

### 139-147 Camden Road, Camden

### London, NW1 9HJ

### **Energy and Sustainability Statement**

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#### **1.0 Executive Summary**

EEABS (Elmstead Energy Assessments & Building Services) were instructed to produce an Energy and Sustainability Statement for the proposed development of six new flats at 139-147 Camden Road, Camden, London NW1 9HJ.

This energy and Sustainability statement can be used as a supporting document to the planning application to demonstrate that the overall energy and Sustainability strategy of the proposed development will meet the requirements set out by Building Regulations and local Camden Planning Policy.

#### **Relevant Planning Policies**

From inspection of the relevant policies for the proposed development we consider that the following targets needs to be met in order to comply with Part L Building Regulations and local Camden Planning Polices.

- As it is not a major development, the new flats should only have to achieve a pass under the latest Part L 2021 Building Regulations requirement to meet the Camden requirement of at least a 19% CO2 emissions reduction in comparison to Part L 2013 standards.
- The development will also consider other areas of sustainability within its design such as overheating, flood risk, waste, air quality, and materials to provide a low energy and sustainable design overall.

#### **Assessment Methodology**

To calculate the estimated carbon emissions of the development we have used Design SAP 10.2 software which is approved by Building Regulations. The baseline Target Emission Rate (TER) is calculated in accordance with Appendix R from the SAP 10.2 methodology.

The appraisals within this strategy are based on the Building Regulations Part L (2021) calculation methodology and should not be understood as a predictive assessment of likely future energy requirements or otherwise.

#### **Carbon Emission Results**

Savings have been made in the proposed design by following the Be Lean, Be Clean, Be Green Energy Hierarchy of the London Plan.

The results show that under the proposed design the total carbon emissions would be 4.50 tonnes CO2, compared to 5.13 tonnes CO2 for the Baseline. This would be an overall improvement of 12.28% over the Part L 2021 Standard. As the Part L 2021 standard is already an approximate 30% improvement over the 2013 Part L regulations, the Camden planning requirement of at least a 19% reduction in comparison to the 2013 Part L standard would be comfortably satisfied.

The SAP Calculation sheets for the proposed flats can be found within Appendix A.



#### **Sustainability Measures**

In collaboration with the Energy Assessment of the development, an analysis of the overheating within the flats has also been carried out following the cooling hierarchy of the London Plan.

By following the overheating/cooling strategy the risk of internal overheating to the flats would be minimised. Once through planning, at later design stages when the specification of the flats is more detailed a full CIBSE TM59 Part O overheating assessment can be carried out to show compliance with Part O Building Regulations.

Any demolition will be recycled where possible. A demolition audit will be carried out before any works progress on site to identify which materials can be recycled. The development will also consider the concept of the waste hierarchy in both the demolition of any structures and when constructing the proposed flats.

The building, wherever possible, will use BRE Green Guide 'A' rated materials and manufacturers will be chosen that can demonstrate their products are sustainably sourced and manufactured.

The water usage for the flats will not exceed a maximum of 110 litres/person/day (including 5 litres for external water use) as required by the Camden Local Plan. Calculations to prove how this can be achieved can be found within this report. These calculations will be updated at later design stages once specific sanitaryware has been selected.

The extent of possible flooding on the site has also been analysed using data from the government flood warning information service. The flood map shows that the proposed development site is within an area of very low risk from flooding from rivers or sea.

The surface water flood map service states that the proposed site sits within an area of risk from surface water flooding. The final drainage (SuDS) design should ensure that run off rates achieve greenfield standards (if feasible).

The proposed development will not adversely impact upon the air quality of the location. The proposed gas boilers used within the flats will be low output, thanks to the high levels of insulation, they will also be specified to be low NOx emission boilers only.

#### Conclusion

This energy and sustainability statement has shown that the proposed development of six new flats at 139-147 Camden Road, Camden, London NW1 9HJ would satisfy the energy and sustainability requirements of Building Regulations and Local Camden Planning Policies.



#### 2.0 Introduction

EEABS (Elmstead Energy Assessments & Building Services) were instructed to produce an Energy and Sustainability Statement for the proposed development of six new flats at 139-147 Camden Road, Camden, London NW1 9HJ.

This energy and Sustainability statement can be used as a supporting document to the planning application to demonstrate that the overall energy and Sustainability strategy of the proposed development will meet the requirements set out by Building Regulations and Camden Local Planning Policy.

#### 2.1 Planning Policy Context

Numerous policies that relate to the energy efficiency and carbon emissions of the development have been considered in preparation of this energy assessment.

#### 2.1.1 National Planning Policy Framework

The National Planning Policy Framework encourages local planning authorities to adopt proactive strategies to mitigate and adapt to climate change.

They should plan for new development in ways which reduce greenhouse gas emissions; actively support energy efficiency improvements to existing buildings; and set local sustainability requirements which are consistent with the government's policies and standards.

#### 2.1.2 Building Regulations Part L 2021

The assessment of the development against policy targets has been carried out using the very latest Part L 2021 benchmarks. The Part L 2021 targets represent approximately a 30% reduction in carbon emissions in comparison to the Part L 2013 target.

Part L 2021 is mandatory and requires that a dwelling does not exceed the CO2 emission rate of that set by a Target Emission Rate (TER) calculated in accordance with Appendix R from the SAP 10.2 methodology.

It also requires that a dwelling does not exceed the Target Fabric Energy Efficiency (TFEE) and Target Primary Energy Rate (TPER).

#### 2.1.3 The London Plan

The latest London Plan guidance on the preparation of Energy Assessments is from June 2022 and has been used to structure this energy statement.

As this development is not more than 10 units it is not considered as a major development and therefore the requirements of the London Plan should not strictly apply, however the guidance will still be followed, and every effort will be made to ensure the most energy efficient and carbon minimal design possible.



Policy SI 2 of the London Plan requires development proposals to make the fullest contribution to minimising carbon dioxide emissions through on site methods in accordance with the following energy hierarchy:

- Be lean: use less energy
- Be clean: supply energy efficiently
- Be green: use renewable energy

#### 2.1.4 London Borough of Camden

The Camden Local Plan (2017) Policy CC1 Climate Change Mitigation states that all developments should minimise the effects of climate change and encourage developments to meet the highest feasible environmental standards that are financially viable.

Developments should reduce their carbon dioxide emissions through following the steps in the energy hierarchy and major developments should demonstrate that the London Plan targets have been achieved.

As this development is not a major development (only six new build units) it is not considered as a major development under the London Plan, however section 8.8 of the Camden Local Plan does state that new residential developments should demonstrate at least a 19% reduction in CO2 emissions below Part L 2013 Building Regulations.

As the new Part L 2021 Building Regulations standard is an approximate 30% improvement over the Part L 2013 target, the Camden requirement will be met just by showing compliance with the latest Part L 2021 regulations.

The development will also consider other areas of sustainability within its design such as overheating, flood risk, water usage, waste, air quality, and materials to provide a low energy and sustainable design overall.



#### 3.0 Assessment Methodology

The following methodology has been used to calculate the CO2 emissions for the development.

#### 3.1 SAP 10.2

To calculate the estimated carbon emissions of the development we have used Design SAP 10.2 software which is approved by Building Regulations. The baseline Target Emission Rate (TER) is calculated in accordance with Appendix R from the SAP 10.2 methodology.

#### 3.2 Limitations

The appraisals within this strategy are based on the Building Regulations Part L (2021) calculation methodology and should not be understood as a predictive assessment of likely future energy requirements or otherwise.

Occupants may operate their systems differently, and/or the weather may be different from the assumptions made by Part L approved calculation methods, leading to differing energy requirements once the development is in operation.



#### 4.0 Energy Assessment

The following sections describe how the baseline and proposed developments Carbon Emissions have been calculated.

#### 4.1 Baseline Target

The baseline Target Emission Rate (TER) is calculated in accordance with Appendix R from the SAP 10.2 methodology. This Baseline CO2 emission rate is then used as the basis for the target CO2 reductions required throughout the Energy Hierarchy.

Unit	Area (m2)	CO2 Emission Rate (kgCO2/m2)	Total CO2 Emissions (Tonnes of CO2)
Flat 1	49	18.32	0.90
Flat 2	36	18.85	0.68
Flat 3	50	16.18	0.81
Flat 4	36	18.85	0.68
Flat 5	50	16.18	0.81
Flat 6	82	15.29	1.25
		Total	5.13

#### Table 1 - Baseline Carbon Emission Results

The results show that the total Target CO2 emissions for the development is estimated to be 5.13 Tonnes of CO2 per annum.



#### 4.2 **Proposed Design - Following the Energy Hierarchy**

#### 4.2.1 Be Lean

The Be Lean stage of the energy hierarchy focuses on passive design measures which are those which reduce the initial energy demand of the building through passive means, for example wall insulation once installed requires no other means of operation and its performance is also unlikely to deteriorate.

Where possible the development has taken a fabric first approach to reducing the initial energy demand by the following methods:

#### **Glazing Performance**

Windows and glazed doors are be highly efficient glazing and will have a low U-value of  $1.2 \text{ W/m}^2$ .K, helping to reduce the amount of heat loss through the glazing.

#### **Thermal Envelope**

The inclusion of high levels of thermal insulation not only helps to reduce the buildings overall energy demand and therefore carbon emissions, but it also plays a vital role in securing the occupant's thermal comfort.

It also helps to reduce the buildings peak heating load required meaning that smaller plant equipment can be sized, helping to further improve not only carbon emissions but also the cost of the development.

The proposed walls, floor, and roofs will provide significant savings over the Part L1 limiting fabric parameters.

#### **Thermal Bridging**

Thermal bridges are junctions between parts of the build through which heat can escape, for example the junction where a roof and wall construction meet. To reduce heat loss through these areas we have assumed that LABC thermal bridging details will be followed. (Individual Psi values assumed for each of the junctions can be found within the SAP calculation sheets within the appendices.)

#### **Air Permeability**

The air permeability of the development is a measure of how much volume of air can penetrate through its fabric. Therefore, a well built, highly sealed building would result in less unwanted heat loss, and therefore provide a more efficient building.

Part L 2021 Building Regulations have a maximum limit of 8 m<sup>3</sup>/h.m<sup>2</sup> that must be achieved, the proposed development will target a value of 3.0 m<sup>3</sup>/h.m<sup>2</sup>.



#### **Summary of Passive Design Measures**

The table below shows a summary of the passive design measures included for within the development and how they compare against the Part L1 requirements.

Parameter	Part L Limiting Values	Part L Limiting Values Development Proposal	
U-Values			
Walls	0.26 W/m <sup>2</sup> .K	0.18 W/m <sup>2</sup> .K	31%
Floors	0.18 W/m <sup>2</sup> .K	0.13 W/m <sup>2</sup> .K	28%
Roofs	0.16 W/m <sup>2</sup> .K	0.11 W/m².K	31%
Glazing	1.6 W/m².K	1.20 W/m <sup>2</sup> .K	25%
Air Permeability	8 m <sup>3</sup> /h.m <sup>2</sup>	3.0 m <sup>3</sup> /h.m <sup>2</sup>	63%

Table 2 - Summary	/ Table of Passive	<b>Design Measures</b>
-------------------	--------------------	------------------------

The summary of passive measures shows that the proposed development will be a considerable improvement over the Part L1 limiting fabric parameters.

#### 4.2.2 Be Clean

The Be Clean Stage of the Energy Hierarchy focuses on energy efficiency measures which are those which seek to supply the remaining demand for energy, after the initial demand has been lowered through passive means, in the most efficient way.

The following energy efficiency measures have been incorporated within the proposed development:

#### **Heating and Hot Water**

The heating and hot water is assumed to be provided by a gas-fired combi boiler system with an assumed efficiency of 89.2%.

#### Lighting

The lighting for the development will consist of low energy LED lighting throughout with a minimum light source efficacy of at least 80 lm/W.

#### Ventilation

The ventilation is assumed to be natural through the use of opening windows, this reduces energy costs and carbon emissions associated with whole house mechanical ventilation systems. Wet rooms and kitchen areas will have local intermittent mechanical extract ventilation.



#### 4.2.3 Be Green

The Be Green stage of the energy hierarchy focuses on on-site low and zero carbon renewable technologies.

#### **Solar PV Panels**

We have assumed that each flat will have a 0.68 kWp (2No. 340 Watt panels) solar PV system installed on the roof. This will mean that at least 12No. solar PV panels will be installed on the roof of the development.

#### 4.2.4 Proposed Design Results

The results below show total carbon emissions in kgCO2/m2 and tonnes CO2 for the proposed design following the energy hierarchy as previously described.

Unit	Area (m2)	CO2 Emission Rate (kgCO2/m2)	Total CO2 Emissions (Tonnes of CO2)
Flat 1	49	16.05	0.79
Flat 2	36	15.52	0.56
Flat 3	50	14.47	0.72
Flat 4	36	15.52	0.56
Flat 5	50	14.47	0.72
Flat 6	82	14.04	1.15
		Total	4.50

#### Table 3 - Proposed Design Carbon Emission Results

The results show that under the proposed design the total carbon emissions would be 4.50 tonnes CO2, compared to 5.13 tonnes CO2 for the Baseline. This would be an overall improvement of 12.28% over the Part L 2021 Standard. As the Part L 2021 standard is already an approximate 30% improvement over the 2013 Part L regulations, the Camden planning requirement of at least a 19% reduction in comparison to the 2013 Part L standard would be comfortably satisfied.

The SAP Calculation sheets for the proposed flats can be found within Appendix A.



#### 5.0 Sustainability

#### 5.1 Overheating/Climate Change Adaptability

In collaboration with the Energy Assessment of the development, an analysis of the overheating within the flats has also been carried out.

#### **1. Minimise Internal Heat Gains**

To minimise internal heat gains low energy lighting will be used throughout the development. Any new heating pipework will also be well insulated, white goods and computer equipment should also be of the highest efficiency.

#### 2. Reduce the Amount of Heat Entering the Building

Highly efficient windows will reduce the amount of solar gain entering the flats.

#### 3. Use of Thermal Mass and High Ceilings to Manage Heat within the Building

The building will have a medium thermal mass and it will be well insulated with an improved air permeability value to stop heat from first entering the building.

#### 4. Passive Ventilation

Windows will be openable to allow for fresh air when required.

#### 5. Mechanical Ventilation

A whole house Mechanical supply and extract ventilation system has not been proposed at this stage in order to keep energy consumption to as low as possible. One could be considered further into the detailed design stage if required.

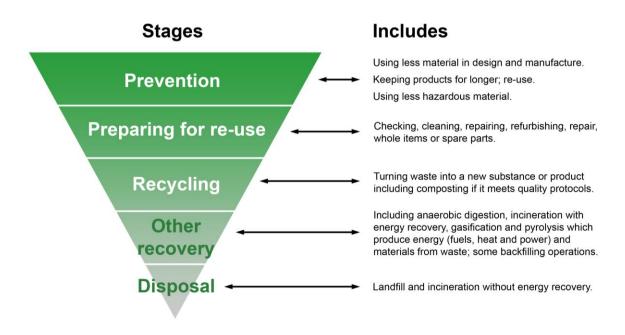
By following the above overheating/cooling strategy the risk of internal overheating to the flats would be minimised. Once through planning, at later design stages when the specification of the flats is more detailed, a full CIBSE TM59 Part O overheating assessment can be carried out to show compliance with Part O Building Regulations.



#### 5.2 Land Use and Waste

Any demolition will be recycled where possible. A demolition audit will be carried out before any works progress on site to identify which materials can be recycled.

The development will also consider the concept of the waste hierarchy shown below in both the demolition of any structures and when constructing the proposed flats.





#### 5.3 Materials Use

As mentioned above it is the design team's intention to minimise waste during the construction process through careful consideration of materials and construction methodology. The building, wherever possible, will use BRE Green Guide 'A' rated materials and manufacturers will be chosen that can demonstrate their products are sustainably sourced and manufactured.

#### 5.4 Water Efficiency

All taps, toilets and showers will be specified that are considered to be low water use.

The water usage for the flats will not exceed a maximum of 110 litres/person/day (including 5 litres for external water use) as required by the Camden Local Plan.

Calculations to prove how this can be achieved can be seen below. These calculations will be updated at later design stages once specific sanitaryware has been selected.



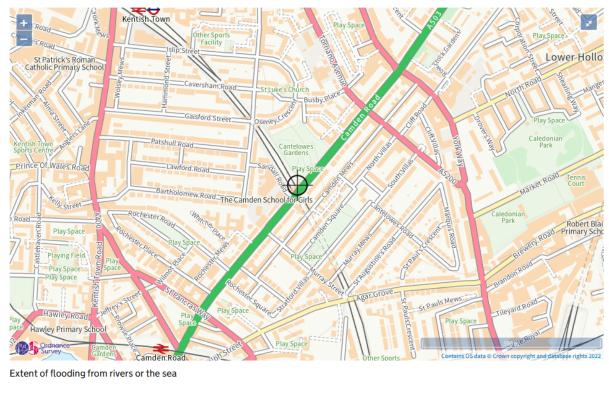
#### Table 4 - Water Efficiency Calculator

Installation Type	Unit of Measure	Capacity / Flow Rate	Use Factor	Fixed Use (litres/person/day)	Litres / person / day
WC (dual flush)	Full Flush Volume (litres)	4	1.46	0	5.84
wc (duai nush)	Part Flush Volume (litres)	2.6	2.96	0	7.70
<b>Taps</b> (excluding kitchen / utility room taps)	Flow Rate (litres / minute)	5	1.58	1.58	9.48
Bath (where shower also present)	Capacity to Overflow (litres)	170	0.11	0	18.70
Shower (where bath also present)	Flow Rate (litres / minute)	8	4.37	0	34.96
Kitchen / Utility Room Sink Taps	Flow Rate (litres / minute)	6	0.44	10.36	13.00
Washing Machine	Litres / kg Dry Load	8.17	2.10	0	17.16
Dishwasher	Litres / Place Setting	1.25	3.60	0	4.50
		Total Calc	ulated Use	(litres / person / day)	111.33
	Cor	ntribution from	Greywater	(litres / person / day)	0.00
	Co	ntribution from	n Rainwater	(litres / person / day)	0.00
	Normalisation Factor Total Internal Water Consumption (litres / person / day)		0.91		
			(litres / person / day)	101.31	
	External Water Use (litres / person / day) Overall Total Water Consumption (litres / person / day)			5.00	
				106.31	



#### 5.5 Flood Risk

The extent of possible flooding on the site has also been analysed using data from the government flood warning information service.



● <u>High</u> ● <u>Medium</u> ● <u>Low</u> ● <u>Very low</u> + Location you selected

#### Figure 2 - Flood Risk Map for the Site

The flood map shows that the proposed development site is within an area of very low risk from flooding from rivers or sea.





#### Figure 3 - Surface Water Map for the Site

The surface water flood map service states that the proposed site sits within an area of risk from surface water flooding. The final drainage (SuDS) design should ensure that run off rates achieve greenfield standards (if feasible).

#### 5.6 Air Quality

The proposed development will not adversely impact upon the air quality of the location. The proposed gas boilers used within the flats will be low output, thanks to the high levels of insulation, they will also be specified to be low NOx emission boilers only.



#### Appendix A - Part L 2021 SAP 10.2 Calculation Sheets



### Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:10:26

Project Information			
Assessed By Darren Coham Building Type Flat, Detached			
OCDEA Registration	EES/022007	Assessment Date	2022-09-22

Dwelling Details			
Assessment Type	As built	Total Floor Area	49 m <sup>2</sup>
Site Reference	Flat 1	Plot Reference	00001
Address			

Client Details		
Name	•	
Company	•	
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	Mains gas								
Target carbon dioxide emission rate	18.32 kgCO <sub>2</sub> /m <sup>2</sup>								
Dwelling carbon dioxide emission rate	16.05 kgCO <sub>2</sub> /m <sup>2</sup>	OK							
1b Target primary energy rate and dwelling primary energy									
Target primary energy	97.81 kWh <sub>PE</sub> /m <sup>2</sup>								
Dwelling primary energy	85.69 kWh <sub>PE</sub> /m <sup>2</sup>	OK							
1c Target fabric energy efficiency and dwelling fabric energy efficiency									
Target fabric energy efficiency	48.3 kWh/m <sup>2</sup>								
Dwelling fabric energy efficiency	44.1 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	0.18	Walls (1) (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	0.13	Heatloss Floor 1 (0.13)	OK						
Roofs	0.16	N/A	N/A	N/A						
Windows, doors, and roof windows	1.6	1.18	w1 (1.2)	ОК						
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)	40.654	0.18							
Sheltered wall: Walls (2)	17.1025	0.18							
Ground floor: Heatloss Floor 1, Heatloss Floor 1	49.46	0.13							

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]					
ed1, Door	1.9475	South East	N/A	1 (!)					
w1, windows	3.06	North East	0.8	1.2					
w2, windows	3.06	North East	0.8	1.2					
pd1, windows	6.72	North West	0.8	1.2					
w3, windows	1.836	West	0.8	1.2					
w4, windows	3.06	South West	0.8	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											
Building part 1 -	Main Dwelling: Thermal bridging ca	lculated from linear thermal transmit	tances for each ju	nction							
Main element	Junction detail	Psi value	Drawing /								
			[W/mK]	reference							
External wall	E2: Other lintels (including other steel lintels)	Government-approved scheme	0.042								

Main element	Junction detail		Source	Psi value [W/mK]	Drawing / reference
External wall	E4: Jamb		Government-approved scheme	0.035 (!)	
External wall	E5: Ground floor (norm	al)	Government-approved scheme	0.075	
External wall	E16: Corner (normal)	,	Government-approved scheme	0.042	
External wall	E7: Party floor betweer (in blocks of flats)	n dwellings	Government-approved scheme	0.027 (!)	
3 Air permeabili	ty (better than typically	v expected	values are flagged with a subse	auent (!))	
	ted air permeability at 50		$8 m^3/hm^2$		
Dwelling air perm			3 m <sup>3</sup> /hm <sup>2</sup> , Measured value (!)		OK
	est certificate reference				- H
4 Space heating					
		ators or unde	erfloor heating - Mains gas		
Efficiency		89.2%			
Emitter type		Radiators			
Flow temperature	9	45°C			
System type	-	Combi boil	er		
Manufacturer			rmotechnology		
Model		Greenstar	initiation in the second se		
Commissioning		Sidensial			
Secondary heat	ing system <sup>.</sup> N/A	1			
Fuel	ing system. IV/A	N/A			
Efficiency		N/A			
Commissioning		1 11/77			
Commissioning					
5 Hot water					
Cylinder/store -	type: N/A				
Capacity		N/A			
Declared heat los	SS	N/A			
Primary pipework	c insulated	N/A			
Manufacturer					
Model					
Commissioning					
	at recovery system 1 -	type: N/A			
Efficiency					
Manufacturer					
Model					
6 Controls					
	tupo: Drogrommor, roor	n thormooto	t and TP\/a		
Function	type: Programmer, roor		u, anu 1875		
Ecodesign class					
Manufacturer					
Model					
Water heating -	type: N/A				
Manufacturer					
Model					
		I			
7 Lighting	a d linda ( a construction of the construction				
	ed light source efficacy	75 lm/W			01
Lowest light sour		80 lm/W			OK
External lights co	ntrol	N/A			
8 Mechanical ve					
System type: N/					
Maximum permit	ted specific fan power	N/A			
Specific fan powe		N/A			N/A
Minimum permitte		N/A			•
efficiency	,				
Heat recovery eff	ficiency	N/A			N/A
Manufacturer/Mo					<u>ب</u> ــــــــــــــــــــــــــــــــــــ
Commissioning					
Commissioning					

Technology type: Photovoltaic system (1)         Peak power       0.68 kWp         Orientation       South         Pitch       30°         Overshading       None or very little         Manufacturer       MCS certificate         10 Heat networks       N/A									
Orientation     South       Pitch     30°       Overshading     None or very little       Manufacturer     Mone or very little       MCS certificate     Image: Comparison of the second sec									
Pitch     30°       Overshading     None or very little       Manufacturer     MCS certificate       10 Heat networks     N/A									
Overshading     None or very little       Manufacturer     MCS certificate       10 Heat networks     N/A									
Manufacturer       MCS certificate       10 Heat networks       N/A									
MCS certificate 10 Heat networks N/A									
10 Heat networks N/A									
N/A									
N/A									
11 Supporting documentary evidence									
Documentary evidence identified in 11.1 and 11.2 is needed to confirm the data values used for any									
calculations undertaken, manufacturer declarations made, and tests performed as reflected in this									
"As built" BREL Compliance Report are correct.									
11.1 SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum									
documentary evidence required.									
11.2 Indicative photographic evidence of key stages during construction (guidance within Approved									
Document L, Volume 1 – Appendix B) that confirms the products identified in this BREL									
Compliance Report are used in this dwelling, and workmanship is of sufficient quality to support									
the calculated values claimed in 2a to 2d.									
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 and construction information submitted for									
this dwelling for the purpose of carrying out the assessment, and that the supporting documentary									
evidence (identified in 11.1 and 11.2) pursuant to Part L of the Building Regulations 2010 (as									
amended) has been reviewed in the course of preparing this BREL Compliance Report.									
Signed: Assessor ID:									
Assessorial.									
Name									
Name: Date:									
b. Client Declaration									
This declaration by the client is confirmation that the dwelling has been constructed and completed									
according to the specifications set out in this BREL Compliance Report, and that photographic									
evidence of key stages, as described in 11.2, has been provided to the Assessor for this dwelling.									
Signed: Organisation:									
Name: Date:									



Property Reference	Flat 1								lss	ued on Dat	e 22/0	9/2022	
Assessment Reference	00001					Pro	р Туре	Ref					
Property													
SAP Rating			88 B		DER		16.0	)5		TER	1	8.32	
Environmental			89 B		% DEF	<ter< td=""><td>12.3</td><td></td><td></td><td></td><td></td><td></td><td></td></ter<>	12.3						
CO <sub>2</sub> Emissions (t/year)			0.69		DFEE		44.1	10		TFEE	4	8.29	
Compliance Check			See BR	EL	% DFE E	E < TFE	8.67	7					
% DPER < TPER			12.39		DPER		85.6	69		TPER	9	7.81	
Assessor Details	Mr. Darren (	Coham								Assesso	or ID F	789-00	01
Client													
SUMMARY FOR INPUT	DATA FOR	R: New Bu	uild (As Buil	lt)									
Orientation			Southea	ist						]			
Property Tenture			ND							]			
Transaction Type			6							]			
Terrain Type			Suburba	an						]			
1.0 Property Type			Flat, De	tached						]			
Position of Flat			Ground-	floor flat						]			
Which Floor			0							]			
2.0 Number of Storeys			1							]			
3.0 Date Built			2022	2022									
4.0 Sheltered Sides			2							]			
5.0 Sunlight/Shade			Average	or unknowr	۱					]			
6.0 Thermal Mass Parameter			Enter TM	MP value						]			
Thermal Mass			250.00							kJ/m²K			
7.0 Electricity Tariff			Standar	d						]			
Smart electricity meter fitte	ed		Yes							]			
Smart gas meter fitted			Yes							]			
7.0 Measurements					Hoat	Loss P	arimoto	ar Int	ornal	Floor Area	Averag	o Storo	v Height
			G	Fround Floo	r:	m				m²	Averag	m	y Height
				1st Store 2nd Store	y:	30.38 m	m			46 m² m²		2.55 m m	1
				3rd Store 4th Store		m m				m² m²		m m	
				5th Store 6th Store		m m				m² m²		m m	
				7th Store 8th Store	ý:	m m				m² m²		m m	
8.0 Living Area			22.96		y.								
9.0 External Walls										-			
Description Typ	0e	Construction				Kappa	Gross	Nett Area (m²)	Shelter Res	Shelte	r Openin		Calculation Type
External Wall 1 Car	vity Wall		asterboard on dabs gregate block, filleo ire		0.18		58.39	40.65	0.00	None	17.74		Gross Area
wall to corridor Cav	vity Wall	Cavity wall; pla	asterboard on dabs gregate block, filled		0.18		19.05	17.10	0.50	Stairwell Stai	rwell 1 1.95	Enter	Gross Area
9.1 Party Walls	Turc	0	offunction					11. Vol	Ker	no Arres	Shalfer	01-	alto-
Description	Type		struction	l on daha cr	both aid	an dana	0	U-Value (W/m <sup>2</sup> K)	(kJ/m	<sup>2</sup> K) (m <sup>2</sup> )	Shelter Res		elter
Party Wall 1	Filled Cavit Edge Seali		le plasterboard ks, cavity or ca		DOUT SID	es, uens	C	0.00		39.19		IN	one
10.1 Party Ceilings Description		Cons	truction										Area (m²)
Party Ceiling 1		Conci	rete floor slab,	carpeted								<b>m²K)</b> 0.00	49.46



11.0 Heat Loss Floors	<b>T</b>	0 fa la .la.		<b>O</b> and the state of the state				01	- Kana	• • • • • • • • • • • • • • • • • • • •
Description Heatloss Floor 1	<b>Type</b> Ground Floor - Solid	Storey Index		Construction Slab on ground, screed over insulation	U-Va (W/n 0.1	n²K)	Shelter Code	Fa	elter Kapp ctor (kJ/m .00 110.0	
12.0 Opening Types			pieu		0.	15	none	0	.00 110.0	
Description	Data Source	Туре		Glazing	Glazing Gap	Filling Type		Frame Type	Frame Factor	U Value (W/m²K)
windows Door	Manufacturer Manufacturer	Window Door to C	orrid	Double Low-E Soft 0.05 pr		-	0.63	-	0.80	1.20 1.00
<b>13.0 Openings</b> <b>Name</b> ed1 w1 w2 pd1 w3 w4	<b>Opening Ty</b> Door windows windows windows windows windows	ype		Location wall to corridor External Wall 1 External Wall 1 External Wall 1 External Wall 1 External Wall 1	North North	East East East West est	Area 1.9 3.0 3.0 6.7 1.8 3.0	5 6 6 2 4	Pi	tch
14.0 Conservatory				None						
15.0 Draught Proofing				100			%			
16.0 Draught Lobby				No						
17.0 Thermal Bridging 17.1 List of Bridges				Calculate Bridges						
Bridge Type E2 Other lintels (includi E4 Jamb E5 Ground floor (normal E16 Corner (normal) E7 Party floor between	d)		Gov Gov Gov Gov	rce TypeLengApproved Scheme10.0Approved Scheme22.9Approved Scheme30.3Approved Scheme10.2Approved Scheme30.3	7 0.04 8 0.04 8 0.08 0 0.04	Adjuste 0.04 0.04 0.08 0.04 0.03	d Reference	:		Imported Yes Yes Yes Yes No
Y-value				0.04			W/m²K			
18.0 Pressure Testing				Yes						
Property Tested?				Yes						
Test Method				Blower Door						
As Built AP <sub>50</sub>				3.00			m³/(h.m	<sup>2</sup> ) @ 50 P	a	
19.0 Mechanical Ventilation Mechanical Ventilation Mechanical Ventil	n	sent		No						
20.0 Fans, Open Fireplace	es, Flues									
21.0 Fixed Cooling Syster	n			No						
22.0 Lighting				NI-						
No Fixed Lighting				No Name Efficacy Lighting 1 80.00	Po	ower 8	 Capa 64	o intervention		<b>ount</b> 10
24.0 Main Heating 1				Database						
Percentage of Heat				100.00			%			
Database Ref. No.				17511			_			
Fuel Type				Mains gas						
In Winter				89.20						
In Summer				87.20						
				-			=			
Model Name				Greenstar						
Model Name Manufacturer				Greenstar Bosch Thermotechnology						
Manufacturer				Bosch Thermotechnology						
Manufacturer System Type				Bosch Thermotechnology Combi boiler						
Manufacturer System Type Controls SAP Code				Bosch Thermotechnology Combi boiler 2106						
Manufacturer System Type Controls SAP Code Delayed Start Stat				Bosch Thermotechnology Combi boiler 2106 Yes						



Jan Recommendation		Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oc	t Nov	Dec
34.0 Small-scale	Hydro			None					]		
0.68		South	30°	None	Or Little		No	1.00		Reference	
PV Cells	s kWp	Orientation	Elevation	o Overs	shading	FGHRS	MCS Certificate	e Ove Fact	rshading or	Certificate	Panel Manufacturer
Battery Capac	ity [kWh]			0.00					]		
Diverter				Yes					]		
Connected To	Dwelling			Yes					]		
Export Capabl	e Meter?			Yes					]		
32.0 Photovoltaic	: Unit			Multiple D	wellings	- Connected			]		
In Airing Cupb	oard			No					]		
29.0 Hot Water C	ylinder			None					]		
28.3 Waste Water	r Heat Recovery	System									
Bath Count				1					]		
Cold Water Sc	ource			From mair	าร				]		
	125 litres/person/	day		No					]		
Solar Panel				No					]		
Waste Water H	Heat Recovery St	orage Syster	n	No							
	Heat Recovery Ins		-	No					]		
	Heat Recovery Ins			No					]		
Flue Gas Heat Recovery System				No							
SAP Code				901					]		
Water Heating				Main Heat	ing 1				]		
28.0 Water Heatir	ng								_		
Heat source 1 Heat source 2 Heat source 3 Heat source 4 Heat source 5											
114	Heat Source	Fuel Type	e Heating Us	se Effic	iency P	ercentage Of Heat	Heat Hea Pow Rat	er	ctrical	Fuel Factor	Efficiency type
26.0 Heat Networ	ks			None							
25.0 Main Heating	g 2			None					]		
Combi keep he	от туре			Gas/Oil, til	THE CLOCK				]		
Combi boiler t				Gas/Oil. ti					] ]		
Boiler Interlock				Yes Standard (	Combi				] 1		
Flow Tempera				45.00					] 1		
Flow Tempera				Enter valu	e				] 1		
Heat Emitter				Radiators					]		
Heating Pump	Age			2013 or la					1		

Further measures to achieve even higher standards

Turrian Coast		Ratings af	Ratings after improvement			
Typical Cost	Typical savings per year	SAP rating	Environmental Impact			
		0	0			
		0	0			
		0	0			

### **Building Regulations England Part L (BREL) Compliance Report**

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:12:48

Project Information			
Assessed By	Darren Coham	Building Type	Flat, Semi-detached
OCDEA Registration	EES/022007	Assessment Date	2022-09-22

Dwelling Details								
Assessment Type	As built	Total Floor Area	36 m <sup>2</sup>					
Site Reference	Flat 2	Plot Reference	00001					
Address								

Client Details							
Name	-						
Company	•						
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	Mains gas							
Target carbon dioxide emission rate	18.85 kgCO <sub>2</sub> /m <sup>2</sup>							
Dwelling carbon dioxide emission rate	15.52 kgCO <sub>2</sub> /m <sup>2</sup> OK							
1b Target primary energy rate and dwelling primary energy								
Target primary energy	101.12 kWh <sub>PE</sub> /m <sup>2</sup>							
Dwelling primary energy	82.59 kWh <sub>PF</sub> /m <sup>2</sup> OK							
1c Target fabric energy efficiency and dwelling fabric energy efficiency								
Target fabric energy efficiency	41.6 kWh/m <sup>2</sup>							
Dwelling fabric energy efficiency	35.9 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	0.18	Walls (1) (0.18)	OK					
Party walls	0.2	0	Party Wall (1) (0)	N/A					
Curtain walls	1.6	0	N/A	N/A					
Floors	0.18	N/A	N/A	N/A					
Roofs	0.16	N/A	N/A	N/A					
Windows, doors,	1.6	1.17	w1 (1.2)	OK					
and roof windows									
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)	41.305	0.18						
Sheltered wall: Walls (2)	11.9225	0.18						
Party wall: Party Wall (1)	2.61	0 (!)						

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]				
w1, windows	3.57	South East	0.8	1.2				
w2, windows	3.57	South East	0.8	1.2				
w3, windows	2.415	North West	0.8	1.2				
w4, windows	2.1	North East	0.8	1.2				
ed1, Door	1.9475	South West	N/A	1 (!)				

Building part 1 -	Main Dwelling: Thermal bridging ca	alculated from linear thermal transm	nittances for eac	h junction
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Government-approved scheme	0.042	
External wall	E3: Sill	Government-approved scheme	0.032 (!)	
External wall	E4: Jamb	Government-approved scheme	0.035 (!)	

Main element	Junction detail		Source	Drawing /	
External wall			Government-approved scheme	[W/mK] 0.027 (!)	reference
	(in blocks of flats)			0.040	
External wall	E16: Corner (normal)	1 112	Government-approved scheme	0.042	
External wall	E18: Party wall between		Government-approved scheme	0.056	
Party wall	P3: Intermediate floor be		SAP table default	0 (!)	
	dwellings (in blocks of fla	ats)			
			values are flagged with a subsect 8 m <sup>3</sup> /hm <sup>2</sup>	quent (!))	
	tted air permeability at 50F	29			01/
Dwelling air pern Air permeability t	test certificate reference		3 m <sup>3</sup> /hm <sup>2</sup> , Measured value (!)		OK
4 Space heating	1				
		ors or unde	erfloor heating - Mains gas		
Efficiency		39.2%			
Emitter type	F	Radiators			
Flow temperature	e 4	15°C			
System type		Combi boile	er		
Manufacturer			rmotechnology		
Model		Greenstar			
Commissioning		2.0010tul			
	ting system: N/A				
Fuel		N/A			
Efficiency		N/A			
Commissioning		N/T			
5 Hot water					
Cylinder/store -	type: N/A				
Capacity		N/A			
Declared heat lo	ss	N/A			
Primary pipewor		N/A			
Manufacturer		.,			
Model					
Commissioning					
	at recovery system 1 - ty	rpe: N/A			
Efficiency		p 01 1 1/7 1			
Manufacturer					
Model					
6 Controls					
-	- type: Programmer, room	thermosta	t, and TRVs		
Function					
Ecodesign class					
Manufacturer					
Model					
Water heating -	type: N/A				
Manufacturer					
Model					
7 Lighting					
		75 lm/W			
Lowest light sour	rce efficacy 8	30 lm/W			OK
External lights co	ontrol N	N/A			
8 Mechanical ve	entilation				
System type: N	/A				
		V/A			
Specific fan pow		V/A			N/A
		V/A			
efficiency					
Heat recovery ef	ficiency	N/A			N/A
Manufacturer/Mo					11/1
Commissioning					
Commissioning					

9 Local generation									
Technology type: Photovoltaic system	(1)								
Peak power	0.68 kWp								
Orientation	South								
Pitch	30°								
Overshading	None or very little								
Manufacturer									
MCS certificate									
10 Heat networks	•								
N/A									
11 Supporting documentary evidence									
Documentary evidence identified in 11.1	and 11.2 is needed to	o confirm the data values used for any							
calculations undertaken, manufacturer de									
"As built" BREL Compliance Report are of									
11.1 SAP Conventions, Appendix 1 (doc		schedules the minimum							
documentary evidence required.									
11.2 Indicative photographic evidence of	f kev stages during co	onstruction (quidance within Approved							
Document L, Volume 1 – Appendix									
Compliance Report are used in this dwelling, and workmanship is of sufficient quality to support									
the calculated values claimed in 2a to 2d.									
12 Declarations									
a. Assessor Declaration	<u>.</u>								
		ntents of this BREL Compliance Report							
		nd construction information submitted for							
		it, and that the supporting documentary							
evidence (identified in 11.1 and 11.2)									
amended) has been reviewed in the c	ourse of preparing th	is BREL Compliance Report.							
Signed:		Assessor ID:							
Name:		Date:							
b. Client Declaration	<i>а</i> а са т ш								
		ng has been constructed and completed							
according to the specifications set out in this BREL Compliance Report, and that photographic									
evidence of key stages, as described	evidence of key stages, as described in 11.2, has been provided to the Assessor for this dwelling.								
Signed:		Organisation:							
Name:		Date:							



Property Reference	FI	at 2								lss	ued on	Date	22	2/09/20	22
Assessment Reference	00	0001					Pro	р Туре	Ref						
Property															
SAP Rating				89 B		DER		15.5	52		TER	2		18.85	
Environmental				91 B		% DEF	<ter< td=""><td>17.6</td><td></td><td></td><td></td><td>_</td><td></td><td>10.00</td><td></td></ter<>	17.6				_		10.00	
CO <sub>2</sub> Emissions (t/year)				0.49		DFEE		35.9			TFE	E		41.56	
Compliance Check				See BRE			E < TFE								
% DPER < TPER						E DPER		82.5	:0		TPE	P		101.1	2
				18.32		DFLK		02.3	99						
Assessor Details	Mr. Da	rren Coham	1								Ass	essor	ID	R789	-0001
			Desited (	A - D	<u>,                                     </u>										
SUMMARY FOR INPU	I DAIA	FOR: NO	w Bulla (												
Orientation				Southwe	st						]				
Property Tenture				ND							]				
Transaction Type				6											
Terrain Type				Suburbar	ו						]				
1.0 Property Type				Flat, Sem	ni-Detached						]				
Position of Flat				Mid-floor	flat						]				
Which Floor				1							]				
2.0 Number of Storeys				1											
3.0 Date Built				2022											
4.0 Sheltered Sides				1											
5.0 Sunlight/Shade				Average	or unknown										
6.0 Thermal Mass Paramet	er			Enter TM	P value						]				
Thermal Mass				250.00							kJ/m <sup>2</sup>	²K			
7.0 Electricity Tariff				Standard							]				
Smart electricity meter fit	ted			Yes							]				
Smart gas meter fitted				Yes							]				
7.0 Measurements						Heat	Loss P	orimoto	r Inf	ornal	Floor A	Area	Aver	ane St	orey Height
				Gi	round Floo	r:	m				m²	1100	Avei	r	n
					1st Store 2nd Store	<i>ı</i> :	27.21 m	m			.27 m² m²			r	5 m n
					3rd Storey 4th Storey		m m				m² m²				n n
					5th Store		m m				m² m²				n n
					7th Store 8th Store	<i>r</i> :	m m				m² m²			r	n n
8.0 Living Area				23.72		•									
9.0 External Walls															
	уре	Constr	uction				Kappa			Shelter	· s	helter	Oper	nings Aı	rea Calculation
External Wall 1 C	Cavity Wall	lightwei	wall; plasterbo ght aggregate			( <b>W/m-K)</b> 0.18	(kJ/m²K)	52.96	41.31	<b>Res</b> 0.00	1	None	11	.66 Ei	<b>Type</b> nter Gross Area
wall to corridor C	Cavity Wall	Cavity v lightwei	structure wall; plasterbo ght aggregate structure	ard on dabs block, filled	or battens, cavity, any	0.18		13.87	11.92	0.50	Stairwe	ll Stairw	vell 1 1.	95 Ei	nter Gross Area
9.1 Party Walls															
Description	Туре		Construc	tion					U-Value (W/m <sup>2</sup> K)			rea m²)	Shelte Res	r	Shelter
Party Wall 1		Cavity with Sealing		sterboard wity or cav		both sid	es, dens	e	0.00			.61			None
10.1 Party Ceilings Description	-		Constructi	on										Kappa	
Party Ceiling 1			Concrete fl	oor slab, c	arpeted									<b>(J/m²K</b> 100.00	



#### 11.1 Party Floors Description Storey Construction Kappa Area (m<sup>2</sup>) Index (kJ/m²K) Party Floor 1 36.27 Concrete floor slab, carpeted 100.00 Lowest occupied 12.0 Opening Types Filling Description Data Source Glazing Glazing G-value Frame Frame **U** Value Type (W/m<sup>2</sup>K) Factor Gap Туре Type 0.63 0.80 windows Manufacturer Window Double Low-E Soft 0.05 1.20 Manufacturer Door to Corridor 1.00 Door 13.0 Openings Pitch Name **Opening Type** Location Orientation Area (m<sup>2</sup>) External Wall 1 South East windows 3.57 w1 w2 windows External Wall 1 South East 3.57 w3 windows External Wall 1 North West 2.42 w4 windows External Wall 1 North East 2.10 ed1 Door wall to corridor South West 1.95 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 Psi Bridge Type Source Type Length Adjusted Reference: Imported E2 Other lintels (including other steel lintels) Gov Approved Scheme 6.50 0.04 0.04 Yes F3 Sill Gov Approved Scheme 5.55 0.03 0.03 Yes 20.90 E4 Jamb Gov Approved Scheme 0.04 0.04 Yes Gov Approved Scheme E7 Party floor between dwellings (in blocks of flats) 54.42 0.03 0.03 No E16 Corner (normal) Gov Approved Scheme 5.10 0.04 0.04 Yes E18 Party wall between dwellings Gov Approved Scheme 5.10 0.06 0.06 Yes P3 Party wall - Intermediate floor between dwellings Table K1 - Default 1.03 0.00 0.00 No (in blocks of flats) Y-value 0.05 W/m<sup>2</sup>K **18.0 Pressure Testing** Yes **Property Tested?** Yes Test Method Blower Door 3.00 As Built APs m³/(h.m²) @ 50 Pa **19.0 Mechanical Ventilation Mechanical Ventilation** No Mechanical Ventilation System Present 20.0 Fans, Open Fireplaces, Flues 21.0 Fixed Cooling System No 22.0 Lighting No Fixed Lighting No Efficacy Power Name Capacity Count Lighting 1 80.00 8 640 10 24.0 Main Heating 1 Database Percentage of Heat 100.00 % Database Ref. No. 17511 Mains gas Fuel Type In Winter 89.20 87.20 In Summer Model Name Greenstar Manufacturer Bosch Thermotechnology Combi boiler System Type Controls SAP Code 2106 **Delayed Start Stat** Yes

Balanced

Flue Type



Fan Assisted Flue			Yes							
Is MHS Pumped			Pump in h	leated sp	ace					
Heating Pump Age			2013 or la	iter						
Heat Emitter			Radiators							
Flow Temperature			Enter valu	ie						
Flow Temperature Value			45.00							
Boiler Interlock			Yes							
Combi boiler type			Standard	Combi						
Combi keep hot type			Gas/Oil, ti	me clock						
25.0 Main Heating 2			None							
26.0 Heat Networks			None							
Heat Sour	rce Fuel Typ	e Heating U	se Effic	iency P	ercentage Of Heat	Heat Hea Powe Rati	ər	ctrical	Fuel Factor	Efficiency type
Heat source 1 Heat source 2 Heat source 3 Heat source 4 Heat source 5										
28.0 Water Heating										
Water Heating			Main Hea	ting 1						
SAP Code			901							
Flue Gas Heat Recovery S	ystem		No							
Waste Water Heat Recover	y Instantaneous	System 1	No							
Waste Water Heat Recover	y Instantaneous	System 2	No							
Waste Water Heat Recover	y Storage Syste	∍m	No							
Solar Panel			No							
Water use <= 125 litres/per	son/day		No							
Cold Water Source			From mai	ns						
Bath Count			1							
28.3 Waste Water Heat Recov	very System									
29.0 Hot Water Cylinder			None							
In Airing Cupboard			No							
32.0 Photovoltaic Unit			Multiple D	wellings	<ul> <li>Connected</li> </ul>					
Export Capable Meter?			Yes							
Connected To Dwelling			Yes							
Diverter			Yes							
Battery Capacity [kWh]			0.00							
PV Cells kWp	Orientation	n Elevatior	n Over	shading	FGHRS	MCS Certificate	Over: Facto	shading or	Certificate	Panel Manufacturer
0.68	South	30°	None	Or Little		No	1.00		Reference	
34.0 Small-scale Hydro			None							
Jan Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oc	t Nov	Dec
Recommendations Lower cost measures None Further measures to achi	eve even highe	er standards								
		т	Typical Cos	t	Typical saving	gs per year	R SAP ra		fter improven Enviror	nent nmental Impact
							0 0	-		0 0
							0			0

### **Building Regulations England Part L (BREL) Compliance Report**

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:13:57

Project Information									
Assessed By	Darren Coham	Building Type	Flat, Semi-detached						
OCDEA Registration	EES/022007	Assessment Date	2022-09-22						

Dwelling Details				
Assessment Type	As built	Total Floor Area	50 m <sup>2</sup>	
Site Reference	Flat 3	Plot Reference	3	
Address				

Client Details					
Name	-				
Company	•				
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	Mains gas					
Target carbon dioxide emission rate	16.18 kgCO <sub>2</sub> /m <sup>2</sup>					
Dwelling carbon dioxide emission rate	14.47 kgCO <sub>2</sub> /m <sup>2</sup>	OK				
1b Target primary energy rate and dwelling primary energy	an a					
Target primary energy	86.31 kWh <sub>PE</sub> /m <sup>2</sup>					
Dwelling primary energy	77.16 kWh <sub>PE</sub> /m <sup>2</sup>	OK				
1c Target fabric energy efficiency and dwelling fabric energy	1c Target fabric energy efficiency and dwelling fabric energy efficiency					
Target fabric energy efficiency	38.9 kWh/m <sup>2</sup>					
Dwelling fabric energy efficiency	38.5 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	0.18	Walls (1) (0.18)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	N/A	N/A	N/A
Roofs	0.16	N/A	N/A	N/A
Windows, doors,	1.6	1.18	w1 (1.2)	OK
and roof windows				
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)	45.4638	0.18					
Sheltered wall: Walls (2)	10.4225	0.18					
Party wall: Party Wall (1)	2.61	0 (!)					

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]		
w1, windows	3.57	South West	0.8	1.2		
w2, windows	2.1462	West	0.8	1.2		
w3, windows	3.57	North East	0.8	1.2		
w4, windows	3.57	North East	0.8	1.2		
ed1, Door	1.9475	South West	N/A	1 (!)		
pd1, windows	7.5	North West	0.8	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)	Government-approved scheme	0.042			

Main element	Junction detail		Source	Psi value [W/mK]	Drawing / reference
External wall	E4: Jamb		Government-approved scheme	0.035 (!)	
External wall	E7: Party floor between (in blocks of flats)	dwellings	Government-approved scheme	0.027 (!)	
External wall	E16: Corner (normal)		Government-approved scheme	0.042	
External wall	E18: Party wall betweer	n dwellings	Government-approved scheme	0.056	
Party wall	P3: Intermediate floor b dwellings (in blocks of fl		Government-approved scheme	0 (!)	
3 Air permeabil	ity (better than typically	expected	values are flagged with a subse	quent (I))	
	tted air permeability at 50		8 m <sup>3</sup> /hm <sup>2</sup>		
Dwelling air pern		<i>i</i> u	3 m <sup>3</sup> /hm <sup>2</sup> , Measured value (!)		OK
	test certificate reference				
			1		
4 Space heating		· · · · ·			
			erfloor heating - Mains gas		
Efficiency		89.2%			
Emitter type		Radiators 45°C			
Flow temperatur		45°C Combi boil	or		
System type Manufacturer			er rmotechnology		
Model		Greenstar	motechnology		
Commissioning		JICENSIAI			
	ting system: N/A				
Fuel		N/A			
Efficiency		N/A			
Commissioning					
¥					
5 Hot water					
Cylinder/store -					
Capacity		N/A			
Declared heat lo		N/A			
Primary pipewor	k insulated	N/A			
Manufacturer					
Model					
Commissioning		<b>N</b> 1/A			
	at recovery system 1 - t	ype: N/A			
Efficiency					
Manufacturer					
Model					
6 Controls					
Main heating 1	- type: Programmer, room	n thermosta	it, and TRVs		
Function					
Ecodesign class					
Manufacturer					
Model					
Water heating -	type: N/A				
Manufacturer					
Model					
7 Lighting					
	ted light source efficacy	75 lm/W			
Lowest light sou		80 lm/W			ОК
External lights co		N/A			
	•				
8 Mechanical ve					
System type: N		N1/A			
	, ,	N/A			
Specific fan pow		N/A			N/A
	ted heat recovery	N/A			
efficiency		N1/A			
Heat recovery ef		N/A			N/A
Manufacturer/Mo	Daei				
Commissioning					

9 Local generation						
Technology type: Photovoltaic system (1)						
Peak power	0.68 kWp					
Orientation	South					
Pitch	30°					
Overshading	None or very little					
Manufacturer						
MCS certificate						
10 Heat networks						
N/A						
11 Supporting documentary evidence						
Documentary evidence identified in 11.1	and 11 2 is needed to	o confirm the data values used for any				
calculations undertaken, manufacturer de						
"As built" BREL Compliance Report are o						
11.1 SAP Conventions, Appendix 1 (doc		schedules the minimum				
documentary evidence required.	unionary evidence)					
11.2 Indicative photographic evidence of	f key stages during co	onstruction (quidance within Approved				
Document L, Volume 1 – Appendix						
		nanship is of sufficient quality to support				
the calculated values claimed in 2a	-					
	10 20.					
12 Declarations						
a. Assessor Declaration	- Constant the state of second	ntente efitión DDEL Ormalianes Desert				
		ontents of this BREL Compliance Report				
		nd construction information submitted for				
		nt, and that the supporting documentary				
evidence (identified in 11.1 and 11.2)						
amended) has been reviewed in the c	ourse of preparing th	is BREL Compliance Report.				
Signed:		Assessor ID:				
Name:		Date:				
h Oliant Declaration						
b. Client Declaration	motion that the dwall	ng has been constructed and completed				
		ng has been constructed and completed				
according to the specifications set out						
evidence of key stages, as described	in 11.2, has been pro	ovided to the Assessor for this dwelling.				
O'ment.		Questionation				
Signed:		Organisation:				
Name:		Date:				



Property Reference Flat	3					lss	ued on Date	22/09/2	2022
Assessment Reference 3				Prop T	ype Ref				
Property									
SAP Rating		89 B	DER		14.47		TER	16.	10
Environmental			% DER <t< td=""><td>ЕР</td><td></td><td></td><td>IER</td><td>16.</td><td>18</td></t<>	ЕР			IER	16.	18
		90 B		EK	10.57		TEEE		20
CO <sub>2</sub> Emissions (t/year)		0.63	DFEE % DFEE <	< TEE	38.51		TFEE	38.9	90
Compliance Check		See BREL	E	NIFE	0.99				
% DPER < TPER		10.60	DPER		77.16		TPER	86.3	31
Assessor Details Mr. Darr	en Coham						Assessor	ID R78	39-0001
Client									
SUMMARY FOR INPUT DATA F	OR: New Build	(As Built)							
Orientation		Southwest							
Property Tenture		ND							
Transaction Type		6							
Terrain Type		Suburban							
1.0 Property Type		Flat, Semi-Detached							
Position of Flat		Mid-floor flat							
Which Floor		2							
2.0 Number of Storeys		1							
3.0 Date Built		2022							
4.0 Sheltered Sides		1							
5.0 Sunlight/Shade									
6.0 Thermal Mass Parameter		Average or unknown							
		250.00					k 1/m21		
Thermal Mass		250.00					kJ/m²K		
7.0 Electricity Tariff		Standard							
Smart electricity meter fitted		Yes							
Smart gas meter fitted		No							
7.0 Measurements		Yes							
		Yes						<b>A</b>	Céanair I la imhé
		Ground Floo	or:	oss Perir	neter li		Floor Area		Storey Height
		Ground Floo 1st Store	or: ey: 3	m 30.66 m	meter li	49.	m² 84 m²		m .55 m
		Ground Floc 1st Store 2nd Store 3rd Store	or: y: 3 y: y:	m 30.66 m m m	meter li	49.	m² 84 m² m² m²		m .55 m m m
		Ground Floo 1st Store 2nd Store 3rd Store 4th Store 5th Store	or: iy: 3 iy: iy: iy: iy: iy:	m 80.66 m m m m m	meter li	49.	m <sup>2</sup> 84 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup>		m .55 m m m m
		Ground Floc 1st Store 2nd Store 3rd Store 4th Store	or: :y: 3 :y: :y: :y: :y: :y:	m 30.66 m m m m	meter li	49.	m² 84 m² m² m² m²		m .55 m m m m
		Ground Floc 1st Store 2nd Store 3rd Store 4th Store 5th Store 6th Store	or: y: 3 y: y: y: y: y: y: y:	m 30.66 m m m m m m	meter li	49.	m <sup>2</sup> 84 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup>		m .55 m m m m m
8.0 Living Area		Ground Floc 1st Store 2nd Store 3rd Store 4th Store 5th Store 6th Store 7th Store	or: y: 3 y: y: y: y: y: y: y:	m 30.66 m m m m m m m	meter li	49.	m <sup>2</sup> 84 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup>		m .55 m m m m m m
8.0 Living Area 9.0 External Walls		Ground Floc 1st Store 2nd Store 3rd Store 4th Store 5th Store 6th Store 7th Store 8th Store	or: y: 3 y: y: y: y: y: y: y:	m 30.66 m m m m m m m	meter h	49.	m <sup>2</sup> 84 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup>	2	m .55 m m m m m m m
9.0 External Walls Description Type	Construction	Ground Floc 1st Store 2nd Store 3rd Store 4th Store 6th Store 7th Store 8th Store 8th Store	Dr: 3 y: 3 y: y: y: y: y: y: y: y: U-Value K (W/m²K) (k.	m 30.66 m m m m m m m m J/m²K) Are	ross Nett ad(m²) Area (m²	49. Shelter	m <sup>2</sup> 84 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup>	Qpenings	m .55 m m m m m m m M
9.0 External Walls	Cavity wall; plasterb lightweight aggregat	Ground Floc 1st Store 2nd Store 3rd Store 4th Store 5th Store 6th Store 7th Store 8th Store	Dr: y: 3 y: y: y: y: y: y: y: y: y: U-Value K	m 30.66 m m m m m m m m J/m²K) Are	ross Nett	49.	m <sup>2</sup> 84 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup>	2	m .55 m m m m m m m m M
9.0 External Walls Description Type	Cavity wall; plasterb lightweight aggregat outside structure Cavity wall; plasterb	Ground Floc 1st Store 2nd Store 3rd Store 4th Store 5th Store 7th Store 8th Store 22.96	Dr: 3 y: 3 y: y: y: y: y: y: y: y: U-Value K (W/m²K) (k.	m 30.66 m m m m m m m m m m m m m m fappa Gr f //m²K) Are 65	ross Nett ad(m²) Area (m²	49. Shelter	m <sup>2</sup> 84 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup>	2 Openings 20.36	m .55 m m m m m m m M
9.0 External Walls Description Type External Wall 1 Cavity Wall	Cavity wall; plasterb lightweight aggregat outside structure Cavity wall; plasterb lightweight aggregat outside structure	Ground Floc 1st Store 2nd Store 3rd Store 4th Store 5th Store 7th Store 8th Store 22.96	Dr: y: 3 y: y: y: y: y: y: y: y: y: U-Value K (W/m²K) (k. 0.18	m 30.66 m m m m m m m m m m m m m m fappa Gr f //m²K) Are 65	ross Nett ba(m²)Area (m² 5.82 45.46 2.37 10.42	49. Shelter Res 0.00 0.50	m <sup>2</sup> 84 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> <b>Shelter</b> None Stairwell Stairw	2 Openings 20.36	m .55 m m m m m m m m m M Area Calculation Type Enter Gross Area
9.0 External Walls Description Type External Wall 1 Cavity Wall wall to corridor Cavity Wall	Cavity wall; plasterb lightweight aggregat outside structure Cavity wall; plasterb lightweight aggregat	Ground Floc 1st Store 2nd Store 3rd Store 4th Store 5th Store 7th Store 8th Store 22.96	Dr: y: 3 y: y: y: y: y: y: y: y: y: U-Value K (W/m²K) (k. 0.18	m 30.66 m m m m m m m m m m m m m m fappa Gr f //m²K) Are 65	ross Nett sa(m²) Area (m² 5.82 45.46 2.37 10.42 U-Valu	49. Shelter Res 0.00 0.50 e Kapj	m <sup>2</sup> 84 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> M <sup>2</sup> Shelter None Stairwell Stairwe	2 Openings 20.36 ell 1 1.95 Shelter	m .55 m m m m m m m m m M Area Calculation Type Enter Gross Area
9.0 External Walls Description Type External Wall 1 Cavity Wall wall to corridor Cavity Wall 9.1 Party Walls	Cavity wall; plasterb lightweight aggregat outside structure Cavity wall; plasterb lightweight aggregat outside structure Construct /all Single pla	Ground Floc 1st Store 2nd Store 3rd Store 4th Store 5th Store 7th Store 8th Store 22.96	pr: y: y: y: y: y: y: y: y: y: U-Value K (W/m²K) (k. 0.18 0.18 0.18	m 30.66 m m m m m m m m m m 12 2000 Are 65	ross Nett sa(m²) Area (m² 5.82 45.46 2.37 10.42 U-Valu (W/m²ł	49. Shelter Res 0.00 0.50	m <sup>2</sup> 84 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> M <sup>2</sup> Shelter None Stairwell Stairwe	2 Openings 20.36 rell 1 1.95	m .55 m m m m m m m m m m m m m m m m m m m
9.0 External Walls Description Type External Wall 1 Cavity Wall wall to corridor Cavity Wall 9.1 Party Walls Description Type	Cavity wall; plasterb lightweight aggregat outside structure Cavity wall; plasterb lightweight aggregat outside structure Construct /all Single pla	Ground Floc 1st Store 2nd Store 3rd Store 4th Store 5th Store 6th Store 7th Store 8th Store 22.96 22.96 22.96	pr: y: y: y: y: y: y: y: y: y: U-Value K (W/m²K) (k. 0.18 0.18 0.18	m 30.66 m m m m m m m m m m 12 2000 Are 65	ross Nett sa(m²) Area (m² 5.82 45.46 2.37 10.42 U-Valu (W/m²ł	49. Shelter Res 0.00 0.50 e Kapj	m² 84 m² m² m² m² m² m² m² m² m² M² Shelter None Stairwell Stairwe	2 Openings 20.36 ell 1 1.95 Shelter	m .55 m m m m m m m m m m m m m m m m m m m



#### 11.1 Party Floors Description Storey Construction Kappa Area (m<sup>2</sup>) Index (kJ/m²K) Party Floor 1 49.84 Concrete floor slab, carpeted 100.00 Lowest occupied 12.0 Opening Types Description Data Source Glazing Glazing Filling G-value Frame Frame **U** Value Type (W/m<sup>2</sup>K) Factor Gap Type Type 0.63 0.80 windows Manufacturer Window Double Low-E Soft 0.05 1.20 Manufacturer Door to Corridor 1.00 Door 13.0 Openings Pitch Name **Opening Type** Location Orientation Area (m<sup>2</sup>) 3.57 2.15 External Wall 1 South West windows w1 w2 windows External Wall 1 West w3 windows External Wall 1 North East 3.57 w4 windows External Wall 1 North East 3.57 ed1 Door wall to corridor South West 1.95 External Wall 1 North West 7.50 windows pd1 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) 0.04 0.04 Gov Approved Scheme 10.07 0.04 Yes 25.90 0.04 E4 Jamb Gov Approved Scheme Yes Gov Approved Scheme 61.32 E7 Party floor between dwellings (in blocks of flats) 0.03 0.03 No E16 Corner (normal) Gov Approved Scheme 5.10 0.04 0.04 Yes E18 Party wall between dwellings Gov Approved Scheme 5.10 0.06 0.06 Yes P3 Party wall - Intermediate floor between dwellings Gov Approved Scheme 1.03 0.00 0.00 No (in blocks of flats) Y-value 0.04 W/m<sup>2</sup>K **18.0 Pressure Testing** Yes **Property Tested?** Yes Test Method Blower Door 3.00 As Built AP50 m³/(h.m²) @ 50 Pa **19.0 Mechanical Ventilation Mechanical Ventilation** No Mechanical Ventilation System Present 20.0 Fans, Open Fireplaces, Flues 21.0 Fixed Cooling System No 22.0 Lighting No Fixed Lighting No Efficacy Name Power Capacity Count Lighting 1 80.00 8 640 10 24.0 Main Heating 1 Database Percentage of Heat 100.00 % Database Ref. No. 17511 Mains gas Fuel Type In Winter 89.20 87.20 In Summer Model Name Greenstar Manufacturer Bosch Thermotechnology Combi boiler System Type Controls SAP Code 2106 **Delayed Start Stat** Yes

Balanced

Flue Type



Fan Assisted Flue			Yes							
Is MHS Pumped			Pump in h	leated sp	ace					
Heating Pump Age			2013 or la	iter						
Heat Emitter			Radiators							
Flow Temperature			Enter valu	ie						
Flow Temperature Value			45.00							
Boiler Interlock			Yes							
Combi boiler type			Standard	Combi						
Combi keep hot type			Gas/Oil, ti	me clock						
25.0 Main Heating 2			None							
26.0 Heat Networks			None							
Heat Sour	rce Fuel Typ	e Heating U	se Effic	iency P	ercentage Of Heat	Heat Hea Powe Rati	ər	ctrical	Fuel Factor	Efficiency type
Heat source 1 Heat source 2 Heat source 3 Heat source 4 Heat source 5										
28.0 Water Heating										
Water Heating			Main Hea	ting 1						
SAP Code			901							
Flue Gas Heat Recovery S	ystem		No							
Waste Water Heat Recover	y Instantaneous	System 1	No							
Waste Water Heat Recover	y Instantaneous	System 2	No							
Waste Water Heat Recover	y Storage Syste	∍m	No							
Solar Panel			No							
Water use <= 125 litres/per	son/day		No							
Cold Water Source			From mai	ns						
Bath Count			1							
28.3 Waste Water Heat Recov	very System									
29.0 Hot Water Cylinder			None							
In Airing Cupboard			No							
32.0 Photovoltaic Unit			Multiple D	wellings	<ul> <li>Connected</li> </ul>					
Export Capable Meter?			Yes							
Connected To Dwelling			Yes							
Diverter			Yes							
Battery Capacity [kWh]			0.00							
PV Cells kWp	Orientation	n Elevatior	n Over	shading	FGHRS	MCS Certificate	Over: Facto	shading or	Certificate	Panel Manufacturer
0.68	South	30°	None	Or Little		No	1.00		Reference	
34.0 Small-scale Hydro			None							
Jan Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oc	t Nov	Dec
Recommendations Lower cost measures None Further measures to achi	eve even highe	er standards								
		т	Typical Cos	t	Typical saving	gs per year	R SAP ra		fter improven Enviror	nent nmental Impact
							0 0	-		0 0
							0			0

## **Building Regulations England Part L (BREL) Compliance Report**

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:15:05

Project Information									
Assessed By	Darren Coham	Building Type	Flat, Semi-detached						
OCDEA Registration	EES/022007	Assessment Date	2022-09-22						

Dwelling Details									
Assessment Type	As built	Total Floor Area	36 m <sup>2</sup>						
Site Reference	Flat 4	Plot Reference	4						
Address									

Client Details	
Name	•
Company	•
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	Mains gas							
Target carbon dioxide emission rate	18.85 kgCO <sub>2</sub> /m <sup>2</sup>							
Dwelling carbon dioxide emission rate	15.52 kgCO <sub>2</sub> /m <sup>2</sup>	OK						
1b Target primary energy rate and dwelling primary energy								
Target primary energy	101.12 kWh <sub>PE</sub> /m <sup>2</sup>							
Dwelling primary energy	82.59 kWh <sub>PE</sub> /m <sup>2</sup>	OK						
1c Target fabric energy efficiency and dwelling fabric energy efficiency								
Target fabric energy efficiency	41.6 kWh/m <sup>2</sup>							
Dwelling fabric energy efficiency	35.9 kWh/m <sup>2</sup>	OK						

2a Fabric U-values	5			
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	0.18	Walls (1) (0.18)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	N/A	N/A	N/A
Roofs	0.16	N/A	N/A	N/A
Windows, doors, and roof windows	1.6	1.17	w1 (1.2)	ОК
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)	41.305	0.18							
Sheltered wall: Walls (2)	11.9225	0.18							
Party wall: Party Wall (1)	2.61	0 (!)							

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]				
w1, windows	3.57	South East	0.8	1.2				
w2, windows	3.57	South East	0.8	1.2				
w3, windows	2.415	North West	0.8	1.2				
w4, windows	2.1	North East	0.8	1.2				
ed1, Door	1.9475	South West	N/A	1 (!)				

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	0.042						
External wall	E3: Sill	Government-approved scheme	0.032 (!)						
External wall	E4: Jamb	Government-approved scheme	0.035 (!)						

Main element	Junction detail		Source	Psi value	Drawing /		
External wall	E7: Party floor between o	dwellings	Government-approved scheme	[W/mK] 0.027 (!)	reference		
	(in blocks of flats)			0.040			
External wall	E16: Corner (normal)	1 112	Government-approved scheme	0.042			
External wall	E18: Party wall between		Government-approved scheme	0.056			
Party wall	P3: Intermediate floor be		SAP table default	0 (!)			
	dwellings (in blocks of fla	ats)					
			values are flagged with a subsect 8 m <sup>3</sup> /hm <sup>2</sup>	quent (!))			
	tted air permeability at 50F	29			01/		
Dwelling air pern Air permeability t	test certificate reference		3 m <sup>3</sup> /hm <sup>2</sup> , Measured value (!)		OK		
4 Space heating	1						
		ors or unde	erfloor heating - Mains gas				
Efficiency		39.2%					
Emitter type	F	Radiators					
Flow temperature	e 4	15°C					
System type		Combi boile	er				
Manufacturer			rmotechnology				
Model		Greenstar					
Commissioning		2.0010tul					
	ting system: N/A						
Fuel		N/A					
Efficiency		N/A					
Commissioning		N/T					
5 Hot water							
Cylinder/store -	type: N/A						
Capacity		N/A					
Declared heat lo	ss	N/A					
Primary pipewor		N/A					
Manufacturer		.,					
Model							
Commissioning							
	at recovery system 1 - ty	rpe: N/A					
Efficiency		p 01 1 1/7 1					
Manufacturer							
Model							
6 Controls							
-	- type: Programmer, room	thermosta	t, and TRVs				
Function							
Ecodesign class							
Manufacturer							
Model							
Water heating -	type: N/A						
Manufacturer							
Model							
7 Lighting							
		75 lm/W					
Lowest light source efficacy 80 lm/W			ОК				
External lights co	ontrol N	N/A					
8 Mechanical ve	entilation						
System type: N	/A						
Maximum permitted specific fan power N/A							
Specific fan pow		V/A			N/A		
		V/A					
efficiency							
Heat recovery ef	ficiency	N/A	N/A				
Manufacturer/Mo		N// X			11/1		
Commissioning							
Commissioning							

9 Local generation									
Technology type: Photovoltaic system (1)									
Peak power	0.68 kWp								
Orientation	South	South							
Pitch	30°								
Overshading	None or very little								
Manufacturer	· ·								
MCS certificate									
10 Heat networks N/A									
11 Supporting documentary evidence									
Documentary evidence identified in 11.1	and 11.2 is needed to	o confirm the data values used for any							
calculations undertaken, manufacturer de	eclarations made, and	d tests performed as reflected in this							
"As built" BREL Compliance Report are of									
11.1 SAP Conventions, Appendix 1 (doc		schedules the minimum							
documentary evidence required.									
11.2 Indicative photographic evidence o	f kov stages during o	onstruction (quidance within Approved							
	, , ,								
Document L, Volume 1 – Appendix									
	-	nanship is of sufficient quality to support							
the calculated values claimed in 2a	to 2d.								
12 Declarations									
a. Assessor Declaration									
This declaration by the assessor is co	nfirmation that the co	ontents of this BREL Compliance Report							
		nd construction information submitted for							
		nt, and that the supporting documentary							
evidence (identified in 11.1 and 11.2)	•								
amended) has been reviewed in the c									
	ourse of preparing th								
Signadi									
Signed:		Assessor ID:							
Name:		Date:							
h. Olivert Destanction									
b. Client Declaration	en etiene the et the e-share lli	ne has been constructed and completed							
		ng has been constructed and completed							
according to the specifications set out									
evidence of key stages, as described	in 11.2, has been pro	ovided to the Assessor for this dwelling.							
Signed:		Organisation:							
Name:		Date:							



Property Reference	Flat	: 4								lss	sued on	Date	22/	09/202	22
Assessment Reference	4						Pro	о Туре	Ref						
Property															
SAP Rating				89 B		DER		15.5	50		TER			18.85	
Environmental				91 B		% DER	<tep< td=""><td>17.6</td><td></td><td></td><td></td><td></td><td></td><td>10.00</td><td></td></tep<>	17.6						10.00	
CO <sub>2</sub> Emissions (t/year)				0.49		DFEE		35.9			TFE	=		41.56	
Compliance Check				See BRE			E < TFE							41.50	
					E										
% DPER < TPER				18.32		DPER		82.5	59		TPE	R		101.12	2
Assessor Details	Mr. Darr	en Coham									Asse	essor	ID	R789-	0001
Client															
SUMMARY FOR INPUT	r data f	OR: Ne	w Build (	As Built	:)										
Orientation				Southwes	st						]				
Property Tenture				ND							]				
Transaction Type				6							]				
Terrain Type				Suburbar	า						]				
1.0 Property Type				Flat, Sem	ni-Detached						]				
Position of Flat				Mid-floor	flat						]				
Which Floor				2							]				
2.0 Number of Storeys				1											
3.0 Date Built				2022											
4.0 Sheltered Sides				1											
5.0 Sunlight/Shade				Average	or unknown						]				
6.0 Thermal Mass Paramete	ər			Enter TM	P value						]				
Thermal Mass				250.00							kJ/m²	к			
7.0 Electricity Tariff				Standard							]				
Smart electricity meter fit	ted			Yes							]				
Smart gas meter fitted				Yes							]				
7.0 Measurements															
				Gr	round Floo 1st Storey 2nd Storey 3rd Storey 4th Storey 5th Storey 6th Storey 7th Storey 8th Storey	r: /: /: /: /: /: /:	Loss Pe m 27.21 r m m m m m m m m		r In		Floor A m <sup>2</sup> .27 m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> m <sup>2</sup>	.rea	Avera	ge Sto m 2.55 m m m m m m m m	5 m 1 1 1 1 1
8.0 Living Area				23.72							m²				
9.0 External Walls Description T	ype	Constru	uction				Kappa		Nett	Shelter	r Sh	nelter	Openi	ngs Are	ea Calculation
	avity Wall		vall; plasterbo ght aggregate						( <b>Area (m²)</b> 41.31	<b>Res</b> 0.00	N	lone	11.6	-	<b>Type</b> ter Gross Area
wall to corridor C	avity Wall	outside Cavity v lightwei	structure vall; plasterbo ght aggregate structure	ard on dabs	or battens,	0.18		13.87	11.92	0.50	Stairwell	l Stairw	ell 1 1.9	5 En	ter Gross Area
9.1 Party Walls	<b>B</b>		Constant	<b>4</b> 1 -					11.1/-1-	K-			Chalf-		Dhalfa-
Description Party Wall 1	<b>Type</b> Filled C Edge Se	avity with ealing			on dabs on ⁄ity fill	both side	es, dense	9	U-Value (W/m <sup>2</sup> K 0.00		¹²K) (r	<b>rea</b> n²) .61	Shelter Res	:	Shelter None
10.1 Party Ceilings Description		(	Construct	ion										арра	Area (m²)
Party Ceiling 1		(	Concrete floor slab, carpeted											<b>J/m²K)</b> 00.00	36.27



### 11.1 Party Floors Description Storey Construction Kappa Area (m<sup>2</sup>) Index (kJ/m²K) Party Floor 1 36.27 Concrete floor slab, carpeted 100.00 Lowest occupied 12.0 Opening Types Filling Description Data Source Glazing Glazing G-value Frame Frame **U** Value Type (W/m<sup>2</sup>K) Factor Gap Type Type 0.63 0.80 windows Manufacturer Window Double Low-E Soft 0.05 1.20 Manufacturer Door to Corridor 1.00 Door 13.0 Openings Pitch Name **Opening Type** Location Orientation Area (m<sup>2</sup>) External Wall 1 South East windows 3.57 w1 w2 windows External Wall 1 South East 3.57 w3 windows External Wall 1 North West 2.42 w4 windows External Wall 1 North East 2.10 ed1 Door wall to corridor South West 1.95 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 Psi Bridge Type Source Type Length Adjusted Reference: Imported E2 Other lintels (including other steel lintels) Gov Approved Scheme 6.50 0.04 0.04 Yes F3 Sill Gov Approved Scheme 5.55 0.03 0.03 Yes 20.90 E4 Jamb Gov Approved Scheme 0.04 0.04 Yes Gov Approved Scheme E7 Party floor between dwellings (in blocks of flats) 54.42 0.03 0.03 No E16 Corner (normal) Gov Approved Scheme 5.10 0.04 0.04 Yes E18 Party wall between dwellings Gov Approved Scheme 5.10 0.06 0.06 Yes P3 Party wall - Intermediate floor between dwellings Table K1 - Default 1.03 0.00 0.00 No (in blocks of flats) Y-value 0.05 W/m<sup>2</sup>K **18.0 Pressure Testing** Yes **Property Tested?** Yes Test Method Blower Door 3.00 As Built APs m³/(h.m²) @ 50 Pa **19.0 Mechanical Ventilation Mechanical Ventilation** No Mechanical Ventilation System Present 20.0 Fans, Open Fireplaces, Flues 21.0 Fixed Cooling System No 22.0 Lighting No Fixed Lighting No Efficacy Power Name Capacity Count Lighting 1 80.00 8 640 10 24.0 Main Heating 1 Database Percentage of Heat 100.00 % Database Ref. No. 17511 Mains gas Fuel Type In Winter 89.20 87.20 In Summer Model Name Greenstar Manufacturer Bosch Thermotechnology Combi boiler System Type Controls SAP Code 2106 **Delayed Start Stat** Yes Flue Type Balanced



		Ţ	ypica	l Cost	Typical savin	gs per year	F SAP r 0 0	ating	fter improven Environ	nent Imental Impac 0 0
Lower cost measures None Further measures to achie	ve even higher	standards					_	-41	<b>64</b>	
Jan Feb Recommendations	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oc	t Nov	Dec
34.0 Small-scale Hydro	Man	•	Non			•	0.			_
0.68	South	30°		None Or Little		No	1.00	1	Reference	
PV Cells kWp	Orientation	Elevation	ı	Overshading	FGHRS	MCS Certificate	e Over Fact	shading or	MCS Certificate	Panel Manufacture
Battery Capacity [kWh]			0.00							
Diverter			Yes							
Connected To Dwelling			Yes							
Export Capable Meter?			Yes							
32.0 Photovoltaic Unit			Mult	iple Dwellings	- Connected					
In Airing Cupboard			No							
29.0 Hot Water Cylinder			Non	e						
28.3 Waste Water Heat Recove	ery System									
Bath Count			1							
Cold Water Source			Fron	n mains						
Water use <= 125 litres/pers	on/day		No							
Solar Panel			No							
Waste Water Heat Recovery	Storage Systen	n	No							
Waste Water Heat Recovery	/ Instantaneous	System 2	No							
Waste Water Heat Recovery		System 1	No							
Flue Gas Heat Recovery Sy	stem		No							
SAP Code			901	<u>J</u> ·						
28.0 Water Heating Water Heating			Mair	Heating 1						
Heat source 1 Heat source 2 Heat source 3 Heat source 4 Heat source 5										
Heat Sour	ce Fuel Type	Heating U	se	Efficiency P	ercentage Of Heat	Heat Hea Pow Rat	er	ctrical	Fuel Factor	Efficiency ty
26.0 Heat Networks			Non	e				]		
25.0 Main Heating 2			Non	e				]		
Combi keep hot type			Gas	/Oil, time clock				]		
Combi boiler type			Stan	idard Combi						
Boiler Interlock			Yes					]		
Flow Temperature Value			45.0	0				]		
Flow Temperature			Ente	er value						
Heat Emitter			Radi	iators						
Heating Pump Age				3 or later				]		
Is MHS Pumped				p in heated sp						

### **Building Regulations England Part L (BREL) Compliance Report**

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:16:11

Project Information					
Assessed By	Darren Coham	Building Type	Flat, Semi-detached		
OCDEA Registration	EES/022007	Assessment Date	2022-09-22		

Dwelling Details						
Assessment Type	As built	Total Floor Area	50 m <sup>2</sup>			
Site Reference	Flat 5	Plot Reference	5			
Address						

Client Details	
Name	•
Company	•
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	Mains gas					
Target carbon dioxide emission rate	16.18 kgCO <sub>2</sub> /m <sup>2</sup>					
Dwelling carbon dioxide emission rate	14.47 kgCO <sub>2</sub> /m <sup>2</sup>	OK				
1b Target primary energy rate and dwelling primary energy						
Target primary energy	86.31 kWh <sub>PE</sub> /m <sup>2</sup>					
Dwelling primary energy	77.16 kWh <sub>PE</sub> /m <sup>2</sup>	OK				
1c Target fabric energy efficiency and dwelling fabric energy efficiency						
Target fabric energy efficiency	38.9 kWh/m <sup>2</sup>					
Dwelling fabric energy efficiency	38.5 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	0.18	Walls (1) (0.18)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	N/A	N/A	N/A
Roofs	0.16	N/A	N/A	N/A
Windows, doors,	1.6	1.18	w1 (1.2)	OK
and roof windows				
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)	45.4638	0.18					
Sheltered wall: Walls (2)	10.4225	0.18					
Party wall: Party Wall (1)	2.61	0 (!)					

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]			
w1, windows	3.57	South West	0.8	1.2			
w2, windows	2.1462	West	0.8	1.2			
w3, windows	3.57	North East	0.8	1.2			
w4, windows	3.57	North East	0.8	1.2			
ed1, Door	1.9475	South West	N/A	1 (!)			
pd1, windows	7.5	North West	0.8	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         Drawing /           [W/mK]         reference						
External wall	E2: Other lintels (including other steel lintels)	Government-approved scheme	0.042			

Main element	Junction detail		Source	Psi value [W/mK]	Drawing / reference	
External wall	E4: Jamb		Government-approved scheme	0.035 (!)		
External wall	E7: Party floor between (in blocks of flats)	dwellings	Government-approved scheme	0.027 (!)		
External wall	E16: Corner (normal)		Government-approved scheme	0.042		
External wall	E18: Party wall betweer	n dwellings	Government-approved scheme	0.056		
Party wall	P3: Intermediate floor between dwellings (in blocks of flats)		Government-approved scheme	0 (!)		
3 Air permeabil	ity (better than typically	expected	values are flagged with a subse	quent (I))		
	tted air permeability at 50		8 m <sup>3</sup> /hm <sup>2</sup>			
Dwelling air pern		<i>i</i> u	3 m <sup>3</sup> /hm <sup>2</sup> , Measured value (!)		OK	
	test certificate reference					
			1			
4 Space heating		•				
			erfloor heating - Mains gas			
Efficiency		89.2%				
Emitter type		Radiators 45°C				
Flow temperatur		45°C Combi boil	or			
System type Manufacturer			er rmotechnology			
Model		Greenstar	motechnology			
Commissioning		Greenstal				
	ting system: N/A					
Fuel		N/A				
Efficiency		N/A				
Commissioning						
¥						
5 Hot water						
Cylinder/store -						
Capacity		N/A				
Declared heat lo		N/A				
Primary pipewor	k insulated	N/A				
Manufacturer						
Model						
Commissioning		<b>N</b> 1/A				
	at recovery system 1 - t	ype: N/A				
Efficiency						
Manufacturer						
Model						
6 Controls						
Main heating 1	- type: Programmer, room	n thermosta	it, and TRVs			
Function						
Ecodesign class						
Manufacturer						
Model						
Water heating -	type: N/A					
Manufacturer						
Model						
7 Lighting						
	ted light source efficacy	75 lm/W				
Lowest light sou		80 lm/W			ОК	
External lights co		N/A				
8 Mechanical ve						
System type: N		N1/A				
	, ,	N/A			N1/A	
Specific fan pow		N/A			N/A	
	ted heat recovery	N/A				
efficiency						
Heat recovery ef		N/A			N/A	
Manufacturer/Mo	odel					
Commissioning						

9 Local generation						
Technology type: Photovoltaic system	(1)					
Peak power	0.68 kWp					
Orientation	South					
Pitch	30°					
Overshading	None or very little					
Manufacturer	,					
MCS certificate						
	I					
10 Heat networks N/A						
11 Supporting documentary evidence						
Documentary evidence identified in 11.1	and 11.2 is needed to	o confirm the data values used for any				
calculations undertaken, manufacturer de	eclarations made, and	d tests performed as reflected in this				
"As built" BREL Compliance Report are of						
11.1 SAP Conventions, Appendix 1 (doc		schedules the minimum				
documentary evidence required.						
11.2 Indicative photographic evidence o	f kov stages during o	onstruction (quidance within Approved				
	, , ,					
Document L, Volume 1 – Appendix						
	-	nanship is of sufficient quality to support				
the calculated values claimed in 2a	to 2d.					
12 Declarations						
a. Assessor Declaration						
This declaration by the assessor is co	nfirmation that the co	ontents of this BREL Compliance Report				
		nd construction information submitted for				
		nt, and that the supporting documentary				
evidence (identified in 11.1 and 11.2)	•					
amended) has been reviewed in the c						
	ourse of preparing th					
Signadi						
Signed:		Assessor ID:				
Name:		Date:				
h. Olivert Destanction						
b. Client Declaration	en etiene the et the e-share lli	ne has been constructed and completed				
		ng has been constructed and completed				
according to the specifications set out in this BREL Compliance Report, and that photographic						
evidence of key stages, as described	in 11.2, has been pro	ovided to the Assessor for this dwelling.				
Signed:		Organisation:				
Name:		Date:				



Property Reference	Flat	5						Iss	ued on Date	22/09	)/2022
Assessment Referen	ce 5				Pro	р Туре	Ref				
Property											
SAP Rating			89 B	DER		14.4	47		TER	16	5.18
Environmental			90 B		R <ter< td=""><td>14.</td><td></td><td></td><td>ILK</td><td></td><td>0.10</td></ter<>	14.			ILK		0.10
CO <sub>2</sub> Emissions (t/yea	r)		90 B 0.63	DFEE		38.			TFEE	20	3.90
Compliance Check	")		See BREL		- EE < TFE					30	5.90
Compliance Check			See BREL	E		0.9	9				
% DPER < TPER			10.60	DPEF	र	77.	16		TPER	86	5.31
Assessor Details	Mr. Darr	en Coham							Assessor	ID R	789-0001
Client											
SUMMARY FOR IN	PUT DATA F	OR: New Build	(As Built)								
Orientation			Southwest								
Property Tenture			ND								
Transaction Type			6								
Terrain Type			Suburban								
1.0 Property Type			Flat, Semi-Detache	ed be							
Position of Flat			Mid-floor flat								
Which Floor			2								
2.0 Number of Storeys			1								
3.0 Date Built			2022								
4.0 Sheltered Sides			1								
				- Average or unknown							
5.0 Sunlight/Shade				//I							
6.0 Thermal Mass Para	meter		Enter TMP value						1/100216		
Thermal Mass			250.00						kJ/m²K		
7.0 Electricity Tariff			Standard								
Smart electricity meter	er fitted		Yes								
Smart gas meter fitte	d		Yes								
7.0 Measurements								4 a ma a l		A	Céanair Uaimhé
			Ground Flo	or:	at Loss Pe m		er in	I	Floor Area m²		m Storey Height
			1st Stor 2nd Stor		30.66 m	m			84 m² m²		2.55 m m
			3rd Stor 4th Stor	ey:	m			I	m² m²		m
			5th Stor	ey:	m m			I	m²		m m
			6th Stor 7th Stor		m m				m² m²		m m
			8th Stor	ey:	m				m²		m
8.0 Living Area			22.96						m²		
9.0 External Walls											
Description	Туре	Construction		(W/m²ł	ie Kappa K) (kJ/m²K)			Shelter Res	Shelter		s Area Calculation Type
External Wall 1	Cavity Wall	lightweight aggrega	board on dabs or battens, te block, filled cavity, any	0.18		65.82	45.46	0.00	None	20.36	Enter Gross Area
wall to corridor	Cavity Wall		board on dabs or battens, te block, filled cavity, any	0.18		12.37	10.42	0.50	Stairwell Stairw	vell 1 1.95	Enter Gross Area
9.1 Party Walls											
Description	Туре	Constru	ction				U-Value			Shelter	Shelter
Party Wall 1	Solid W		asterboard on dabs b te blocks, cavity or ca		s, lightweig	ght	<b>(W/m²K</b> ) 0.00	/ (KJ/M	² <b>K) (m²)</b> 2.61	Res	None
10.1 Party Ceilings											
Description		Construc								Kap (kJ/n	n²K)
Party Ceiling 1		Concrete	floor slab, carpeted							100	.00 49.84



### 11.1 Party Floors Description Storey Construction Kappa Area (m<sup>2</sup>) Index (kJ/m²K) Party Floor 1 49.84 Concrete floor slab, carpeted 100.00 Lowest occupied 12.0 Opening Types Filling Description Data Source Glazing Glazing G-value Frame Frame **U** Value Type (W/m<sup>2</sup>K) Factor Gap Type Type 0.63 0.80 windows Manufacturer Window Double Low-E Soft 0.05 1.20 Manufacturer Door to Corridor 1.00 Door 13.0 Openings Pitch Name **Opening Type** Location Orientation Area (m<sup>2</sup>) 3.57 2.15 External Wall 1 South West windows w1 w2 windows External Wall 1 West w3 windows External Wall 1 North East 3.57 w4 windows External Wall 1 North East 3.57 ed1 Door wall to corridor South West 1.95 External Wall 1 North West 7.50 windows pd1 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 Gov Approved Scheme Gov Approved Scheme E2 Other lintels (including other steel lintels) 0.04 0.04 10.07 0.04 Yes 0.04 25.90 E4 Jamb Yes Gov Approved Scheme E7 Party floor between dwellings (in blocks of flats) 61.32 0.03 0.03 No E16 Corner (normal) Gov Approved Scheme 5.10 0.04 0.04 Yes E18 Party wall between dwellings Gov Approved Scheme 5.10 0.06 0.06 Yes P3 Party wall - Intermediate floor between dwellings Gov Approved Scheme 1.03 0.00 0.00 No (in blocks of flats) Y-value 0.04 W/m<sup>2</sup>K **18.0 Pressure Testing** Yes **Property Tested?** Yes Test Method Blower Door 3.00 As Built AP50 m³/(h.m²) @ 50 Pa **19.0 Mechanical Ventilation Mechanical Ventilation** No Mechanical Ventilation System Present 20.0 Fans, Open Fireplaces, Flues 21.0 Fixed Cooling System No 22.0 Lighting No Fixed Lighting No Efficacy Power Name Capacity Count Lighting 1 80.00 8 640 10 24.0 Main Heating 1 Database Percentage of Heat 100.00 % Database Ref. No. 17511 Mains gas Fuel Type In Winter 89.20 87.20 In Summer Model Name Greenstar Manufacturer Bosch Thermotechnology System Type Combi boiler Controls SAP Code 2106 **Delayed Start Stat** Yes

Balanced

Flue Type



		Ţ	ypica	l Cost	Typical savin	gs per year	F SAP r 0 0	ating	fter improven Environ	nent imental Impac 0 0
Lower cost measures None Further measures to achie	ve even higher	standards					_	-41	<b>64</b>	
Jan Feb Recommendations	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oc	t Nov	Dec
34.0 Small-scale Hydro	Man	•	Non			•	0.			_
0.68	South	30°		None Or Little		No	1.00	1	Reference	
PV Cells kWp	Orientation	Elevation	ı	Overshading	FGHRS	MCS Certificate	e Over Fact	shading or	MCS Certificate	Panel Manufacture
Battery Capacity [kWh]			0.00							
Diverter			Yes							
Connected To Dwelling			Yes							
Export Capable Meter?			Yes							
32.0 Photovoltaic Unit			Mult	iple Dwellings	- Connected					
In Airing Cupboard			No							
29.0 Hot Water Cylinder			Non	e						
28.3 Waste Water Heat Recove	ery System									
Bath Count			1							
Cold Water Source			Fron	n mains						
Water use <= 125 litres/pers	on/day		No							
Solar Panel			No							
Waste Water Heat Recovery	Storage Systen	n	No							
Waste Water Heat Recovery	/ Instantaneous	System 2	No							
Waste Water Heat Recovery		System 1	No							
Flue Gas Heat Recovery Sy	stem		No							
SAP Code			901	<u>J</u> ·						
28.0 Water Heating Water Heating			Mair	Heating 1						
Heat source 1 Heat source 2 Heat source 3 Heat source 4 Heat source 5										
Heat Sour	ce Fuel Type	Heating U	se	Efficiency P	ercentage Of Heat	Heat Hea Pow Rat	er	ctrical	Fuel Factor	Efficiency ty
26.0 Heat Networks			Non	e				]		
25.0 Main Heating 2			Non	e				]		
Combi keep hot type			Gas	/Oil, time clock				]		
Combi boiler type			Stan	idard Combi						
Boiler Interlock			Yes					]		
Flow Temperature Value			45.0	0				]		
Flow Temperature			Ente	er value						
Heat Emitter			Radi	iators						
Heating Pump Age				3 or later				]		
Is MHS Pumped				p in heated sp						

### **Building Regulations England Part L (BREL) Compliance Report**

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:11:29

Project Information			
Assessed By	Darren Coham	Building Type	Flat, Detached
OCDEA Registration	EES/022007	Assessment Date	2022-09-22

Dwelling Details				
Assessment Type	As built	Total Floor Area	82 m <sup>2</sup>	
Site Reference	Flat 6	Plot Reference	6	
Address				

Client Details	
Name	•
Company	•
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	Mains gas			
Target carbon dioxide emission rate	15.29 kgCO <sub>2</sub> /m <sup>2</sup>			
Dwelling carbon dioxide emission rate	14.04 kgCO <sub>2</sub> /m <sup>2</sup>	OK		
1b Target primary energy rate and dwelling primary energy	an a			
Target primary energy	81.09 kWh <sub>PE</sub> /m <sup>2</sup>			
Dwelling primary energy	75.54 kWh <sub>PE</sub> /m <sup>2</sup>	OK		
1c Target fabric energy efficiency and dwelling fabric energy	ergy efficiency			
Target fabric energy efficiency	45.5 kWh/m <sup>2</sup>			
Dwelling fabric energy efficiency	45.3 kWh/m <sup>2</sup>	OK		

2a Fabric U-values	S			
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	0.18	Walls (1) (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	N/A	N/A	N/A
Roofs	0.16	0.11	Roof (1) (0.11)	OK
Windows, doors,	1.6	1.19	w1 (1.2)	OK
and roof windows				
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)	63.261	0.18						
Sheltered wall: Walls (2)	24.3125	0.18						
Exposed roof: Roof (1)	81.87	0.11						

Name	Area [m <sup>2</sup> ]	Orientation	Frame factor	U-Value [W/m <sup>2</sup> K]
w1, windows	3.57	South East	0.8	1.2
w2, windows	3.57	South East	0.8	1.2
w3, windows	3.57	South West	0.8	1.2
w4, windows	3.57	North East	0.8	1.2
ed1, Door	1.9475	South West	N/A	1 (!)
pd1, windows	7.5	North West	0.8	1.2
w5, windows	3.57	North East	0.8	1.2
w6, windows	5.376	North East	0.8	1.2
w7, windows	5.313	North East	0.8	1.2
w8, windows	3.15	North West	0.8	1.2
w9, windows	3.15	South East	0.8	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		Psi value [W/mK]	Drawing / reference	
External wall	E2: Other lintels (incluc steel lintels)	ling other	Government-approved scheme	0.042	
External wall	E4: Jamb		Government-approved scheme	0.035 (!)	
External wall	E7: Party floor betweer (in blocks of flats)	n dwellings	Government-approved scheme	0.027 (!)	
External wall	E14: Flat roof		Government-approved scheme	0.08	
External wall	E16: Corner (normal)		Government-approved scheme	0.042	
External wall	E17: Corner (inverted -	internal	Government-approved scheme	-0.378	
	area greater than exter	nal area)			
			values are flagged with a subse	quent (!))	
	tted air permeability at 50	OPa	$8 m^3 / hm^2$		
	neability at 50Pa		3 m <sup>3</sup> /hm <sup>2</sup> , Measured value (!)		OK
Air permeability	test certificate reference				
4 Space heating					
	stem 1: Boiler with radia		erfloor heating - Mains gas		
Efficiency		89.2%			
Emitter type		Radiators			
Flow temperatur	e	45°C			
System type		Combi boil			
Manufacturer			rmotechnology		
Model		Greenstar			
Commissioning	· • • • • • • • • • • • • • • • • • • •				
	ting system: N/A				
Fuel		N/A			
Efficiency		N/A			
Commissioning					
5 Hot water	4 N1/A				
Cylinder/store -	type: N/A				
Capacity Declared heat lo		N/A N/A			
Primary pipewor Manufacturer	K Insulated	N/A			
Model					
Commissioning					
	at recovery system 1 -	type: N/A			
Efficiency	at recovery system r				
Manufacturer					
Model					
6 Controls		1			
	- type: Programmer, roor	n thermosta	and TRVs		
Function	-,				
Ecodesign class					
Manufacturer					
Model					
Water heating -	type: N/A				
Manufacturer					
Model					
7 Lighting Minimum pormit	tod light pourse office and	75 lm/11/			
	ted light source efficacy	75 lm/W			OK
Lowest light sou		80 lm/W			ОК
External lights co	אוווטו	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	N/A				
efficiency					
	N/A		N/A		
Commissioning					
9 Local generation					
	(1)				
Pitch	30°				
Overshading	None or very little				
Manufacturer	,				
MCS certificate					
10 Hoot notworks	•				
11 Supporting documentary evidence					
		d tests performed as reflected in this			
· · ·					
11.1 SAP Conventions, Appendix 1 (doc	cumentary evidence)	schedules the minimum			
documentary evidence required.					
Compliance Report are used in this	dwelling, and workm	anship is of sufficient quality to support			
the calculated values claimed in 2a	to 2d.				
12 Declarations					
a. Assessor Declaration					
	nfirmation that the co	ntents of this BREL Compliance Report			
	· · •	· · ·			
Signed:		Assessor ID:			
Name:		Date:			
b. Client Declaration					
		•			
evidence of key stages, as described	in 11.2, has been pro	vided to the Assessor for this dwelling.			
System type: N/A           Maximum permitted specific fan power         N/A         N/A           Minimum permitted heat recovery         N/A         N/A           Minimum permitted heat recovery         N/A         N/A           Minimum permitted heat recovery         N/A         N/A           Manufacturer/Model         Commissioning         N/A           9 Local generation         Commissioning         N/A           9 Local generation         Commissioning         Overshading           9 Local generation         South         Pitch           30°         Overshading         None or very little           Manufacturer         MCS certificate         Manufacturer           10 Heat networks         N/A         N/A           N/A         11 Supporting documentary evidence         Subult SREL Compliance Report are correct.           11.1 SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required.         N/A           11.2 Indicative photographic evidence of key stages during construction (guidance within Approved Documentary evidence required.         N/A           11.2 Indicative photographic evidence of key stages during construction (guidance within Approved Documentary evidence required.         Asseessor Declaration           11.2 Indicative photographic evidence of they stages during co					
Signed:		Organisation:			
Name:		Date:			



Property Reference	Flat 6							lss	ued on Dat	e 1	22/09/2	2022
Assessment Reference	6				Pro	р Туре	Ref					
Property												
SAD Dating				DER		44	0.4		TER		45.4	20
SAP Rating Environmental			88 B	% DER	TED	14. 8.1			TER		15.2	29
CO <sub>2</sub> Emissions (t/year)			88 B	DFEE	NIEK				TFEE		45	40
Compliance Check			1 See BREL		E < TFE	45. 0.3			IFEE		45.4	+9
			See BREL	E		0.3	/					
% DPER < TPER			6.85	DPER		75.	54		TPER		81.0	09
Assessor Details	Mr. Darren	Coham							Assess	or ID	R78	39-0001
Client												
SUMMARY FOR INPUT	DATA FO	R: New Build (	As Built)									
Orientation			Southwest						]			
Property Tenture			ND						]			
Transaction Type			6						1			
Terrain Type			Suburban						j			
1.0 Property Type			Flat, Detached						j			
Position of Flat			Top-floor flat						j			
Which Floor			4						i			
2.0 Number of Storeys			1						i			
3.0 Date Built			2022						i			
4.0 Sheltered Sides			1						i			
5.0 Sunlight/Shade			Average or unknown						i			
6.0 Thermal Mass Paramete	r		Enter TMP value						1			
Thermal Mass			250.00						kJ/m²K			
7.0 Electricity Tariff			Standard						1			
Smart electricity meter fitte	ed		Yes						]			
Smart gas meter fitted			Yes						j			
7.0 Measurements												
no modouromonto			Cround Floo		Loss Pe	erimete	er In		Floor Area	Ave	rage	Storey Height
			Ground Floo 1st Storey	<b>/</b> :	m 54.94	m		81.	m² 87 m²		2	m .40 m
			2nd Store 3rd Store		m m				m² m²			m m
			4th Storey 5th Storey		m m				m² m²			m m
			6th Store	<b>/</b> :	m				m²			m
			7th Store 8th Store		m m				m² m²			m m
8.0 Living Area			35.23						m²			
9.0 External Walls												
Description Ty	pe	Construction			Kappa (kJ/m²K)		Nett ) Area (m²)	Shelter Res	Shelte	r Ope	enings	Area Calculation Type
External Wall 1 Ca	vity Wall	lightweight aggregate	ard on dabs or battens, block, filled cavity, any	`0.18 <i>′</i>		105.60	63.26	0.00	None	4	2.34	Enter Gross Area
wall to corridor Ca	vity Wall		ard on dabs or battens, block, filled cavity, any	0.18		26.26	24.31	0.50	Stairwell Stai	rwell 1	1.95	Enter Gross Area
9.1 Party Walls												
Description	Туре	Construc	tion				U-Value (W/m²K)			Shelt Res		Shelter
Party Wall 1	Solid Wall		sterboard on dabs bo blocks, cavity or cavi		lightweig	ght	0.00		2.61			None
10.0 External Roofs												
Description	Гуре	Construction		U- (W	Value K //m²K)(k	appa J/m²K)/	Gross Area(m²)	Nett Area (m²)			alcula Typ	ationOpenings e



										icigy	
External Roof 1	External Flat Roof	Plasterbo	ard, insulated flat roof	0.11	9.00	81.8	37 0.0	0 None	0.00	Enter Gros Area	s 0.00
11.1 Party Floors											
Description		Storey Index	Construction							Kappa (kJ/m²K)	Area (m
Party Floor 1		Lowest occupied	Concrete floor slab, carp	peted						100.00	81.87
12.0 Opening Types											
Description	Data Source	Туре	Glazing		Glaz Ga		Filling Type	G-value	Frame Type		U Value (W/m²K
windows Door	Manufacturer Manufacturer	Window Door to C	Double Low-E Corridor	E Soft 0.05	0.	ιþ	туре	0.63	Type	0.80	1.20 1.00
I3.0 Openings											
Name	Opening Ty	/pe	Location			rientat		Area		Pi	tch
w1 w2	windows windows		External Wall 1 External Wall 1			outh E outh E		3.5 3.5			
w3	windows		External Wall 1			outh W		3.5			
w4 ed1	windows Door		External Wall 1 wall to corridor			orth Ea		3.5 1.9			
pd1 w5	windows		External Wall 1 External Wall 1			orth W		7.5 3.5			
w5 w6	windows windows		External Wall 1			orth Ea		5.3	8		
w7	windows		External Wall 1			orth E		5.3			
w8 w9	windows windows		External Wall 1 External Wall 1			orth W outh E		3.1 3.1			
14.0 Conservatory			None								
5.0 Draught Proofing			100					%			
6.0 Draught Lobby			No								
7.0 Thermal Bridging			Calculate Bridges								
7.1 List of Bridges			Calculate Driagee								
Bridge Type			Source Type	Lengt	h Ps	si A	Adjusted	Reference	:		Importe
E2 Other lintels (includ E4 Jamb	ling other steel lint	els)	Gov Approved Scheme Gov Approved Scheme	20.54 46.90			0.04 0.04				Yes Yes
E7 Party floor betweer	n dwellings (in bloc	ks of flats)	Gov Approved Scheme	54.94	0.0	)3	0.03				Yes
E14 Flat roof E16 Corner (normal)			Gov Approved Scheme Gov Approved Scheme	54.94 19.20			0.08 0.04				Yes No
E17 Corner (inverted – external area)	- internal area grea	ater than	Gov Approved Scheme	9.60	-0.3		-0.38				No
Y-value			0.03					W/m²K			
8.0 Pressure Testing			Yes								
Property Tested?			Yes								
Test Method			Blower Door								
As Built AP50			3.00					m³/(h.m	ı²) @ 50	) Pa	
19.0 Mechanical Ventilati Mechanical Ventilatic											
	ilation System Pre	sent	No								
20.0 Fans, Open Fireplac	es, Flues										
21.0 Fixed Cooling Syste	em		No								
22.0 Lighting								_			
No Fixed Lighting			No						•		
			Name Lighting 1	Efficacy 80.00		<b>Pow</b> 8	er	<b>Capa</b> 64			<b>ount</b> 10
24.0 Main Heating 1			Database								
Percentage of Heat			100.00					%			
Database Ref. No.			17511								
Fuel Type			Mains gas								
In Winter			89.20					Ξ			
In Summer			87.20					Ξ			
								4			
Model Name			Greenstar					4			
Manufacturer			Bosch Thermotechr	nology							



In Airing Cupboard 32.0 Photovoltaic Unit Export Capable Meter? Connected To Dwelling Diverter Battery Capacity [kWh] PV Cells kWp 0.68 34.0 Small-scale Hydro	<b>Orientation</b> South	Elevation 30°	Yes Yes 0.00 Ove	ershading ne Or Little	FGHRS	MCS Certifica	te Over Fact 1.00	shading or	MCS Certificate Reference	Panel Manufacturei
32.0 Photovoltaic Unit Export Capable Meter? Connected To Dwelling Diverter Battery Capacity [kWh] PV Cells kWp			Yes Yes 0.00 Ove		FGHRS		Fact		Certificate	
32.0 Photovoltaic Unit Export Capable Meter? Connected To Dwelling Diverter Battery Capacity [kWh] PV Cells kWp			Yes Yes 0.00 Ove		FGHRS				Certificate	
<b>32.0 Photovoltaic Unit</b> Export Capable Meter? Connected To Dwelling Diverter Battery Capacity [kWh]	Orientetion	Eloucito	Yes Yes 0.00	rehading	ЕСПБе	MCS Contilica	to Over	ebodine	MCS	Panal
32.0 Photovoltaic Unit Export Capable Meter? Connected To Dwelling Diverter			Yes Yes							
32.0 Photovoltaic Unit Export Capable Meter? Connected To Dwelling			Yes					i		
32.0 Photovoltaic Unit Export Capable Meter?								1		
32.0 Photovoltaic Unit			VOC							
			Multiple Yes	Dwellings -	- Connected			1		
In Airing Cupboard			N. 141 1	Durg	Comment 1			1		
			No					]		
29.0 Hot Water Cylinder			None							
28.3 Waste Water Heat Recov	ery System									
Bath Count			1							
Cold Water Source			From ma	ains				1		
Water use <= 125 litres/per	son/day		No							
Solar Panel			No							
Waste Water Heat Recover	y Storage Systen	n	No							
Waste Water Heat Recovery Instantaneous System 2			No							
Waste Water Heat Recovery Instantaneous System 1			No							
Flue Gas Heat Recovery Sy	/stem		No							
SAP Code			901							
Water Heating			Main He	ating 1						
28.0 Water Heating										
Heat source 1 Heat source 2 Heat source 3 Heat source 4 Heat source 5				- <b>,</b> - `	Heat	Po	wer atio			- J JF
26.0 Heat Networks Heat Sour	rce Fuel Type	Heating Us	None	iciency Pe	ercentage Of	Heat Heat	eat Ele	ctrical	Fuel Factor	Efficiency type
25.0 Main Heating 2										
			None					1		
Combi boller type Combi keep hot type				time clock						
Combi boiler type				d Combi						
Boiler Interlock			45.00 Yes							
Flow Temperature Value			Enter va							
Flow Temperature			Enter va							
Heating Pump Age			Radiato							
Heating Pump Age			2013 or					1		
Is MHS Pumped				heated sp	ace					
Flue Type Fan Assisted Flue			Yes	u				]		
Eluo Turo			Yes Balance	d				 		
-			2106					 		
Controls SAP Code Delayed Start Stat			Combi b					1		



Typical Cost

Typical savings per year

Ratings after improvement						
SAP rating	Environmental Impact					
0	0					
0	0					
0	0					