



Building Energy Performance Ltd

ENERGY STATEMENT in accordance with HILLINGDON BOROUGH COUNCIL & LONDON PLAN

for

**Flats 1-34 Salamander Quay,
Park Lane, Harefield,
Uxbridge.**

Building Energy Performance Ltd

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Introduction

This Energy Statement has been produced in support of the planning application for the proposed residential development known as Flats 1-34 Salamander Quay, Park Lane, Harefield, Uxbridge UB9 6NZ.

Scope

The scope of this report is to demonstrate compliance with the energy and sustainability policies of the London Plan, namely to reduce on-site CO₂ emissions by at least 35% when compared with the Building Regulation Standards in force at the time.

Requirements

In order to satisfy the planning policy the predicted total CO₂ emissions from all 34 properties within the proposed development shall be off-set by at least 35% using a combination of enhanced fabric energy efficiency and on-site renewable energy.

Outline Build Specification

The following outline construction specification has been proposed to meet the standards required:

External Wall: U-value = 0.30W/m²K.

Existing Ground Floor: U-value = 0.34-0.66W/m²K.

Roof: U-value = 0.16W/m²K.

Partitions: Lightweight stud plasterboard lined.

Upper Floor: Pre-cast concrete plank intermediate floors.

New Glazing: Average overall U-value = 1.60W/m²K.

Doors: Average overall U-value = 1.60W/m²K.

Air Permeability: Untested as scheme is not new build.

Ventilation: Vent Axia Lo-Carbon NBR dMEV trickle & boost local extract fans in kitchens and bathrooms (Part F System 3 ventilation).

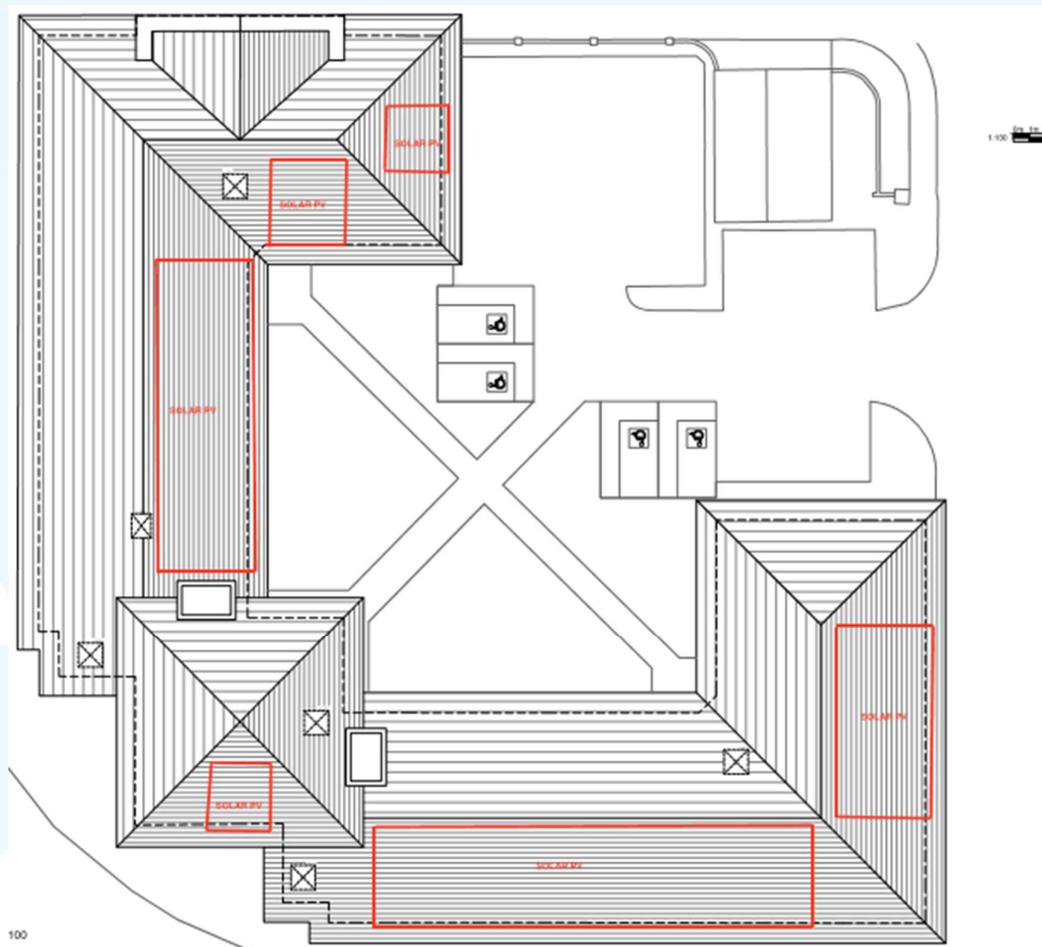
Space Heating: Direct electric panel heaters with time and temperature controls.

Hot Water:	Mains unvented hot water cylinder with integral ASHP.
Internal Lighting:	100% LED low energy lighting.
Thermal Bridging:	Default values as scheme is not new build.
Renewables:	99kWp PV (photovoltaic) system mounted on roof tops.

Energy Rating Calculations

Energy rating calculations have been carried out using SAP 10.2 government approved energy rating software for the properties included in the current scheme in accordance with Part L1 2021 of the Building Regulations.

A summary of the SAP results has been included in appendix A of this report which demonstrates that the proposed scheme passes the CO₂ emissions requirements of Part L1 2021 by at least 35% via a combination of thermal fabric improvement and renewable PV technology. The proposals include roof mounted solar photovoltaic panels on suitable areas of the SE and SW facing roofs, as depicted in the roof plan drawing shown below.



Calculation Results

The summary of the SAP results included in appendix A demonstrates that the 34 dwellings achieve a site-wide CO₂ emissions reduction of at least 35% over and above Part L1 2021 requirements by adopting the build specification outlined above. A summary of the on-site regulated CO₂ emissions is also provided below:

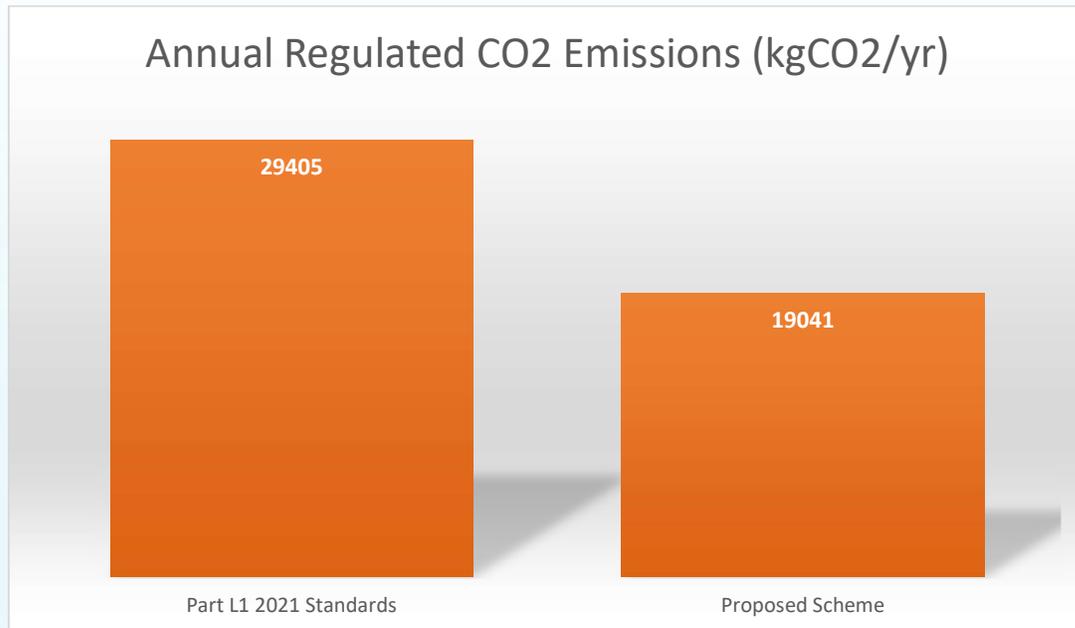


Table 1: CO₂ emissions comparison (kg/annum)

2No sample SAP calculation reports (ground & first floor flats) for the Benchmark, Part L2021 Compliant and 35% CO₂ Reduction SAPs are included in appendices B, C & D for further reference (individual reports have been completed for all 34 properties and can be provided upon request). The annual CO₂ emissions for all 34 plots (including reductions due to solar pv) have also been included in appendix E for further reference.

Conclusion

The proposed scheme produces a site wide CO₂ emissions reduction of 10,364 kgCO₂/annum via on-site renewable energy technologies, which is equivalent to a 35.25% reduction in on-site CO₂ emissions, thereby satisfying the minimum 35% reduction in CO₂ emissions target required under the London Plan.

APPENDIX – A

SAP Summary Results

Type/Style	SAP EPC	Notional CO ₂ (t/yr)	Actual CO ₂ (t/yr)	Part L Pass	CO ₂ (kg/yr)	PV (kWp)	PV (kg/yr)	% Site Annual CO ₂ Reduction (PV)
Flat 1 - GF 1B Flat	53E	1.07	0.87	Yes	1104.73	4.0	417.83	
Flat 2 - GF 2B Flat	54E	1.09	0.90	Yes	1130.62	4.0	418.00	
Flat 3 - GF 1B Flat	77C	0.64	0.53	Yes	641.62	4.0	418.51	
Flat 4 - GF 2B Flat	48E	1.19	0.86	Yes	1236.91	4.0	417.81	
Flat 5 - GF 1B Flat	42E	1.28	0.81	Yes	1329.97	4.0	417.63	
Flat 6 - GF 2B Flat	50E	1.24	0.98	Yes	1279.75	4.0	418.21	
Flat 7 - GF 1B Flat	72C	0.54	0.45	Yes	553.71	2.0	209.87	
Flat 8 - GF 1B Flat	64D	0.81	0.69	Yes	820.99	4.0	417.75	
Flat 9 - GF 2B Flat	57D	1.09	0.94	Yes	1119.98	4.0	418.29	
Flat 10 - GF 2B Flat	72C	0.75	0.62	Yes	757.76	4.0	418.59	
Flat 11 - GF 1B Flat	60D	0.78	0.66	Yes	796.04	2.0	209.79	
Flat 12 - GF 1B Flat	60D	0.78	0.66	Yes	796.04	2.0	209.79	
Flat 13 - GF 1B Flat	66D	0.61	0.51	Yes	612.66	2.0	209.58	
Flat 14 - GF 1B Flat	58D	0.90	0.78	Yes	924.46	4.0	417.63	
Flat 15 - GF 2B Flat	60D	0.86	0.72	Yes	863.14	2.0	210.11	
Flat 16 - GF 1B Flat	51E	0.99	0.83	Yes	1026.24	3.0	313.75	
Flat 17 - GF 1B Flat	55D	0.87	0.75	Yes	885.88	2.5	261.67	
Flat 18 - FF 1B Flat	62D	0.93	0.81	Yes	954.94	4.0	418.22	
Flat 19 - FF 2B Flat	57D	0.91	0.77	Yes	916.45	2.0	209.98	
Flat 20 - FF 1B Flat	73C	0.59	0.47	Yes	568.98	2.0	210.04	
Flat 21 - FF 2B Flat	60D	0.87	0.75	Yes	897.03	2.5	262.16	
Flat 22 - FF 2B Flat	53E	1.11	0.96	Yes	1117.75	3.0	314.26	
Flat 23 - FF 1B Flat	54E	0.94	0.81	Yes	938.79	2.5	261.84	
Flat 24 - FF 2B Flat	57D	0.98	0.83	Yes	986.77	2.5	262.20	
Flat 25 - FF 1B Flat	70C	0.62	0.51	Yes	607.06	2.5	261.84	
Flat 26 - FF 1B Flat	66D	0.73	0.61	Yes	728.30	2.5	261.98	
Flat 27 - FF 1B Flat	71C	0.66	0.53	Yes	643.11	2.5	262.13	
Flat 28 - FF 2B Flat	67D	0.77	0.64	Yes	764.60	2.5	262.26	
Flat 29 - FF 1B Flat	73C	0.61	0.49	Yes	595.37	2.5	262.10	
Flat 30 - FF 1B Flat	68D	0.70	0.58	Yes	694.59	2.5	262.06	
Flat 31 - FF 1B Flat	56D	0.90	0.77	Yes	907.27	2.5	261.83	
Flat 32 - FF 2B Flat	67D	0.79	0.65	Yes	780.58	2.5	262.39	
Flat 33 - FF 1B Flat	60D	0.84	0.71	Yes	842.84	2.5	261.91	
Flat 34 - FF 1B Flat	75C	0.60	0.47	Yes	580.11	2.5	262.26	
Site Totals:					29405	99	10364	35.25%

REFURB SPECIFICATION

- SAP/EPC ratings include solar PV allocations shown in above table.
- 100% LED low energy lighting (min 90 lumens/circuit watt)
- Heated communal spaces (ie stairs and corridors).
- U-values: Existing ext wall upgrade = 0.30W/m²K, Plane roof = 0.16W/m²K, Existing Floor = 0.34-0.66 W/m²K, New glazing = 1.60W/m²K, New solid door = 1.60W/m²K, Existing glazing = 3.30W/m²K assumed
- Air permeability = Not required under Part L1B of Bldg Regs (default 15m³/hr.m² included).
- Space heating via direct electric panel heaters with programmer and room thermostat controls.
- Water heated via Curve 360 HP200 integrated air source heat pump hot water cylinder.
- Assumed default values for thermal bridging.
- Ventilation via Vent Axia Low-Carbon NBR Mechanical Extract Ventilation system (AD Part F System 3).
- Solar PV assigned to either south east or south west facing roof areas.
- Actual CO₂ (t/yr) values are 'base' values prior to inclusion of solar PV. These values are used to determine the site wide CO₂ emissions to target a 35% reduction using renewable technology (solar PV).



APPENDIX – B

Benchmark SAP Reports

Summary for Input Data



Plot Reference	Plot 01		Issued on Date	19/02/2026
Assessment Reference	Benchmark	Plot Type Ref		
Plot Address	Plot 1, Salamander Quay, Harefield, UX9 6NZ		SAP Version	10.2

SAP Rating	29 F	DER	21.03	TER	
Environmental	84 B	% DER < TER			N/A
CO ₂ Emissions (t/year)	1.07	DFEE	107.66	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	217.44	TPER	

Assessor Details	Mr. Michael O'Donnell	Assessor ID	P634-0001
Client	JDW Architects, JDW Architects		

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	Southwest	
Property Tenure	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, End-Terrace	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	302.54	kJ/m ² K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	No	

7.0 Measurements		Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	Ground floor:	16.70 m	58.90 m ²	2.80 m

8.0 Living Area	29.04	m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Other	0.30	150.00	46.76	35.72	0.00	None	11.04	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall 1	Solid Wall	Other	0.00	70.00	46.76	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	104.72

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Ceiling 1	Other	30.00	58.90

Description	Type	Storey Index	Construction	U-Value (W/m ² K)	Shelter Code	Shelter Factor	Kappa (kJ/m ² K)	Area (m ²)
Heatloss Floor 1	Ground Floor - Solid	Lowest occupied	Other	0.57	None	0.00	110.00	58.90

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
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Summary for Input Data



Glazing	Manufacturer	Window	Double glazed	0.76	0.70	3.30
New Glazing	Manufacturer	Window	Double Low-E Soft 0.05	0.63	0.70	1.60

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m ²)	Pitch
Side	Glazing	External Wall 1	North West	5.88	
Side	New Glazing	External Wall 1	North West	0.96	
Rear	Glazing	External Wall 1	North East	4.20	

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

Y-value

 W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present

Mechanical Ventilation data Type

Type

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	1
0.11	In Room Fan Other Wet Room	1
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	0
0.08	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

Number of open flues

Number of chimneys/flues attached to closed fire

Number of flues attached to solid fuel boiler

Number of flues attached to other heater

Number of blocked chimneys

Number of intermittent extract fans

Number of passive vents

Number of flueless gas fires

21.0 Fixed Cooling System

22.0 Pressure Testing

22.0 Lighting

No Fixed Lighting

Name	Efficacy	Power	Capacity	Count
Lighting 1	75.00	8.00	600.00	6

24.0 Main Heating 1

Percentage of Heat %

Fuel Type

SAP Code

In Winter

In Summer

Controls SAP Code

Controls description

Summary for Input Data



25.0 Main Heating 2

SAP table	SAP table	
Percentage of Heat	0.00	%
Fuel Type	Electricity	
SAP Code	224	
In Winter	170.00	
In Summer	170.00	
Controls	2100	
Controls description	Not applicable (heating provides DHW only)	

26.0 Heat Networks

None

27.0 Secondary Heating

None

28.0 Water Heating

Water Heating	Main Heating 2	
SAP Code	914	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
Cold Water Source	From mains	
Bath Count	1	
Supplementary Immersion	No	
Immersion Only Heating Hot Water	Yes	

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Shower	Combi boiler or unvented hot water system	8.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Insulation Type	Internal Store	
Cylinder Volume	200.00	L
Loss	2.06	kWh/day

34.0 Small-scale Hydro

None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data



Plot Reference	Plot 18		Issued on Date	19/02/2026	
Assessment Reference	Benchmark	Plot Type Ref			
Plot Address	Plot 18, Salamander Quay, Harefield, UX9 6NZ		SAP Version	10.2	
SAP Rating	37 F	DER	17.88	TER	
Environmental	87 B	% DER < TER			N/A
CO ₂ Emissions (t/year)	0.93	DFEE	90.67	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	185.11	TPER	
Assessor Details	Mr. Michael O'Donnell		Assessor ID	P634-0001	
Client	JDW Architects, JDW Architects				

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	Southwest										
Property Tenture	ND										
Transaction Type	6										
Terrain Type	Suburban										
1.0 Property Type	Flat, End-Terrace										
Position of Flat	Top-floor flat										
Which Floor	1										
2.0 Number of Storeys	1										
3.0 Date Built	2026										
4.0 Sheltered Sides	3										
5.0 Sunlight/Shade	Average or unknown										
6.0 Thermal Mass Parameter	Precise calculation										
Thermal Mass	193.28									kJ/m ² K	
7.0 Electricity Tariff	Standard										
Smart electricity meter fitted	Yes										
Smart gas meter fitted	No										
7.0 Measurements			Heat Loss Perimeter		Internal Floor Area		Average Storey Height				
	Ground floor:		16.70 m		59.90 m ²		2.80 m				
8.0 Living Area	31.90									m ²	
9.0 External Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
	External Wall 1	Cavity Wall	Other	0.30	150.00	46.76	29.51	0.00	None	17.25	Enter Gross Area
9.1 Party Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter			
	Party Wall 1	Solid Wall	Other	0.00	70.00	46.76	0.00	None			
9.2 Internal Walls	Description	Construction		Kappa (kJ/m ² K)	Area (m ²)						
	Internal Wall 1	Plasterboard on timber frame		9.00	104.72						
10.0 External Roofs	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
	External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.16	9.00	59.90	59.90	None	0.00	Enter Gross Area	0.00
11.1 Party Floors	Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)						
	Party Floor 1	Lowest occupied	Other	40.00	59.90						

Summary for Input Data



12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Glazing	Manufacturer	Window	Double glazed			0.76		0.70	3.30
New Glazing	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.60

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Side	New Glazing	External Wall 1	North West	2.40	
Side	Glazing	External Wall 1	North West	8.85	
Rear	Glazing	External Wall 1	North East	6.00	

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

Y-value

 W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present

Mechanical Ventilation data Type

Type

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	1
0.11	In Room Fan Other Wet Room	1
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	0
0.08	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	<input type="text" value="0"/>
Number of open flues	<input type="text" value="0"/>
Number of chimneys/flues attached to closed fire	<input type="text" value="0"/>
Number of flues attached to solid fuel boiler	<input type="text" value="0"/>
Number of flues attached to other heater	<input type="text" value="0"/>
Number of blocked chimneys	<input type="text" value="0"/>
Number of intermittent extract fans	<input type="text" value="0"/>
Number of passive vents	<input type="text" value="0"/>
Number of flueless gas fires	<input type="text" value="0"/>

21.0 Fixed Cooling System

22.0 Pressure Testing

22.0 Lighting

No Fixed Lighting

Name	Efficacy	Power	Capacity	Count
Lighting 1	75.00	8.00	600.00	6

24.0 Main Heating 1

Percentage of Heat

 %

Fuel Type

SAP Code

In Winter

In Summer

Summary for Input Data

Controls SAP Code
 Controls description

25.0 Main Heating 2
 Percentage of Heat %
 Fuel Type
 SAP Code
 In Winter
 In Summer
 Controls
 Controls description

26.0 Heat Networks

27.0 Secondary Heating

28.0 Water Heating
 Water Heating
 SAP Code
 Flue Gas Heat Recovery System
 Waste Water Heat Recovery Instantaneous System 1
 Waste Water Heat Recovery Instantaneous System 2
 Waste Water Heat Recovery Storage System
 Solar Panel
 Water use <= 125 litres/person/day
 Cold Water Source
 Bath Count
 Supplementary Immersion
 Immersion Only Heating Hot Water

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Shower	Combi boiler or unvented hot water system	8.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder
 Cylinder Stat
 Cylinder In Heated Space
 Independent Time Control
 Insulation Type
 Cylinder Volume L
 Loss kWh/day
 Pipes insulation

31.0 Thermal Store

34.0 Small-scale Hydro

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

Recommendations
 Lower cost measures
 None
 Further measures to achieve even higher standards
 None

APPENDIX – C

Part L 2021 Compliant SAP Reports



Summary for Input Data



Plot Reference	Plot 01	Issued on Date	19/02/2026	
Assessment Reference	Proposed	Plot Type Ref		
Plot Address	Plot 1, Salamander Quay, Harefield, UX9 6NZ		SAP Version	10.2

SAP Rating	39 E	DER	17.68	TER	
Environmental	87 B	% DER < TER			N/A
CO ₂ Emissions (t/year)	0.87	DFEE	107.66	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	182.81	TPER	

Assessor Details	Mr. Michael O'Donnell	Assessor ID	P634-0001
Client	JDW Architects, JDW Architects		

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	Southwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, End-Terrace	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	302.54	kJ/m ² K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	No	

7.0 Measurements		Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	Ground floor:	16.70 m	58.90 m ²	2.80 m

8.0 Living Area	29.04	m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Other	0.30	150.00	46.76	35.72	0.00	None	11.04	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall 1	Solid Wall	Other	0.00	70.00	46.76	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	104.72

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Ceiling 1	Other	30.00	58.90

Description	Type	Storey Index	Construction	U-Value (W/m ² K)	Shelter Code	Shelter Factor	Kappa (kJ/m ² K)	Area (m ²)
Heatloss Floor 1	Ground Floor - Solid	Lowest occupied	Other	0.57	None	0.00	110.00	58.90

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
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Summary for Input Data



Glazing	Manufacturer	Window	Double glazed	0.76	0.70	3.30
New Glazing	Manufacturer	Window	Double Low-E Soft 0.05	0.63	0.70	1.60

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m ²)	Pitch
Side	Glazing	External Wall 1	North West	5.88	
Side	New Glazing	External Wall 1	North West	0.96	
Rear	Glazing	External Wall 1	North East	4.20	

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

Y-value

 W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	<input type="text" value="Yes"/>
Approved Installation	<input type="text" value="Yes"/>
Mechanical Ventilation data Type	<input type="text" value="Database"/>
Type	<input type="text" value="Mechanical extract ventilation - decentralised"/>
MV Reference Number	<input type="text" value="500776"/>
Duct Type	<input type="text" value="Rigid"/>
Wet Rooms	<input type="text" value="2"/>

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	1
0.11	In Room Fan Other Wet Room	1
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	0
0.08	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	<input type="text" value="0"/>
Number of open flues	<input type="text" value="0"/>
Number of chimneys/flues attached to closed fire	<input type="text" value="0"/>
Number of flues attached to solid fuel boiler	<input type="text" value="0"/>
Number of flues attached to other heater	<input type="text" value="0"/>
Number of blocked chimneys	<input type="text" value="0"/>
Number of intermittent extract fans	<input type="text" value="0"/>
Number of passive vents	<input type="text" value="0"/>
Number of flueless gas fires	<input type="text" value="0"/>

21.0 Fixed Cooling System

22.0 Pressure Testing

22.0 Lighting

No Fixed Lighting	<input type="text" value="No"/>				
	Name	Efficacy	Power	Capacity	Count
	Lighting 1	90.00	8.00	720.00	6

24.0 Main Heating 1

	<input type="text" value="SAP table"/>				
Percentage of Heat	<input type="text" value="100.00"/> %				
Fuel Type	<input type="text" value="Electricity"/>				
SAP Code	<input type="text" value="691"/>				

Summary for Input Data



In Winter	100.00
In Summer	254.88
Controls SAP Code	2605
Controls description	Programmer and room thermostat

25.0 Main Heating 2	Database	
Percentage of Heat	0.00	%
Database Ref. No.	105894	
Fuel Type	Electricity	
In Winter	0.00	
In Summer	254.88	
Model Name	HP200M3	
Manufacturer	HAIER	
Controls	2100	
Controls description	Not applicable (heating provides DHW only)	

26.0 Heat Networks	None
---------------------------	------

27.0 Secondary Heating	None
-------------------------------	------

28.0 Water Heating	Main Heating 2
Water Heating	Main Heating 2
SAP Code	914
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1
Immersion Only Heating Hot Water	Yes

28.1 Showers	Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
	Shower	Combi boiler or unvented hot water system	8.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	Internal Store	
Insulation Type	Measured Loss	
Cylinder Volume	200.00	L
Loss	1.17	kWh/day

32.0 Photovoltaic Unit	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading FGHRs	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.60	South East	30°	None Or Little	No	1.00		

34.0 Small-scale Hydro	None										
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Summary for Input Data



Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data



Plot Reference	Plot 18	Issued on Date	19/02/2026
Assessment Reference	Proposed	Plot Type Ref	
Plot Address	Plot 18, Salamander Quay, Harefield, UX9 6NZ	SAP Version	10.2

SAP Rating	44 E	DER	15.94	TER	
Environmental	88 B	% DER < TER			N/A
CO ₂ Emissions (t/year)	0.81	DFEE	90.67	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	163.76	TPER	

Assessor Details	Mr. Michael O'Donnell	Assessor ID	P634-0001
Client	JDW Architects, JDW Architects		

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	Southwest	
Property Tenure	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, End-Terrace	
Position of Flat	Top-floor flat	
Which Floor	1	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	193.28	kJ/m ² K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	No	

7.0 Measurements		Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	Ground floor:	16.70 m	59.90 m ²	2.80 m

8.0 Living Area	31.90	m ²
-----------------	-------	----------------

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Other	0.30	150.00	46.76	29.51	0.00	None	17.25	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall 1	Solid Wall	Other	0.00	70.00	46.76	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	104.72

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.16	9.00	59.90	59.90	None	0.00	Enter Gross Area	0.00

Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Floor 1	Lowest occupied	Other	40.00	59.90

Summary for Input Data



12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Glazing	Manufacturer	Window	Double glazed			0.76		0.70	3.30
New Glazing	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.60

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Side	New Glazing	External Wall 1	North West	2.40	
Side	Glazing	External Wall 1	North West	8.85	
Rear	Glazing	External Wall 1	North East	6.00	

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

Y-value

 W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present

Approved Installation

Mechanical Ventilation data Type

Type

MV Reference Number

Duct Type

Wet Rooms

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	1
0.11	In Room Fan Other Wet Room	1
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	0
0.08	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

Number of open flues

Number of chimneys/flues attached to closed fire

Number of flues attached to solid fuel boiler

Number of flues attached to other heater

Number of blocked chimneys

Number of intermittent extract fans

Number of passive vents

Number of flueless gas fires

21.0 Fixed Cooling System

22.0 Pressure Testing

22.0 Lighting

No Fixed Lighting

Name	Efficacy	Power	Capacity	Count
Lighting 1	90.00	8.00	720.00	6

24.0 Main Heating 1

Percentage of Heat %

Summary for Input Data



Fuel Type	Electricity
SAP Code	691
In Winter	100.00
In Summer	254.88
Controls SAP Code	2605
Controls description	Programmer and room thermostat

25.0 Main Heating 2	Database	
Percentage of Heat	0.00	%
Database Ref. No.	105894	
Fuel Type	Electricity	
In Winter	0.00	
In Summer	254.88	
Model Name	HP200M3	
Manufacturer	HAIER	
Controls	2100	
Controls description	Not applicable (heating provides DHW only)	

26.0 Heat Networks	None
---------------------------	------

27.0 Secondary Heating	None
-------------------------------	------

28.0 Water Heating	Main Heating 2
Water Heating	Main Heating 2
SAP Code	914
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1
Immersion Only Heating Hot Water	Yes

28.1 Showers		Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Description	Shower	Combi boiler or unvented hot water system	8.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	Internal Store	
Insulation Type	Measured Loss	
Cylinder Volume	200.00	L
Loss	1.17	kWh/day

Recommendations
Lower cost measures
 None
Further measures to achieve even higher standards
 None

APPENDIX – D

35% CO₂ Emissions Reduction SAP Reports



Summary for Input Data



Plot Reference	Plot 01	Issued on Date	24/02/2026
Assessment Reference	35% Red	Plot Type Ref	
Plot Address	Plot 1, Salamander Quay, Harefield, UX9 6NZ	SAP Version	10.2

SAP Rating	53 E	DER	11.66	TER	
Environmental	91 B	% DER < TER			N/A
CO ₂ Emissions (t/year)	0.49	DFEE	107.66	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	143.41	TPER	

Assessor Details	Mr. Michael O'Donnell	Assessor ID	P634-0001
Client	JDW Architects, JDW Architects		

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	Southwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, End-Terrace	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	302.54	kJ/m ² K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	No	

7.0 Measurements		Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	Ground floor:	16.70 m	58.90 m ²	2.80 m

8.0 Living Area	29.04	m ²
-----------------	-------	----------------

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Other	0.30	150.00	46.76	35.72	0.00	None	11.04	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall 1	Solid Wall	Other	0.00	70.00	46.76	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	104.72

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Ceiling 1	Other	30.00	58.90

Description	Type	Storey Index	Construction	U-Value (W/m ² K)	Shelter Code	Shelter Factor	Kappa (kJ/m ² K)	Area (m ²)
Heatloss Floor 1	Ground Floor - Solid	Lowest occupied	Other	0.57	None	0.00	110.00	58.90

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
-------------	-------------	------	---------	-------------	--------------	---------	------------	--------------	------------------------------

Summary for Input Data



Glazing	Manufacturer	Window	Double glazed	0.76	0.70	3.30
New Glazing	Manufacturer	Window	Double Low-E Soft 0.05	0.63	0.70	1.60

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m ²)	Pitch
Side	Glazing	External Wall 1	North West	5.88	
Side	New Glazing	External Wall 1	North West	0.96	
Rear	Glazing	External Wall 1	North East	4.20	

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

Y-value

 W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present

Approved Installation

Mechanical Ventilation data Type

Type

MV Reference Number

Duct Type

Wet Rooms

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	1
0.11	In Room Fan Other Wet Room	1
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	0
0.08	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

Number of open flues

Number of chimneys/flues attached to closed fire

Number of flues attached to solid fuel boiler

Number of flues attached to other heater

Number of blocked chimneys

Number of intermittent extract fans

Number of passive vents

Number of flueless gas fires

21.0 Fixed Cooling System

22.0 Pressure Testing

22.0 Lighting

No Fixed Lighting

Name	Efficacy	Power	Capacity	Count
Lighting 1	90.00	8.00	720.00	6

24.0 Main Heating 1

Percentage of Heat %

Fuel Type

SAP Code

Summary for Input Data



In Winter	100.00
In Summer	254.88
Controls SAP Code	2605
Controls description	Programmer and room thermostat

25.0 Main Heating 2	Database	
Percentage of Heat	0.00	%
Database Ref. No.	105894	
Fuel Type	Electricity	
In Winter	0.00	
In Summer	254.88	
Model Name	HP200M3	
Manufacturer	HAIER	
Controls	2100	
Controls description	Not applicable (heating provides DHW only)	

26.0 Heat Networks	None
---------------------------	------

27.0 Secondary Heating	None
-------------------------------	------

28.0 Water Heating	Main Heating 2
Water Heating	Main Heating 2
SAP Code	914
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1
Immersion Only Heating Hot Water	Yes

28.1 Showers	Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
	Shower	Combi boiler or unvented hot water system	8.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	Internal Store	
Insulation Type	Measured Loss	
Cylinder Volume	200.00	L
Loss	1.17	kWh/day

32.0 Photovoltaic Unit	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading FGHRs	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
4.00	South East	30°	None Or Little	No	1.00		

34.0 Small-scale Hydro	None										
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Summary for Input Data



Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Predicted Energy Assessment

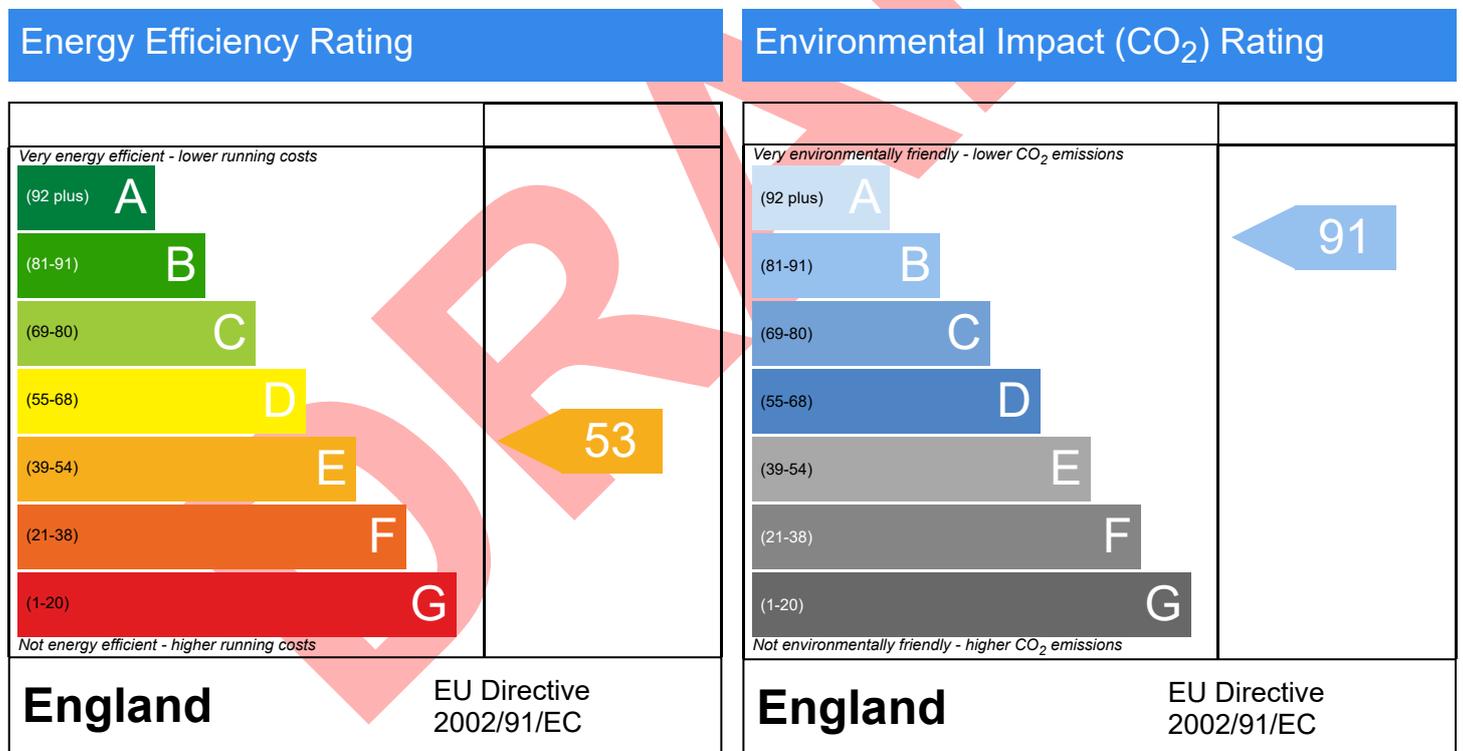


Plot 1, Salamander Quay, Harefield, UX9 6NZ

Dwelling type: Flat, End-Terrace
 Date of assessment: 24/02/2026
 SAP Version: 10.2
 Produced by: Michael O'Donnell
 Total floor area: 58.9 m²
 DRRN:

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

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



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

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

Summary for Input Data



Plot Reference	Plot 18	Issued on Date	24/02/2026
Assessment Reference	35% Red	Plot Type Ref	
Plot Address	Plot 18, Salamander Quay, Harefield, UX9 6NZ	SAP Version	10.2

SAP Rating	62 D	DER	8.96	TER	
Environmental	93 A	% DER < TER			N/A
CO ₂ Emissions (t/year)	0.37	DFEE	90.67	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	115.88	TPER	

Assessor Details	Mr. Michael O'Donnell	Assessor ID	P634-0001
Client	JDW Architects, JDW Architects		

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	Southwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, End-Terrace	
Position of Flat	Top-floor flat	
Which Floor	1	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	193.28	kJ/m ² K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	No	

7.0 Measurements		Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	Ground floor:	16.70 m	59.90 m ²	2.80 m

8.0 Living Area	31.90	m ²
-----------------	-------	----------------

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Other	0.30	150.00	46.76	29.51	0.00	None	17.25	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall 1	Solid Wall	Other	0.00	70.00	46.76	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	104.72

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.16	9.00	59.90	59.90	None	0.00	Enter Gross Area	0.00

Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Floor 1	Lowest occupied	Other	40.00	59.90

Summary for Input Data



12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Glazing	Manufacturer	Window	Double glazed			0.76		0.70	3.30
New Glazing	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.60

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Side	New Glazing	External Wall 1	North West	2.40	
Side	Glazing	External Wall 1	North West	8.85	
Rear	Glazing	External Wall 1	North East	6.00	

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

Y-value

 W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	<input type="text" value="Yes"/>
Approved Installation	<input type="text" value="Yes"/>
Mechanical Ventilation data Type	<input type="text" value="Database"/>
Type	<input type="text" value="Mechanical extract ventilation - decentralised"/>
MV Reference Number	<input type="text" value="500776"/>
Duct Type	<input type="text" value="Rigid"/>
Wet Rooms	<input type="text" value="2"/>

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	1
0.11	In Room Fan Other Wet Room	1
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	0
0.08	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	<input type="text" value="0"/>
Number of open flues	<input type="text" value="0"/>
Number of chimneys/flues attached to closed fire	<input type="text" value="0"/>
Number of flues attached to solid fuel boiler	<input type="text" value="0"/>
Number of flues attached to other heater	<input type="text" value="0"/>
Number of blocked chimneys	<input type="text" value="0"/>
Number of intermittent extract fans	<input type="text" value="0"/>
Number of passive vents	<input type="text" value="0"/>
Number of flueless gas fires	<input type="text" value="0"/>

21.0 Fixed Cooling System

22.0 Pressure Testing

22.0 Lighting

No Fixed Lighting

Name	Efficacy	Power	Capacity	Count
Lighting 1	90.00	8.00	720.00	6

24.0 Main Heating 1

Percentage of Heat %

Summary for Input Data



Fuel Type	Electricity
SAP Code	691
In Winter	100.00
In Summer	254.88
Controls SAP Code	2605
Controls description	Programmer and room thermostat

25.0 Main Heating 2	Database	
Percentage of Heat	0.00	%
Database Ref. No.	105894	
Fuel Type	Electricity	
In Winter	0.00	
In Summer	254.88	
Model Name	HP200M3	
Manufacturer	HAIER	
Controls	2100	
Controls description	Not applicable (heating provides DHW only)	

26.0 Heat Networks	None
---------------------------	------

27.0 Secondary Heating	None
-------------------------------	------

28.0 Water Heating	Main Heating 2
Water Heating	Main Heating 2
SAP Code	914
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1
Immersion Only Heating Hot Water	Yes

28.1 Showers	Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
	Shower	Combi boiler or unvented hot water system	8.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	Internal Store	
Insulation Type	Measured Loss	
Cylinder Volume	200.00	L
Loss	1.17	kWh/day

32.0 Photovoltaic Unit	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
4.00	South East	30°	None Or Little		No	1.00		

Summary for Input Data



34.0 Small-scale Hydro

None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Predicted Energy Assessment

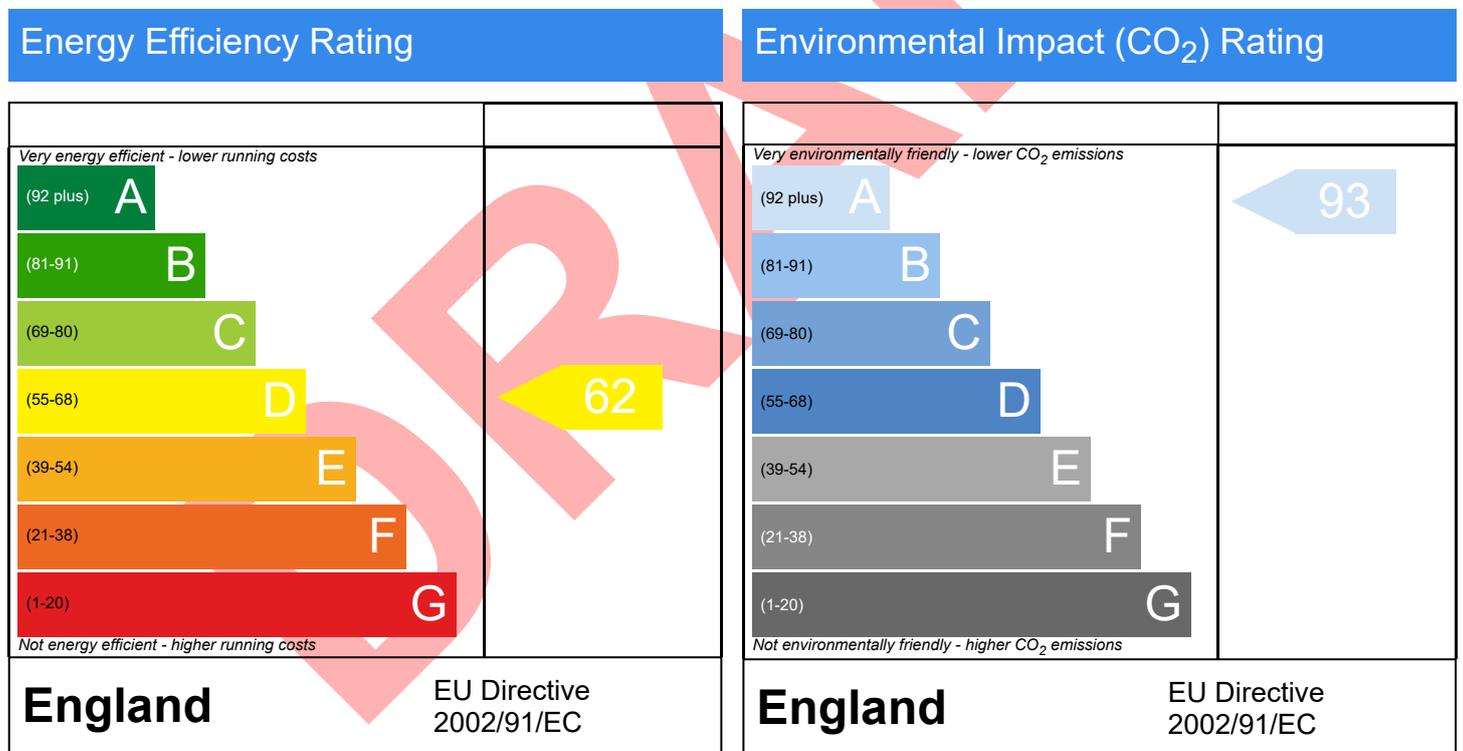


Plot 18, Salamander Quay, Harefield, UX9 6NZ

Dwelling type: Flat, End-Terrace
 Date of assessment: 24/02/2026
 SAP Version: 10.2
 Produced by: Michael O'Donnell
 Total floor area: 59.9 m²
 DRRN:

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

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



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

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

APPENDIX – E

CO₂ Emission Values from SAP Reports



Flat 1 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	
Energy saved or generated			-0.0000 (236)
Energy used			0.0000 (237)
Total delivered energy for all uses			3964.0983 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	6276.1271	0.1539	965.7060 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	786.0943	0.1412	111.0335 (264)
Space and water heating			1076.7395 (265)
Pumps, fans and electric keep-hot	33.6295	0.1387	4.6648 (267)
Energy for lighting	161.6449	0.1443	23.3304 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1362.4861	0.1379	-187.8684
PV Unit electricity exported	-1930.9114	0.1191	-229.9620
Total			-417.8303 (269)
Total CO ₂ , kg/year			666.9033 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			11.6600 (273)

Flat 2 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	
Total delivered energy for all uses			4116.4215 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	6390.4938	0.1543	986.1935 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	810.8327	0.1413	114.5369 (264)
Space and water heating			1100.7304 (265)
Pumps, fans and electric keep-hot	36.0961	0.1387	5.0070 (267)
Energy for lighting	172.3963	0.1443	24.8821 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1375.2845	0.1377	-189.3732
PV Unit electricity exported	-1918.1130	0.1192	-228.6318
Total			-418.0050 (269)
Total CO ₂ , kg/year			712.6145 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			11.2700 (273)

Flat 3 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	3352.1005	0.1545	517.8692 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	713.7946	0.1412	100.7984 (264)
Space and water heating			618.6676 (265)
Pumps, fans and electric keep-hot	26.7438	0.1387	3.7097 (267)
Energy for lighting	133.3227	0.1443	19.2426 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1181.7394	0.1381	-163.1939
PV Unit electricity exported	-2111.6581	0.1209	-255.3133
Total			-418.5072 (269)
Total CO ₂ , kg/year			223.1127 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			4.7600 (273)

Flat 4 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Energy used			0.0000 (237)
Total delivered energy for all uses			4803.8979 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	7078.1534	0.1543	1092.5123 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	810.7211	0.1413	114.5311 (264)
Space and water heating			1207.0334 (265)
Pumps, fans and electric keep-hot	36.0847	0.1387	5.0054 (267)
Energy for lighting	172.3361	0.1443	24.8734 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1392.9465	0.1378	-191.9151
PV Unit electricity exported	-1900.4510	0.1189	-225.8952
Total			-417.8103 (269)
Total CO ₂ , kg/year			819.1019 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			12.9600 (273)

Flat 5 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Appendix Q - special features			
Energy saved or generated			-0.0000 (236)
Energy used			0.0000 (237)
Total delivered energy for all uses			5442.9329 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	7713.9612	0.1536	1185.0963 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	808.2580	0.1413	114.1724 (264)
Space and water heating			1299.2687 (265)
Pumps, fans and electric keep-hot	35.8334	0.1387	4.9705 (267)
Energy for lighting	178.2778	0.1443	25.7310 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1424.9515	0.1378	-196.3784
PV Unit electricity exported	-1868.4460	0.1184	-221.2487
Total			-417.6281 (269)
Total CO ₂ , kg/year			912.3421 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			14.5400 (273)

Flat 6 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Appendix Q - special features			
Energy saved or generated			-0.0000 (236)
Energy used			0.0000 (237)
Total delivered energy for all uses			5114.3084 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	7284.8965	0.1538	1120.5788 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	865.9746	0.1413	122.3438 (264)
Space and water heating			1242.9226 (265)
Pumps, fans and electric keep-hot	42.2739	0.1387	5.8639 (267)
Energy for lighting	214.5609	0.1443	30.9678 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1453.4253	0.1373	-199.2575
PV Unit electricity exported	-1839.9722	0.1188	-218.6488
Total			-418.2063 (269)
Total CO ₂ , kg/year			861.5480 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			11.6400 (273)

Flat 7 SAP CO₂ emission values:

Full SAP Calculation Printout			
elmhurst energy			
12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	2837.2297	0.1545	438.4057 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	660.3040	0.1412	93.2559 (264)
Space and water heating			534.4626 (265)
Pumps, fans and electric keep-hot	23.4322	0.1387	3.2503 (267)
Energy for lighting	110.8689	0.1443	16.0018 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-355.1065	0.1361	-102.7496
PV Unit electricity exported	-891.5922	0.1202	-107.1250
Total			-209.8745 (269)
Total CO ₂ , kg/year			343.8402 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			8.3800 (273)

Flat 8 SAP CO₂ emission values:

Full SAP Calculation Printout			
elmhurst energy			
12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	4545.7124	0.1545	702.1182 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	700.0143	0.1412	98.8474 (264)
Space and water heating			800.9257 (265)
Pumps, fans and electric keep-hot	25.4077	0.1387	3.5244 (267)
Energy for lighting	113.8919	0.1443	16.4381 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1214.3724	0.1386	-168.2762
PV Unit electricity exported	-2079.0251	0.1200	-249.4755
Total			-417.7517 (269)
Total CO ₂ , kg/year			493.2364 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			9.0600 (273)

Flat 9 SAP CO₂ emission values:

Full SAP Calculation Printout			
elmhurst energy			
12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	6278.4601	0.1540	966.8512 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	843.9136	0.1413	119.2204 (264)
Space and water heating			1086.0716 (265)
Pumps, fans and electric keep-hot	39.6475	0.1387	5.4996 (267)
Energy for lighting	196.8117	0.1443	28.4060 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1404.7285	0.1374	-192.9969
PV Unit electricity exported	-1888.6690	0.1193	-225.2942
Total			-418.2913 (269)
Total CO ₂ , kg/year			101.6861 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			10.1000 (273)

Flat 10 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	4025.0175	0.1543	621.1023 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	768.9231	0.1412	108.6034 (264)
Space and water heating			729.7057 (265)
Pumps, fans and electric keep-hot	31.9738	0.1387	4.4352 (267)
Energy for lighting	163.6239	0.1443	23.6160 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1266.4830	0.1377	-174.3556
PV Unit electricity exported	-2026.9145	0.1205	-244.2328
Total			-418.5884 (269)
Total CO ₂ , kg/year			329.1684 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			6.0600 (273)

Flat 11 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Energy saved or generated			-0.0000 (236)
Energy used			0.0000 (237)
Total delivered energy for all uses			3588.7886 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	4335.6277	0.1542	668.6112 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	735.1621	0.1412	103.8236 (264)
Space and water heating			772.4347 (265)
Pumps, fans and electric keep-hot	28.7764	0.1387	3.9916 (267)
Energy for lighting	135.9211	0.1443	19.6176 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-816.0191	0.1259	-110.9124
PV Unit electricity exported	-830.6796	0.1190	-98.8807
Total			-209.7931 (269)
Total CO ₂ , kg/year			586.2508 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			11.6300 (273)

Flat 12 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Energy saved or generated			-0.0000 (236)
Energy used			0.0000 (237)
Total delivered energy for all uses			3588.7886 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	4335.6277	0.1542	668.6112 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	735.1621	0.1412	103.8236 (264)
Space and water heating			772.4347 (265)
Pumps, fans and electric keep-hot	28.7764	0.1387	3.9916 (267)
Energy for lighting	135.9211	0.1443	19.6176 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-816.0191	0.1259	-110.9124
PV Unit electricity exported	-830.6796	0.1190	-98.8807
Total			-209.7931 (269)
Total CO ₂ , kg/year			586.2508 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			11.6300 (273)

Flat 13 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
Energy	Emission factor	Emissions	
kWh/year	kg CO ₂ /kWh	kg CO ₂ /year	kg CO ₂ /year
Space heating - main system 1	0.1540	503.9984	(261)
Space heating - main system 2	0.0000	0.0000	(262)
Total CO ₂ associated with community systems		0.0000	(373)
Water heating (other fuel)		92.2373	(264)
Space and water heating	0.1412	596.2358	(265)
Pumps, fans and electric keep-hot	0.1387	2.8448	(267)
Energy for lighting	0.1443	12.5828	(268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling		-102.5806	
PV Unit electricity exported		-107.0015	
Total		-209.5821	(269)
Total CO ₂ , kg/year		403.0811	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)		11.2200	(273)

Flat 14 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Total delivered energy for all uses			2780.8177 (238)
12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
Energy	Emission factor	Emissions	
kWh/year	kg CO ₂ /kWh	kg CO ₂ /year	kg CO ₂ /year
Space heating - main system 1	0.1540	801.2413	(261)
Space heating - main system 2	0.0000	0.0000	(262)
Total CO ₂ associated with community systems		0.0000	(373)
Water heating (other fuel)		101.5078	(264)
Space and water heating	0.1412	902.7488	(265)
Pumps, fans and electric keep-hot	0.1387	3.7762	(267)
Energy for lighting	0.1443	17.9363	(268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling		-175.6863	
PV Unit electricity exported		-241.9450	
Total		-417.6312	(269)
Total CO ₂ , kg/year		506.8300	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)		10.6300	(273)

Flat 15 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
Energy	Emission factor	Emissions	
kWh/year	kg CO ₂ /kWh	kg CO ₂ /year	kg CO ₂ /year
Space heating - main system 1	0.1538	710.8231	(261)
Space heating - main system 2	0.0000	0.0000	(262)
Total CO ₂ associated with community systems		0.0000	(373)
Water heating (other fuel)		114.6474	(264)
Space and water heating	0.1413	825.4705	(265)
Pumps, fans and electric keep-hot	0.1387	5.0181	(267)
Energy for lighting	0.1443	32.6491	(268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling		-116.5926	
PV Unit electricity exported		-93.5146	
Total		-210.1072	(269)
Total CO ₂ , kg/year		653.0305	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)		10.3100	(273)

Flat 16 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Total delivered energy for all uses			4266.1604 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			

	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	5801.4368	0.1541	893.8519 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	758.3598	0.1412	107.1079 (264)
Space and water heating			1000.9598 (265)
Pumps, fans and electric keep-hot	30.9689	0.1387	4.2958 (267)
Energy for lighting	145.4451	0.1443	20.9922 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1110.0790	0.1371	-152.2097
PV Unit electricity exported	-1359.9691	0.1188	-161.5455
Total			-313.7552 (269)
Total CO ₂ , kg/year			712.4925 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			13.1400 (273)

Flat 17 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Energy saved or generated			-0.0000 (236)
Energy used			0.0000 (237)
Total delivered energy for all uses			3748.4266 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			

	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	4937.1743	0.1545	762.7681 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	718.5642	0.1412	101.4737 (264)
Space and water heating			864.2338 (265)
Pumps, fans and electric keep-hot	27.2005	0.1387	3.7730 (267)
Energy for lighting	123.8610	0.1443	17.8770 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-942.6555	0.1368	-128.9512
PV Unit electricity exported	-1115.7180	0.1190	-132.7220
Total			-261.6732 (269)
Total CO ₂ , kg/year			624.2106 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			13.1000 (273)

Flat 18 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Energy saved or generated			-0.0000 (236)
Energy used			0.0000 (237)
Total delivered energy for all uses			2981.2121 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			

	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	5286.1776	0.1542	814.9088 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	791.9233	0.1413	111.8597 (264)
Space and water heating			926.7685 (265)
Pumps, fans and electric keep-hot	34.2005	0.1387	4.7440 (267)
Energy for lighting	162.3082	0.1443	23.4261 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1329.0184	0.1377	-183.0177
PV Unit electricity exported	-1964.3791	0.1197	-235.2042
Total			-418.2219 (269)
Total CO ₂ , kg/year			536.7167 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			8.9600 (273)

Flat 19 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	
Energy used			0.0000 (237)
Total delivered energy for all uses			4369.8524 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	5035.7258	0.1544	774.6566 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	799.5287	0.1413	112.9365 (264)
Space and water heating			887.5930 (265)
Pumps, fans and electric keep-hot	34.9542	0.1387	4.8486 (267)
Energy for lighting	166.3425	0.1443	24.0084 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-852.0759	0.1356	-115.9045
PV Unit electricity exported	-794.6229	0.1189	-94.4737
Total			-209.9782 (269)
Total CO ₂ , kg/year			706.4717 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			11.5400 (273)

Flat 20 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	2881.7727	0.1544	444.9324 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	733.7946	0.1412	103.7984 (264)
Space and water heating			548.7308 (265)
Pumps, fans and electric keep-hot	26.7438	0.1387	3.7097 (267)
Energy for lighting	135.3648	0.1443	19.5373 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-776.2714	0.1358	-105.3950
PV Unit electricity exported	-870.4274	0.1202	-104.6400
Total			-210.0351 (269)
Total CO ₂ , kg/year			358.9428 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			7.6600 (273)

Flat 21 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	
Energy used			0.0000 (237)
Total delivered energy for all uses			3828.4539 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	4886.1887	0.1546	755.2649 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	799.4142	0.1413	112.9203 (264)
Space and water heating			868.3852 (265)
Pumps, fans and electric keep-hot	34.8428	0.1387	4.8470 (267)
Energy for lighting	166.2816	0.1443	23.9956 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-986.4114	0.1361	-134.2645
PV Unit electricity exported	-1071.9620	0.1193	-127.8927
Total			-262.3572 (269)
Total CO ₂ , kg/year			634.9745 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			10.3700 (273)

Flat 22 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	
Total delivered energy for all uses			4878.6846 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			

	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	6263.3464	0.1539	963.9200 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	850.4687	0.1413	120.1485 (264)
Space and water heating			1084.0724 (265)
Pumps, fans and electric keep-hot	40.4011	0.1387	5.6041 (267)
Energy for lighting	194.5164	0.1443	28.0747 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1178.8934	0.1364	-160.8062
PV Unit electricity exported	-1291.3547	0.1188	-153.4936
Total			-314.2618 (269)
Total CO ₂ , kg/year			803.4896 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			11.3600 (273)

Flat 23 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	
Energy saved or generated			-0.0000 (236)
Energy used			0.0000 (237)
Total delivered energy for all uses			4122.6563 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			

	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	5248.8696	0.1537	806.7698 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	757.1548	0.1412	106.9373 (264)
Space and water heating			913.7071 (265)
Pumps, fans and electric keep-hot	30.8347	0.1387	4.2739 (267)
Energy for lighting	144.1506	0.1443	20.8054 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-981.0906	0.1365	-133.9010
PV Unit electricity exported	-1077.2828	0.1188	-127.9367
Total			-261.8377 (269)
Total CO ₂ , kg/year			676.9547 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			12.5300 (273)

Flat 24 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	
Total delivered energy for all uses			4420.7084 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			

	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	5428.6700	0.1543	837.9131 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	829.6587	0.1413	117.2022 (264)
Space and water heating			955.1163 (265)
Pumps, fans and electric keep-hot	38.0716	0.1387	5.2830 (267)
Energy for lighting	182.6815	0.1443	26.3666 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-1013.5123	0.1360	-137.8212
PV Unit electricity exported	-1044.8612	0.1190	-124.3753
Total			-262.1964 (269)
Total CO ₂ , kg/year			724.5674 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			10.8700 (273)

Flat 25 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Energy used			0.0080 (237)
Total delivered energy for all uses			1937.6285 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	3206.9226	0.1545	495.4217 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	669.6167	0.1412	94.5438 (264)
Space and water heating			589.9654 (265)
Pumps, fans and electric keep-hot	22.3131	0.1387	3.0951 (267)
Energy for lighting	96.9494	0.1443	13.9928 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-866.2160	0.1378	-118.6448
PV Unit electricity exported	-1192.1575	0.1201	-143.1930
Total			-261.8377 (269)
Total CO ₂ , kg/year			345.2156 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			8.8300 (273)

Flat 26 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	3912.1051	0.1541	602.6670 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	727.9268	0.1412	102.7989 (264)
Space and water heating			705.4660 (265)
Pumps, fans and electric keep-hot	28.0912	0.1387	3.8966 (267)
Energy for lighting	131.2305	0.1443	18.9406 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-930.6045	0.1365	-127.0444
PV Unit electricity exported	-1127.7690	0.1197	-261.9843 (269)
Total			-466.3189 (272)
Total CO ₂ , kg/year			9.4800 (273)

Flat 27 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy
Energy used			0.0080 (237)
Total delivered energy for all uses			2174.7320 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	3358.0303	0.1546	519.2076 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	721.9164	0.1412	101.9483 (264)
Space and water heating			621.3559 (265)
Pumps, fans and electric keep-hot	27.5203	0.1387	3.8174 (267)
Energy for lighting	125.6384	0.1443	18.1335 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-906.4000	0.1365	-123.6784
PV Unit electricity exported	-1151.9734	0.1202	-138.4516
Total			-262.1301 (269)
Total CO ₂ , kg/year			380.9167 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			7.9000 (273)

Flat 28 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	4058.5607	0.1541	625.4378 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	783.6305	0.1412	110.6857 (264)
Space and water heating			736.1235 (265)
Pumps, fans and electric keep-hot	33.3897	0.1387	4.6316 (267)
Energy for lighting	165.1845	0.1443	23.8412 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-966.0746	0.1361	-131.4727
PV Unit electricity exported	-1092.2988	0.1197	-130.7831
Total			-262.2957 (269)
Total CO ₂ , kg/year			502.3405 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			8.5900 (273)

Flat 29 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	3879.8643	0.1545	475.8991 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	701.2970	0.1412	99.0290 (264)
Space and water heating			574.9282 (265)
Pumps, fans and electric keep-hot	25.5333	0.1387	3.5418 (267)
Energy for lighting	137.0597	0.1443	16.8953 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-886.3969	0.1366	-121.0606
PV Unit electricity exported	-1171.9785	0.1203	-141.0368
Total			-262.0974 (269)
Total CO ₂ , kg/year			313.2619 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			7.4500 (273)

Flat 30 SAP CO₂ emission values:

Full SAP Calculation Printout			
			elmhurst energy

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO ₂ /kWh	Emissions kg CO ₂ /year
Space heating - main system 1	3689.4077	0.1542	568.7234 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)	730.0934	0.1412	103.1060 (264)
Space and water heating			671.8294 (265)
Pumps, fans and electric keep-hot	28.2968	0.1387	3.9251 (267)
Energy for lighting	130.5124	0.1443	18.8370 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-924.8224	0.1365	-126.1974
PV Unit electricity exported	-1133.5510	0.1199	-135.8636
Total			-262.0609 (269)
Total CO ₂ , kg/year			432.5305 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			8.7300 (273)

Flat 31 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	
Energy used			0.0000 (237)
Total delivered energy for all uses			3904.1463 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO2/kWh	Emissions kg CO2/year
Space heating - main system 1	5043.6787	0.1541	777.1386 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO2 associated with community systems			0.0000 (373)
Water heating (other fuel)	748.9454	0.1412	105.7750 (264)
Space and water heating			882.9136 (265)
Pumps, fans and electric keep-hot	30.0782	0.1387	4.1722 (267)
Energy for lighting	139.8175	0.1443	20.1800 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-966.5875	0.1365	-131.9748
PV Unit electricity exported	-1091.7859	0.1189	-129.8532
Total			-261.8280 (269)
Total CO ₂ , kg/year			665.4378 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			12.2500 (273)

Flat 32 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO2/kWh	Emissions kg CO2/year
Space heating - main system 1	4110.1734	0.1541	633.3354 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO2 associated with community systems			0.0000 (373)
Water heating (other fuel)	811.6132	0.1413	114.6474 (264)
Space and water heating			747.9828 (265)
Pumps, fans and electric keep-hot	36.1760	0.1387	5.0181 (267)
Energy for lighting	191.0646	0.1443	27.5765 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-983.5742	0.1359	-133.6581
PV Unit electricity exported	-1074.7992	0.1198	-128.7320
Total			-262.3901 (269)
Total CO ₂ , kg/year			518.1873 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			8.1800 (273)

Flat 33 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	
Energy used			0.0000 (237)
Total delivered energy for all uses			3475.8342 (238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy kWh/year	Emission factor kg CO2/kWh	Emissions kg CO2/year
Space heating - main system 1	4619.6654	0.1544	713.3243 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO2 associated with community systems			0.0000 (373)
Water heating (other fuel)	746.2855	0.1412	105.3994 (264)
Space and water heating			818.7227 (265)
Pumps, fans and electric keep-hot	29.8270	0.1387	4.1374 (267)
Energy for lighting	138.4297	0.1443	19.9797 (268)

Energy saving/generation technologies			
PV Unit electricity used in dwelling	-952.4957	0.1365	-130.0126
PV Unit electricity exported	-1105.8777	0.1193	-131.9084
Total			-261.9130 (269)
Total CO ₂ , kg/year			580.9248 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			11.1200 (273)

Flat 34 SAP CO₂ emission values:

Full SAP Calculation Printout		elmhurst energy	
Appendix Q - special features			
Energy saved or generated		-0.0000	(236)
Energy used		0.0000	(237)
Total delivered energy for all uses		1752.1718	(238)

12a. Carbon dioxide emissions - Individual heating systems including micro-CHP			
	Energy	Emission factor	Emissions
	kWh/year	kg CO ₂ /kWh	kg CO ₂ /year
Space heating - main system 1	2940.9195	0.1554	456.9839 (261)
Space heating - main system 2	0.0000	0.0000	0.0000 (262)
Total CO ₂ associated with community systems			0.0000 (373)
Water heating (other fuel)			101.4737 (264)
Space and water heating	718.5642	0.1412	101.4737 (264)
Pumps, fans and electric keep-hot	27.2005	0.1387	3.7730 (267)
Energy for lighting	123.8610	0.1443	17.8770 (268)
Energy saving/generation technologies			
PV Unit electricity used in dwelling	-882.8940	0.1364	-120.4122
PV Unit electricity exported	-1175.4794	0.1207	-141.8435
Total			-262.2617 (269)
Total CO ₂ , kg/year			317.8459 (272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			6.6700 (273)