 1	North West	2.45	0
Front Windows	Windows	External Wall 1	North West	5.34	0
Side Windows	Windows	External Wall 1	North East	2.05	0
Rear Windows	Windows	External Wall 1	South East	7.05	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E2 Other lintels (including other steel lintels)	Independently assessed	11.36	0.03	0.03	RCD FF125/0.034/0.15	No
E3 Sill	Independently assessed	8.76	0.02	0.02	RCD FF125/0.034/0.15	No
E4 Jamb	Independently assessed	31.42	0.01	0.01	RCD FF125/0.034/0.15	No
E5 Ground floor (normal)	Independently assessed	19.46	0.04	0.04	RCD FF125/0.034/0.15	No
E6 Intermediate floor within a dwelling	Independently assessed	19.46	0.00	0.00	RCD FF125/0.034/0.15	No
E10 Eaves (insulation at ceiling level)	Independently assessed	11.08	0.05	0.05	RCD FF125/0.034/0.15	No
E12 Gable (insulation at ceiling level)	Independently assessed	8.39	0.04	0.04	RCD FF125/0.034/0.15	No
E16 Corner (normal)	Independently assessed	10.02	0.04	0.04	RCD FF125/0.034/0.15	No
E18 Party wall between dwellings	Independently assessed	10.02	0.02	0.02	RCD FF125/0.034/0.15	No
P1 Party wall - Ground floor	Independently assessed	8.39	0.02	0.02	RCD FF125/0.034/0.15	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.39	0.00	0.00		No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.39	0.02	0.02	RCD FF125/0.034/0.15	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	No

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0
Number of chimneys/flues attached to closed fire	0
Number of flues attached to solid fuel boiler	0
Number of flues attached to other heater	0
Number of blocked chimneys	0
Number of intermittent extract fans	3
Number of passive vents	0
Number of flueless gas fires	0

21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting	No				
	Name	**Efficacy**	**Power**	**Capacity**	**Count**

Summary for Input Data

	Lighting 1	95.00	5.00	475.00	30

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	108467	
Fuel Type	Electricity	
SAP Code	0	
Model Name	aroTHERM plus 3.5kW & AI 200l	
Manufacturer	Vaillant Group UK Ltd	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
Summer Immersion	No	
Cold Water Source	From mains	
Bath Count	1	
Supplementary Immersion	No	
Immersion Only Heating Hot Water	No	

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Bathroom	Combi boiler or unvented hot water system	10.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	200.00	L
Loss	1.20	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

Summary for Input Data

elmhurst energy

31.0 Thermal Store	None	
32.0 Photovoltaic Unit	One Dwelling	
Export Capable Meter?	Yes	
Connected To Dwelling	Yes	
Diverter	Yes	
Battery Capacity [kWh]	0.00	

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
2.10	South East	45°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro	None	
Electricity Generated	0.00	
Apportioned	0.00	kWh/Year
Connected to dwelling's electricity meter	Yes	
Electricity Generation	Annual	

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Predicted Energy Assessment

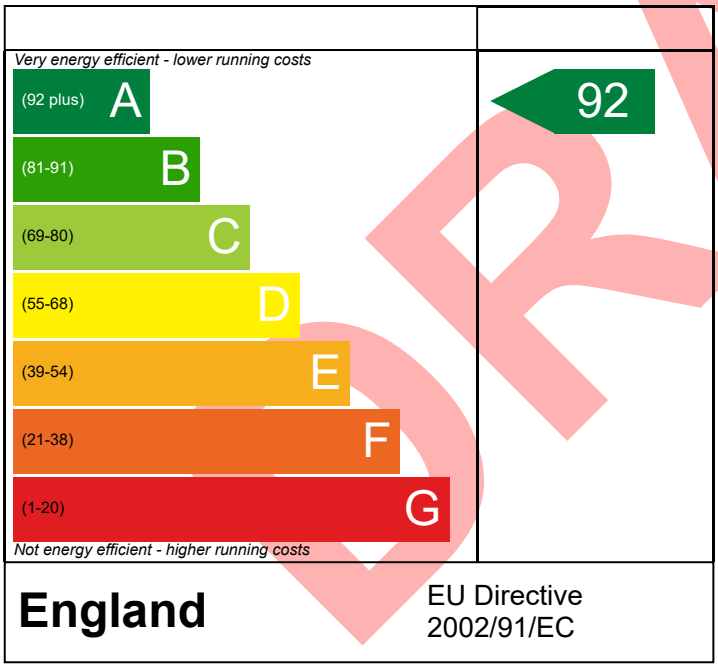
St Neots, Cambridgeshire

Dwelling type:	House, Semi-Detached
Date of assessment:	09/10/2024
Produced by:	Lorraine Goodwin
Total floor area:	92.9 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.

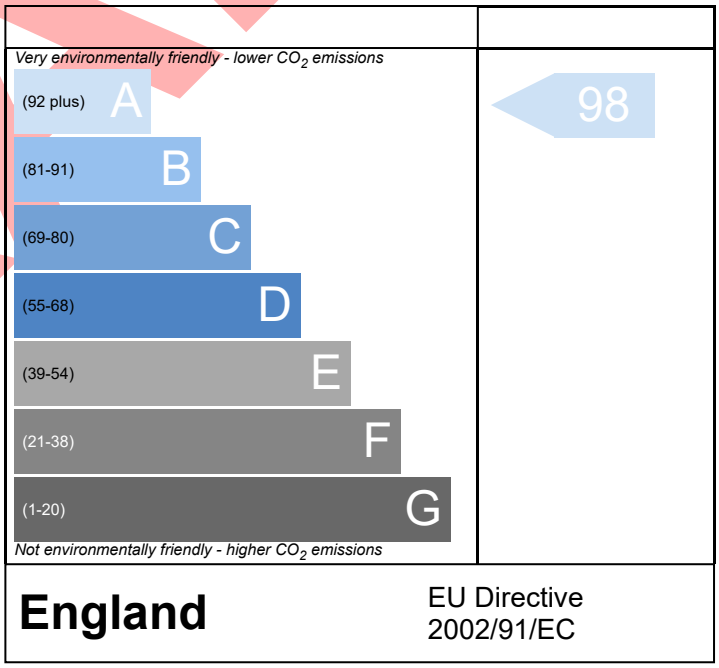
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

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.