Beechers Shand Woodsland Road, Hassocks, BN6

Energy Statement for Planning

Job No: 6912

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1.0 Introduction

1.1 T16 Design has been appointed to produce this Energy Statement for the proposed development at the Beechers Shand, Woodsland Road, Hassocks, BN6.

1.2 The report assesses the predicted energy performance and carbon dioxide emissions of the proposed development in the context of local and nationwide policy requirements and best practice methods.

1.3 The methodology used to demonstrate the effects of the proposed energy efficiency measures is SAP.

1.4 Emissions reductions are shown for the proposed scheme and the strategy underpinning them is detailed in relevant sections of the report.

1.5 The key policies to consider within this report is policy DPS1, DPS2, DPS3 of the Mid Sussex District Plan:

- All developments should achieve net zero carbon unless can be demonstrated it is not technically feasible.
- Proposal are encouraged to use renewable technology

2.0 Project Summary

2.1 The proposed development is located at the Royal British Legion, Woodsland Road and it is currently occupied by the former British Legion social club.

2.2 The proposal is for a an internal refurbishment and first floor extension to provide six residential dwellings.

2.3 All the proposed dwellings have been included in the energy calculations to allow for the best understanding of climate impact of the building.

2.4 The site location is shown below.



Site Location

3.0 Policy Requirements and Drivers

3.1 The relevant planning policy documents for this site, relating to energy are:

3.1.1 National Planning Policy Framework (NPPF 2024)

- NPPF 11a - Plans should promote sustainable development that seeks to: meet the development needs of their; align growth and infrastructure; improve the environment; mitigate climate change
- NPPF 164 - New development should be planned in ways that can help to avoid increased vulnerability to the range of impacts arising from climate change and reduce greenhouse gas emissions.
- NPPF 155 - Help increase use and supply of renewable and low carbon energy through providing a positive strategy for energy.

3.1.2 Mid Sussex District Plan 2021-2039 (2021)

- DPS1 – Climate Change
- DPS2 – Sustainable Design and Construction
- DPS3 – Renewable and Low Carbon Energy Schemes

3.2 In light of these policy requirements and through the developer and design team's commitment to reducing the impact of the development on the environment, this report sets out some of the measures that will be adopted to meet the policy target.

4.0 Energy Strategy and Approach

4.1 The Local Plan states that major developments should achieve as close to zero carbon as much as feasibly possible.

4.2 This will should be done in the following three stages in accordance with the Local Plan.

4.2.1 Minimise energy demand

4.2.2 Maximise energy efficiency

4.2.3 Utilise renewable energy

4.3 Firstly, the baseline energy emissions must be established this is done using SAP software and backstop U-values set out in Building Regulations

4.4 Secondly, the energy demand of the proposal needs to be reduced by improving fabric efficiency and ensuring the efficiency of M&E is high.

4.5 The final stage is the addition, where feasible to introduce renewable technology, which includes Heat pumps (Air and Ground), PV panel, Solar Hot Water panels and Wind Power.

4.6 These calculations are done using SAP (Standard Assessment Procedure) for residential units.

5.0 Baseline Emissions

5.1 The baseline emissions on which reduction figures are based are calculated using SAP for non-residential units.

5.2 The proposal is a conversion and extension so a backstop calculation is undertaken using backstop U-values and M&E design as set out in Part L of Building Regulations.

5.3 The baseline emissions of the proposal are shown below.

Baseline Emissions	
Unit	Emissions Tonnes/CO_2
Workspace 11	8.7

Table 1 – Baseline Energy

6.0 Energy Efficiency Strategy

6.1 The next stage, once the baseline has been established, is to make improvements within the energy demand and energy efficiency category.

6.2 The proposed U-values, with the relevant Part L backstop are shown below

Energy Efficiency Strategy		
Element or system	Backstop Value	Proposed Value
Existing Wall	U = 0.30 W/(m²k)	U = 0.18 W/(m²k)
Proposed Wall	U = 0.18 W/(m²k)	U = 0.18 W/(m²k)
Existing Ground Floor	U = 0.25 W/(m²k)	U = 0.15 W/(m²k)
Existing Roofs	U = 0.22 W/(m²k)	U = 0.13 W/(m²k)
Proposed Roofs	U = 0.15 W/(m²k)	U = 0.13 W/(m²k)
Windows and rooflights	U = 1.6 W/(m²k)	U = 1.2 W/(m²k) (G-Value 0.63)
Air Permeability	15 m³/(hm²) at 50 Pa	8 m³/(hm²) at 50 Pa
Lighting	Efficacy of all fixed lighting = 75 lm/W	Efficacy of all fixed lighting = 120 lm/W

Table 2 – Fabric Specification

Energy Efficiency Reduction			
Unit	Baseline Emissions Tonnes/CO_2	Energy Efficiency Emissions Tonnes/CO_2	Reduction %
Workspace 11	8.7	7.0	19

Table 3 – Energy Demand reduction

7.0 Renewable Energy Strategy

7.1 The renewable section of the strategy requires the consideration of renewable technologies to provide energy demand.

7.2 The technologies that are considered here are wind power and solar panels (photovoltaic (PV) or Solar Thermal) and heat pumps (ground, air and water)

7.3 Wind power is not suitable in a location such as this. Wind turbines tend to perform poorly in built-up areas.

7.4 Any wind that is received on the site would be too intermittent and turbulent to provide any meaningful reduction in emissions.

7.5 Ground Source Heat pumps are also unlikely to be a viable proposition due to the ground disturbance required in their installation.

7.6 Air Source Heat Pumps (ASHP) however are a suitable solution in this instance and provide substantial improvements in CO_2 emissions when combined with a high-performing fabric such as proposed here.

7.7 It is proposed that individual heat pumps will provide heating and hot water with an efficiency of 252% for the proposal.

7.8 4.5Wp of PV facing South is proposed this maximises unshaded usable roof area to reduce emissions further.

8.0 Summary of Results

8.1 The table below shows the total reduction in CO_2 emissions from the proposal at Beechers SHand, Woodsland Road, BN6.

8.2 The proposal will be provided with increased U values, ASHPs and photovoltaic panels.

8.3 The figures below have been calculated using an approved SAP calculation tool.

Proposed Emissions			
Unit	Baseline Emissions Tonnes/CO_2	Proposed Emissions Tonnes/CO_2	Reduction %
Becchers Shand	8.7	1.4	84%

Table 3 – Residential Carbon emissions savings

9.0 Conclusions

9.1 This energy statement has been produced to accompany an application for the redevelopment of the site at Beechers Shand, Woodsland Road, Hassocks, BN6 to show how the proposal will comply with local renewable and energy standards.

9.2 In doing so, preliminary SAP calculations have been undertaken using the information available and sensible assumptions on construction and M&E parameters.

9.3 The baseline figures have been calculated and improvements made to the fabric and plant proposed for the scheme.

9.4 The passive design measures can be summarised as:

- Significant fabric improvements
- Good air tightness..

9.5 The renewable measures can be summarised as:

- Air Source Heat Pumps with an Efficiency of 252%
- 4.5kWp of PV

9.6 The results in Section 8 shows that the proposal will reduce its carbon emissions by 84%. .

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Appendix A – SAP Calculations

Summary for Input Data

Plot Reference	Unit A	**Issued on Date**	13/02/2026
Assessment Reference	Unit A - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	80 C	**DER**	25.26	**TER**	
Environmental	83 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.12	**DFEE**	64.09	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	138.55	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	7.10 m	48.70 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.30		19.88	11.58	0.00	None	8.30	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.25	None	0.00	75.00	48.70

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	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
W	Windows	EW	West	8.30	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%

Summary for Input Data

16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	No	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	75.00	5.00	375.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Unknown	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	

Summary for Input Data

elmhurst energy

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit A	Issued on Date	13/02/2026
Assessment Reference	Unit A - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	80 C	DER	25.26	TER	
Environmental	83 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.12	DFEE	64.09	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	138.55	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7622	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9718	0.9527	0.9337	0.8384	0.8193	0.7241	0.7241	0.7050	0.7622	0.8193	0.8574	0.8955	(22b)
Effective ac	0.9722	0.9538	0.9359	0.8514	0.8357	0.7621	0.7621	0.7485	0.7905	0.8357	0.8676	0.9010	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.3000	1.5038	12.4812			(27)
GF			48.7000	0.2500	12.1750			(28a)
EW	19.8800	8.3000	11.5800	0.3000	3.4740			(29a)
Total net area of external elements Aum(A, m2)			68.5800					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		28.1302			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							13.7160	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		41.8462	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	43.7463	42.9212	42.1125	38.3141	37.6034	34.2950	34.2950	33.6824	35.5694	37.6034	39.0411	40.5441	(38)
Heat transfer coeff	85.5925	84.7674	83.9587	80.1603	79.4496	76.1413	76.1413	75.5286	77.4156	79.4496	80.8873	82.3903	(39)
Average = Sum(39)m / 12 =												80.1569	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.7575	1.7406	1.7240	1.6460	1.6314	1.5635	1.5635	1.5509	1.5896	1.6314	1.6609	1.6918	(40)
HLP (average)												1.6459	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6519	(42)
Hot water usage for mixer showers													
	58.4060	57.5283	56.2492	53.8021	51.9961	49.9821	48.8374	50.1067	51.4981	53.6606	56.1603	58.1822	(42a)
Hot water usage for baths													
	22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)
Hot water usage for other uses													
	31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)
Average daily hot water use (litres/day)												103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.4935	46.9513	47.7352	49.2042	49.1192	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
										Total per year (kWh/year) = Sum(64)m =		2308.4862	(64)
12Total per year (kWh/year)												2308	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
							Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =					0.0000	(64a)
Heat gains from water heating, kWh/month													
	71.9305	63.6099	67.4967	59.0699	56.9755	50.6629	49.6029	52.0538	53.1175	59.5208	63.5895	71.1019	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	74.8017	82.8161	74.8017	77.2951	74.8017	77.2951	74.8017	74.8017	77.2951	74.8017	77.2951	74.8017	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	96.6808	94.6576	90.7214	82.0416	76.5800	70.3652	66.6705	69.9648	73.7744	80.0010	88.3188	95.5671	(72)
Total internal gains													
	366.1191	373.6031	357.8907	343.6958	325.6317	309.4090	296.8736	298.6751	308.7398	323.4815	344.4018	358.6580	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	8.3000	19.6403	0.6300	0.7000	0.7700	49.8193	(80)

Solar gains	49.8193	97.4570	160.4979	234.0765	286.8696	293.6621	279.5783	240.1536	186.6656	115.6410	62.1188	40.9689	(83)
Total gains	415.9384	471.0602	518.3885	577.7723	612.5012	603.0711	576.4518	538.8287	495.4054	439.1225	406.5206	399.6269	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	18.1756	18.3525	18.5293	19.4073	19.5809	20.4317	20.4317	20.5974	20.0954	19.5809	19.2329	18.8820	
alpha	2.2117	2.2235	2.2353	2.2938	2.3054	2.3621	2.3621	2.3732	2.3397	2.3054	2.2822	2.2588	
util living area													
	0.9529	0.9364	0.9091	0.8495	0.7598	0.6248	0.5006	0.5401	0.7265	0.8755	0.9351	0.9562	(86)
MIT	17.6744	18.0132	18.5764	19.4103	20.0889	20.6248	20.8424	20.8079	20.4128	19.5282	18.5410	17.7168	(87)
Th 2	19.4999	19.5119	19.5237	19.5798	19.5904	19.6402	19.6402	19.6495	19.6209	19.5904	19.5690	19.5467	(88)
util rest of house													
	0.9439	0.9244	0.8911	0.8183	0.7055	0.5345	0.3724	0.4142	0.6474	0.8431	0.9210	0.9481	(89)
MIT 2	15.7529	16.1831	16.8939	17.9482	18.7580	19.3727	19.5669	19.5523	19.1596	18.1198	16.8807	15.8255	(90)
Living area fraction									fLA = Living area / (4) =			0.5380	(91)
MIT	16.7867	17.1676	17.7991	18.7348	19.4740	20.0463	20.2531	20.2278	19.8338	18.8775	17.7739	16.8430	(92)
Temperature adjustment												-0.1500	
adjusted MIT	16.6367	17.0176	17.6491	18.5848	19.3240	19.8963	20.1031	20.0778	19.6838	18.7275	17.6239	16.6930	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9187	0.8959	0.8603	0.7912	0.6936	0.5532	0.4192	0.4575	0.6515	0.8174	0.8939	0.9243	(94)
Useful gains	382.1272	422.0278	445.9516	457.1316	424.8156	333.6295	241.6382	246.5008	322.7793	358.9534	363.3889	369.3939	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1055.9255	1027.1816	936.0625	776.3379	605.7248	403.2691	266.7301	277.7787	432.2710	645.7277	851.2498	1029.3031	(97)
Space heating kWh	501.3059	406.6633	364.6425	229.8285	134.5964	0.0000	0.0000	0.0000	0.0000	213.3600	351.2599	490.9724	(98a)
Space heating requirement - total per year (kWh/year)												2692.6290	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	501.3059	406.6633	364.6425	229.8285	134.5964	0.0000	0.0000	0.0000	0.0000	213.3600	351.2599	490.9724	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2692.6290	
Space heating per m2											(98c) / (4) =	55.2901	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	501.3059	406.6633	364.6425	229.8285	134.5964	0.0000	0.0000	0.0000	0.0000	213.3600	351.2599	490.9724	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	560.1183	454.3724	407.4218	256.7916	150.3871	0.0000	0.0000	0.0000	0.0000	238.3911	392.4691	548.5725	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.6490	86.4809	86.1408	85.4435	84.3871	81.0000	81.0000	81.0000	81.0000	85.2659	86.1827	86.6302	(217)
Fuel for water heating, kWh/month	264.2574	234.4197	250.3361	222.2405	217.9047	202.4930	198.7971	208.3475	212.2709	224.7717	236.1064	261.4378	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	15.9023	12.7574	11.4867	8.4156	6.5005	5.3109	5.9299	7.7080	10.0119	13.1361	14.8372	16.3443	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3008.5240	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2733.3828	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	128.3410	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	5911.2478	(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	3008.5240	0.2100	631.7900	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2733.3828	0.2100	574.0104	(264)
Space and water heating			1205.8004	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	128.3410	0.1443	18.5236	(268)
Total CO2, kg/year			1230.0112	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			25.2600	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3008.5240	1.1300	3399.6321	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2733.3828	1.1300	3088.7226	(278)
Space and water heating			6488.3547	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	128.3410	1.5338	196.8537	(282)
Total Primary energy kWh/year			6747.2332	(286)
Dwelling Primary energy Rate (DPER)			138.5500	(287)

Full SAP Calculation Printout

Plot Reference	Unit A	**Issued on Date**	13/02/2026
Assessment Reference	Unit A - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	80 C	**DER**	25.26	**TER**	
Environmental	83 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.12	**DFEE**	64.09	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	138.55	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000 (1b)	x	2.8000 (2b)	=	136.3600	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	136.3600	(5)

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2. Ventilation rate

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	m3 per hour		
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7622	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9718	0.9527	0.9337	0.8384	0.8193	0.7241	0.7241	0.7050	0.7622	0.8193	0.8574	0.8955	(22b)
If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)												0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =												0.0000	(23c)
Effective ac	0.9722	0.9538	0.9359	0.8514	0.8357	0.7621	0.7621	0.7485	0.7905	0.8357	0.8676	0.9010	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.3000	1.5038	12.4812			(27)
GF			48.7000	0.2500	12.1750			(28a)
EW	19.8800	8.3000	11.5800	0.3000	3.4740			(29a)
Total net area of external elements Aum(A, m2)			68.5800					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		28.1302			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K		115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)		13.7160	(36)
Point Thermal bridges	(36a) =	0.0000	
Total fabric heat loss	(33) + (36) + (36a) =	41.8462	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	43.7463	42.9212	42.1125	38.3141	37.6034	34.2950	34.2950	33.6824	35.5694	37.6034	39.0411	40.5441	(38)
Heat transfer coeff	85.5925	84.7674	83.9587	80.1603	79.4496	76.1413	76.1413	75.5286	77.4156	79.4496	80.8873	82.3903	(39)

Average = Sum(39)m / 12 = 80.1569

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.7575	1.7406	1.7240	1.6460	1.6314	1.5635	1.5635	1.5509	1.5896	1.6314	1.6609	1.6918	(40)
HLP (average)												1.6459	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.6519 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)

Hot water usage for other uses

31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)

Average daily hot water use (litres/day) 49.4930 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	53.9961	52.5155	50.8989	48.8861	47.0907	45.2248	44.8365	46.4499	48.1047	50.0210	52.0516	53.9202	(44)
Energy conte	85.5167	74.7814	78.2297	66.9226	63.3931	55.6091	54.2259	57.5147	59.3179	67.8780	74.1571	84.4260	(45)
Energy content (annual)											Total = Sum(45)m =	821.9721	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(64)
										Total per year (kWh/year) = Sum(64)m =		698.6763	(64)
12Total per year (kWh/year)												699	(64)
Electric shower(s)													
	41.5764	37.0449	40.4516	38.6025	39.3269	37.5140	38.7645	39.3269	38.6025	40.4516	39.6910	41.5764	(64a)
Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m = 472.9292 (64a)													
Heat gains from water heating, kWh/month													
	28.5664	25.1523	26.7367	23.8717	23.3028	21.1954	21.2141	22.0536	22.2557	24.5370	25.6811	28.3346	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	74.8017	82.8161	74.8017	77.2951	74.8017	77.2951	74.8017	74.8017	77.2951	74.8017	77.2951	74.8017	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	38.3957	37.4290	35.9364	33.1551	31.3209	29.4381	28.5136	29.6419	30.9107	32.9798	35.6682	38.0842	(72)
Total internal gains													
	304.8340	313.3746	300.1057	291.8093	277.3726	268.4819	258.7166	258.3522	265.8761	273.4603	288.7513	298.1751	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	8.3000	19.6403	0.6300	0.7000	0.7700	49.8193	(80)

Solar gains	49.8193	97.4570	160.4979	234.0765	286.8696	293.6621	279.5783	240.1536	186.6656	115.6410	62.1188	40.9689	(83)
Total gains	354.6532	410.8316	460.6036	525.8859	564.2422	562.1440	538.2949	498.5058	452.5417	389.1013	350.8700	339.1440	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	18.1756	18.3525	18.5293	19.4073	19.5809	20.4317	20.4317	20.5974	20.0954	19.5809	19.2329	18.8820	
alpha	2.2117	2.2235	2.2353	2.2938	2.3054	2.3621	2.3621	2.3732	2.3397	2.3054	2.2822	2.2588	
util living area													
	0.9651	0.9505	0.9260	0.8703	0.7848	0.6510	0.5262	0.5696	0.7562	0.8983	0.9507	0.9682	(86)
MIT	17.5004	17.8495	18.4311	19.3004	20.0138	20.5880	20.8242	20.7838	20.3532	19.4120	18.3871	17.5406	(87)
Th 2	19.4999	19.5119	19.5237	19.5798	19.5904	19.6402	19.6402	19.6495	19.6209	19.5904	19.5690	19.5467	(88)
util rest of house													
	0.9583	0.9409	0.9108	0.8422	0.7333	0.5611	0.3946	0.4411	0.6803	0.8704	0.9395	0.9620	(89)
MIT 2	16.4058	16.7564	17.3346	18.2088	18.8804	19.4081	19.5754	19.5626	19.2181	18.3392	17.3256	16.4728	(90)
Living area fraction										fLA = Living area / (4) =		0.5380	(91)
MIT	16.9947	17.3445	17.9245	18.7961	19.4901	20.0429	20.2472	20.2196	19.8287	18.9163	17.8967	17.0472	(92)
Temperature adjustment												0.0000	
adjusted MIT	16.9947	17.3445	17.9245	18.7961	19.4901	20.0429	20.2472	20.2196	19.8287	18.9163	17.8967	17.0472	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9418	0.9212	0.8888	0.8230	0.7290	0.5902	0.4573	0.4996	0.6935	0.8532	0.9214	0.9467	(94)
Useful gains	334.0072	378.4681	409.3724	432.8178	411.3442	331.7668	246.1394	249.0694	313.8222	331.9868	323.2928	321.0773	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	1086.5710	1054.8884	959.1835	793.2748	618.9232	414.4274	277.7057	288.4862	443.4944	660.7276	873.3164	1058.4889	(97)
Space heating kWh													
	559.9075	454.5545	409.0595	259.5290	154.4388	0.0000	0.0000	0.0000	0.0000	244.5831	396.0170	548.6342	(98a)
Space heating requirement - total per year (kWh/year)												3026.7235	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	559.9075	454.5545	409.0595	259.5290	154.4388	0.0000	0.0000	0.0000	0.0000	244.5831	396.0170	548.6342	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3026.7235	
Space heating per m2											(98c) / (4) =	62.1504	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	715.7278	563.4453	574.0173	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.6560	0.7258	0.6932	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	469.5010	408.9411	397.9253	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	628.9305	602.5978	557.5377	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	114.7893	144.0806	118.7516	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	28.6973	36.0201	29.6879	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												94.4054	(107)
Energy for space heating												62.1504	(99)
Energy for space cooling												1.9385	(108)
Total												64.0889	(109)
Fabric Energy Efficiency (DFEE)												64.1	(109)

Full SAP Calculation Printout

Plot Reference	Unit A	Issued on Date	13/02/2026
Assessment Reference	Unit A - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	80 C	DER	25.26	TER	
Environmental	83 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.12	DFEE	64.09	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	138.55	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7622	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9718	0.9527	0.9337	0.8384	0.8193	0.7241	0.7241	0.7050	0.7622	0.8193	0.8574	0.8955	(22b)
Effective ac	0.9722	0.9538	0.9359	0.8514	0.8357	0.7621	0.7621	0.7485	0.7905	0.8357	0.8676	0.9010	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.3000	1.5038	12.4812			(27)
GF			48.7000	0.2500	12.1750			(28a)
EW	19.8800	8.3000	11.5800	0.3000	3.4740			(29a)
Total net area of external elements Aum(A, m2)			68.5800					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		28.1302			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							13.7160	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		41.8462	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	43.7463	42.9212	42.1125	38.3141	37.6034	34.2950	34.2950	33.6824	35.5694	37.6034	39.0411	40.5441	(38)
Heat transfer coeff	85.5925	84.7674	83.9587	80.1603	79.4496	76.1413	76.1413	75.5286	77.4156	79.4496	80.8873	82.3903	(39)
Average = Sum(39)m / 12 =												80.1569	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.7575	1.7406	1.7240	1.6460	1.6314	1.5635	1.5635	1.5509	1.5896	1.6314	1.6609	1.6918	(40)
HLP (average)												1.6459	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6519	(42)
Hot water usage for mixer showers													
	58.4060	57.5283	56.2492	53.8021	51.9961	49.9821	48.8374	50.1067	51.4981	53.6606	56.1603	58.1822	(42a)
Hot water usage for baths													
	22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)
Hot water usage for other uses													
	31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)
Average daily hot water use (litres/day)												103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.4935	46.9513	47.7352	49.2042	49.1192	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
										Total per year (kWh/year) = Sum(64)m =		2308.4862	(64)
12Total per year (kWh/year)												2308	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
							Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =					0.0000	(64a)
Heat gains from water heating, kWh/month													
	71.9305	63.6099	67.4967	59.0699	56.9755	50.6629	49.6029	52.0538	53.1175	59.5208	63.5895	71.1019	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	74.8017	82.8161	74.8017	77.2951	74.8017	77.2951	74.8017	74.8017	77.2951	74.8017	77.2951	74.8017	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	96.6808	94.6576	90.7214	82.0416	76.5800	70.3652	66.6705	69.9648	73.7744	80.0010	88.3188	95.5671	(72)
Total internal gains													
	366.1191	373.6031	357.8907	343.6958	325.6317	309.4090	296.8736	298.6751	308.7398	323.4815	344.4018	358.6580	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	8.3000	19.6403	0.6300	0.7000	0.7700	49.8193	(80)

Solar gains	49.8193	97.4570	160.4979	234.0765	286.8696	293.6621	279.5783	240.1536	186.6656	115.6410	62.1188	40.9689	(83)
Total gains	415.9384	471.0602	518.3885	577.7723	612.5012	603.0711	576.4518	538.8287	495.4054	439.1225	406.5206	399.6269	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	18.1756	18.3525	18.5293	19.4073	19.5809	20.4317	20.4317	20.5974	20.0954	19.5809	19.2329	18.8820	
alpha	2.2117	2.2235	2.2353	2.2938	2.3054	2.3621	2.3621	2.3732	2.3397	2.3054	2.2822	2.2588	
util living area													
	0.9529	0.9364	0.9091	0.8495	0.7598	0.6248	0.5006	0.5401	0.7265	0.8755	0.9351	0.9562	(86)
MIT	17.6744	18.0132	18.5764	19.4103	20.0889	20.6248	20.8424	20.8079	20.4128	19.5282	18.5410	17.7168	(87)
Th 2	19.4999	19.5119	19.5237	19.5798	19.5904	19.6402	19.6402	19.6495	19.6209	19.5904	19.5690	19.5467	(88)
util rest of house													
	0.9439	0.9244	0.8911	0.8183	0.7055	0.5345	0.3724	0.4142	0.6474	0.8431	0.9210	0.9481	(89)
MIT 2	15.7529	16.1831	16.8939	17.9482	18.7580	19.3727	19.5669	19.5523	19.1596	18.1198	16.8807	15.8255	(90)
Living area fraction									fLA = Living area / (4) =			0.5380	(91)
MIT	16.7867	17.1676	17.7991	18.7348	19.4740	20.0463	20.2531	20.2278	19.8338	18.8775	17.7739	16.8430	(92)
Temperature adjustment												-0.1500	
adjusted MIT	16.6367	17.0176	17.6491	18.5848	19.3240	19.8963	20.1031	20.0778	19.6838	18.7275	17.6239	16.6930	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9187	0.8959	0.8603	0.7912	0.6936	0.5532	0.4192	0.4575	0.6515	0.8174	0.8939	0.9243	(94)
Useful gains	382.1272	422.0278	445.9516	457.1316	424.8156	333.6295	241.6382	246.5008	322.7793	358.9534	363.3889	369.3939	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1055.9255	1027.1816	936.0625	776.3379	605.7248	403.2691	266.7301	277.7787	432.2710	645.7277	851.2498	1029.3031	(97)
Space heating kWh	501.3059	406.6633	364.6425	229.8285	134.5964	0.0000	0.0000	0.0000	0.0000	213.3600	351.2599	490.9724	(98a)
Space heating requirement - total per year (kWh/year)												2692.6290	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	501.3059	406.6633	364.6425	229.8285	134.5964	0.0000	0.0000	0.0000	0.0000	213.3600	351.2599	490.9724	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2692.6290	
Space heating per m2											(98c) / (4) =	55.2901	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	501.3059	406.6633	364.6425	229.8285	134.5964	0.0000	0.0000	0.0000	0.0000	213.3600	351.2599	490.9724	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	560.1183	454.3724	407.4218	256.7916	150.3871	0.0000	0.0000	0.0000	0.0000	238.3911	392.4691	548.5725	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.6490	86.4809	86.1408	85.4435	84.3871	81.0000	81.0000	81.0000	81.0000	85.2659	86.1827	86.6302	(217)
Fuel for water heating, kWh/month	264.2574	234.4197	250.3361	222.2405	217.9047	202.4930	198.7971	208.3475	212.2709	224.7717	236.1064	261.4378	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	15.9023	12.7574	11.4867	8.4156	6.5005	5.3109	5.9299	7.7080	10.0119	13.1361	14.8372	16.3443	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3008.5240	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2733.3828	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	128.3410	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	5911.2478	(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	3008.5240	0.2100	631.7900	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2733.3828	0.2100	574.0104	(264)
Space and water heating			1205.8004	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	128.3410	0.1443	18.5236	(268)
Total CO2, kg/year			1230.0112	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			25.2600	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3008.5240	1.1300	3399.6321	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2733.3828	1.1300	3088.7226	(278)
Space and water heating			6488.3547	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	128.3410	1.5338	196.8537	(282)
Total Primary energy kWh/year			6747.2332	(286)
Dwelling Primary energy Rate (DPER)			138.5500	(287)

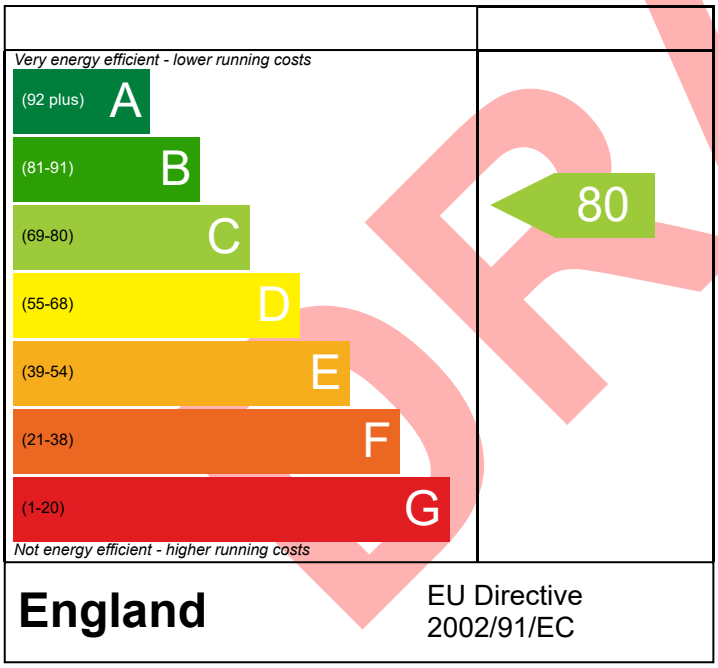
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	48.7 m²
DRRN:	

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

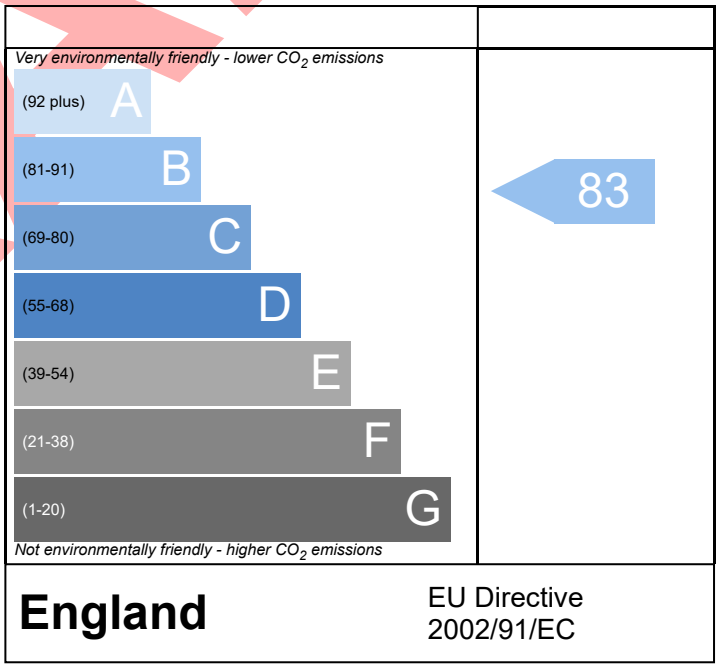
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

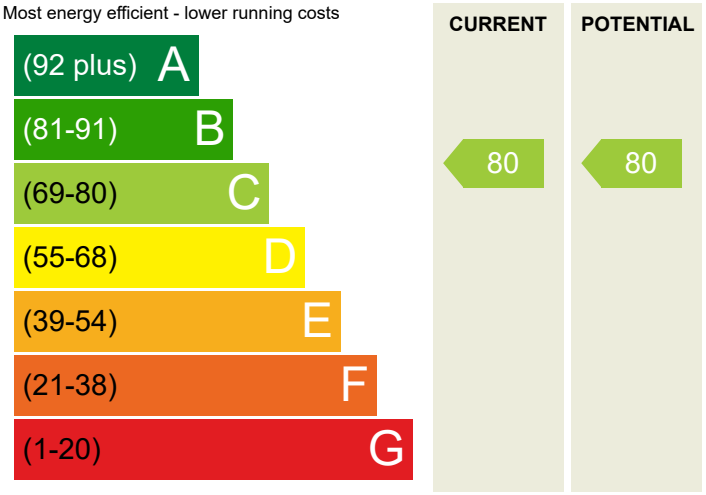
Energy Report

Dwelling Address	
Reference	Unit A-Unit A - BS
SAP Version	10.2
Assessment Date	12/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	49

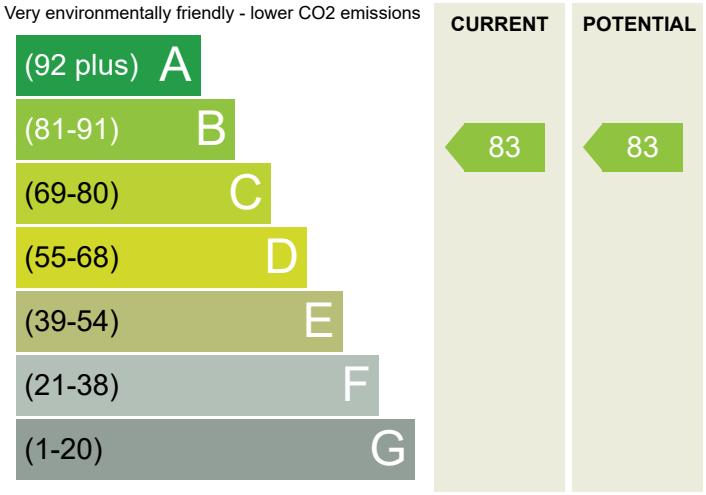
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

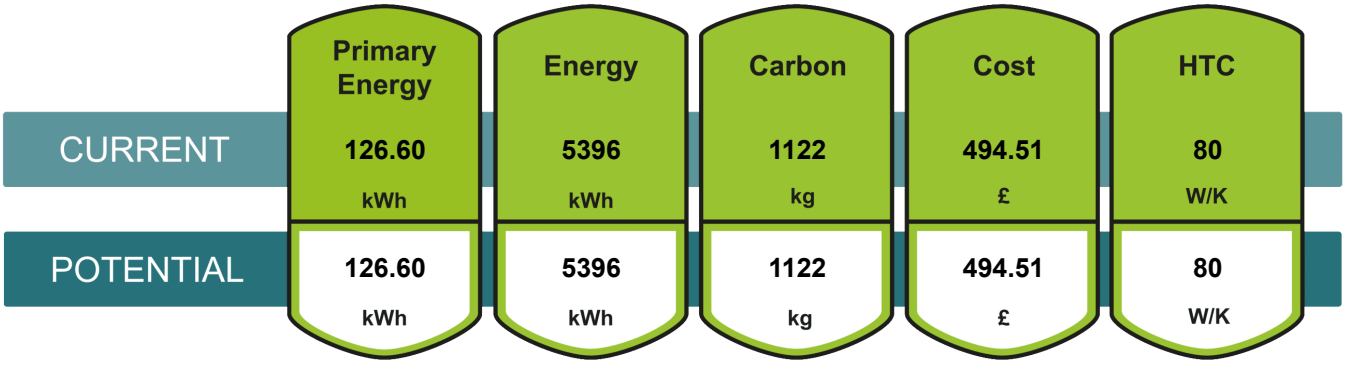


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.3 W/m²K	Good
Floor	Average thermal transmittance 0.25 W/m²K	Good
Windows	High performance glazing	Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Good lighting efficiency	Good
Air tightness	(not tested)	

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total

energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£36	£36	You could save £0
Heating	£278	£278	
Hot Water	£180	£180	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£495	£495	

Estimated energy use and potential savings

Space Heating
2484
kWh per year

Water Heating
2743
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit A	**Issued on Date**	13/02/2026
Assessment Reference	Unit A - BL	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	83 B	**DER**	20.26	**TER**	
Environmental	86 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.92	**DFEE**	41.32	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	111.40	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	7.10 m	48.70 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		19.88	11.58	0.00	None	8.30	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.15	None	0.00	75.00	48.70

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
W	Windows	EW	West	8.30	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%

Summary for Input Data

elmhurst energy

16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Unknown	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	

Summary for Input Data

26.0 Heat Networks	None
27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit A	Issued on Date	13/02/2026
Assessment Reference	Unit A - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	83 B	DER	20.26	TER	
Environmental	86 B	% DER < TER			N/A
CO_2 Emissions (t/year)	0.92	DFEE	41.32	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	111.40	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.3000	1.1450	9.5038			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	19.8800	8.3000	11.5800	0.1800	2.0844			(29a)
Total net area of external elements Aum(A, m2)			68.5800					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		18.8932			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							13.7160	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		32.6092	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	59.2667	59.1052	58.9469	58.2036	58.0645	57.4170	57.4170	57.2971	57.6664	58.0645	58.3458	58.6400	(39)
Average = Sum(39)m / 12 =												58.2029	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.2170	1.2137	1.2104	1.1951	1.1923	1.1790	1.1790	1.1765	1.1841	1.1923	1.1981	1.2041	(40)
HLP (average)												1.1951	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6519	(42)
Hot water usage for mixer showers													
	58.4060	57.5283	56.2492	53.8021	51.9961	49.9821	48.8374	50.1067	51.4981	53.6606	56.1603	58.1822	(42a)
Hot water usage for baths													
	22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)
Hot water usage for other uses													
	31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)
Average daily hot water use (litres/day)												103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.4935	46.9513	47.7352	49.2042	49.1192	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
										Total per year (kWh/year) = Sum(64)m =		2308.4862	(64)
12Total per year (kWh/year)												2308	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	71.9305	63.6099	67.4967	59.0699	56.9755	50.6629	49.6029	52.0538	53.1175	59.5208	63.5895	71.1019	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	74.8017	82.8161	74.8017	77.2951	74.8017	77.2951	74.8017	74.8017	77.2951	74.8017	77.2951	74.8017	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	96.6808	94.6576	90.7214	82.0416	76.5800	70.3652	66.6705	69.9648	73.7744	80.0010	88.3188	95.5671	(72)
Total internal gains													
	366.1191	373.6032	357.8907	343.6958	325.6317	309.4090	296.8736	298.6751	308.7398	323.4815	344.4019	358.6580	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	8.3000	19.6403	0.6300	0.7000	0.7700	49.8193	(80)

Solar gains	49.8193	97.4570	160.4979	234.0765	286.8696	293.6621	279.5783	240.1536	186.6656	115.6410	62.1188	40.9689	(83)
Total gains	415.9384	471.0602	518.3885	577.7724	612.5012	603.0711	576.4518	538.8287	495.4054	439.1225	406.5206	399.6269	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	26.2491	26.3208	26.3914	26.7285	26.7925	27.0946	27.0946	27.1513	26.9775	26.7925	26.6633	26.5296	
alpha	2.7499	2.7547	2.7594	2.7819	2.7862	2.8063	2.8063	2.8101	2.7985	2.7862	2.7776	2.7686	
util living area													
	0.9444	0.9216	0.8832	0.8035	0.6880	0.5394	0.4128	0.4533	0.6517	0.8397	0.9209	0.9494	(86)
MIT	18.7551	19.0520	19.5043	20.0912	20.5505	20.8396	20.9442	20.9264	20.7148	20.1089	19.3483	18.7129	(87)
Th 2	19.9064	19.9091	19.9117	19.9239	19.9262	19.9368	19.9368	19.9388	19.9327	19.9262	19.9215	19.9167	(88)
util rest of house													
	0.9357	0.9096	0.8649	0.7728	0.6391	0.4677	0.3221	0.3609	0.5832	0.8075	0.9068	0.9415	(89)
MIT 2	17.3210	17.6935	18.2569	18.9760	19.5068	19.8177	19.9080	19.8982	19.7014	19.0171	18.0795	17.2742	(90)
Living area fraction									fLA = Living area / (4) =			0.5380	(91)
MIT	18.0925	18.4244	18.9280	19.5760	20.0683	20.3675	20.4655	20.4514	20.2466	19.6045	18.7621	18.0482	(92)
Temperature adjustment												-0.1500	
adjusted MIT	17.9425	18.2744	18.7780	19.4260	19.9183	20.2175	20.3155	20.3014	20.0966	19.4545	18.6121	17.8982	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9149	0.8867	0.8419	0.7567	0.6387	0.4875	0.3554	0.3936	0.5945	0.7909	0.8849	0.9216	(94)
Useful gains	380.5445	417.6847	436.4547	437.2277	391.1824	293.9915	204.8832	212.0993	294.5355	347.2905	359.7155	368.3099	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	808.5475	790.4947	723.7491	612.6480	477.1910	322.5390	213.3328	223.5373	345.8046	514.1310	671.6829	803.2621	(97)
Space heating kWh	318.4342	250.5284	213.7470	126.3027	63.9904	0.0000	0.0000	0.0000	0.0000	124.1293	224.6166	323.6045	(98a)
Space heating requirement - total per year (kWh/year)												1645.3530	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	318.4342	250.5284	213.7470	126.3027	63.9904	0.0000	0.0000	0.0000	0.0000	124.1293	224.6166	323.6045	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1645.3530	
Space heating per m2											(98c) / (4) =	33.7855	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	318.4342	250.5284	213.7470	126.3027	63.9904	0.0000	0.0000	0.0000	0.0000	124.1293	224.6166	323.6045	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	355.7924	279.9200	238.8234	141.1203	71.4977	0.0000	0.0000	0.0000	0.0000	138.6920	250.9682	361.5692	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
Efficiency of water heater												81.0000	(216)
(217)m	85.7366	85.4876	85.0194	84.1940	83.0359	81.0000	81.0000	81.0000	81.0000	84.1412	85.2479	85.7933	(217)
Fuel for water heating, kWh/month	267.0695	237.1436	253.6380	225.5385	221.4506	202.4930	198.7971	208.3475	212.2710	227.7764	238.6953	263.9884	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	13.7421	11.0245	9.9263	7.2724	5.6174	4.5895	5.1244	6.6609	8.6519	11.3517	12.8217	14.1241	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	1838.3833	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2757.2088	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	110.9069	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	4747.4990	(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	1838.3833	0.2100	386.0605	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2757.2088	0.2100	579.0138	(264)
Space and water heating			965.0743	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	110.9069	0.1443	16.0073	(268)
Total CO2, kg/year			986.7688	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			20.2600	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	1838.3833	1.1300	2077.3731	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2757.2088	1.1300	3115.6459	(278)
Space and water heating			5193.0190	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	110.9069	1.5338	170.1128	(282)
Total Primary energy kWh/year			5425.1566	(286)
Dwelling Primary energy Rate (DPER)			111.4000	(287)

Full SAP Calculation Printout

Plot Reference	Unit A	**Issued on Date**	13/02/2026
Assessment Reference	Unit A - BL	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	83 B	**DER**	20.26	**TER**	
Environmental	86 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.92	**DFEE**	41.32	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	111.40	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000 (1b)	x	2.8000 (2b)	=	136.3600	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)

If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)	0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =	0.0000	(23c)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.3000	1.1450	9.5038			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	19.8800	8.3000	11.5800	0.1800	2.0844			(29a)
Total net area of external elements Aum(A, m2)			68.5800					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		18.8932			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	13.7160	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	32.6092	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	59.2667	59.1052	58.9469	58.2036	58.0645	57.4170	57.4170	57.2971	57.6664	58.0645	58.3458	58.6400	(39)

Average = Sum(39)m / 12 = 58.2029

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.2170	1.2137	1.2104	1.1951	1.1923	1.1790	1.1790	1.1765	1.1841	1.1923	1.1981	1.2041	(40)
HLP (average)												1.1951	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.6519 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)

Hot water usage for other uses

31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)

Average daily hot water use (litres/day) 49.4930 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	53.9961	52.5156	50.8989	48.8861	47.0907	45.2248	44.8365	46.4499	48.1047	50.0210	52.0516	53.9202	(44)
Energy conte	85.5167	74.7814	78.2297	66.9226	63.3931	55.6091	54.2259	57.5147	59.3179	67.8780	74.1571	84.4260	(45)
Energy content (annual)											Total = Sum(45)m =	821.9722	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(64)
										Total per year (kWh/year) = Sum(64)m =		698.6763	(64)
12Total per year (kWh/year)												699	(64)
Electric shower(s)													
	41.5764	37.0449	40.4516	38.6025	39.3269	37.5140	38.7645	39.3269	38.6025	40.4516	39.6910	41.5764	(64a)

Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m = 472.9292 (64a)

Heat gains from water heating, kWh/month

28.5664	25.1523	26.7367	23.8717	23.3028	21.1954	21.2141	22.0536	22.2557	24.5370	25.6811	28.3346	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	74.8017	82.8161	74.8017	77.2951	74.8017	77.2951	74.8017	74.8017	77.2951	74.8017	77.2951	74.8017	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	38.3957	37.4290	35.9365	33.1551	31.3209	29.4381	28.5136	29.6419	30.9107	32.9798	35.6682	38.0842	(72)
Total internal gains													
	304.8340	313.3746	300.1057	291.8094	277.3726	268.4819	258.7166	258.3522	265.8761	273.4603	288.7513	298.1751	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	8.3000	19.6403	0.6300	0.7000	0.7700	49.8193	(80)

Solar gains	49.8193	97.4570	160.4979	234.0765	286.8696	293.6621	279.5783	240.1536	186.6656	115.6410	62.1188	40.9689	(83)
Total gains	354.6532	410.8316	460.6036	525.8859	564.2422	562.1440	538.2949	498.5058	452.5417	389.1013	350.8700	339.1440	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	26.2491	26.3208	26.3914	26.7285	26.7925	27.0946	27.0946	27.1513	26.9775	26.7925	26.6633	26.5296	
alpha	2.7499	2.7547	2.7594	2.7819	2.7862	2.8063	2.8063	2.8101	2.7985	2.7862	2.7776	2.7686	
util living area													
	0.9610	0.9413	0.9072	0.8319	0.7195	0.5681	0.4377	0.4831	0.6877	0.8711	0.9422	0.9651	(86)
MIT	18.5596	18.8735	19.3537	19.9899	20.4921	20.8168	20.9353	20.9134	20.6706	19.9959	19.1826	18.5161	(87)
Th 2	19.9064	19.9091	19.9117	19.9239	19.9262	19.9368	19.9368	19.9388	19.9327	19.9262	19.9215	19.9167	(88)
util rest of house													
	0.9546	0.9318	0.8918	0.8038	0.6720	0.4949	0.3430	0.3868	0.6202	0.8430	0.9312	0.9594	(89)
MIT 2	17.7012	18.0106	18.4804	19.0950	19.5529	19.8295	19.9105	19.9010	19.7212	19.1171	18.3276	17.6653	(90)
Living area fraction										fLA = Living area / (4) =		0.5380	(91)
MIT	18.1630	18.4748	18.9502	19.5764	20.0582	20.3607	20.4618	20.4457	20.2320	19.5899	18.7876	18.1231	(92)
Temperature adjustment												0.0000	
adjusted MIT	18.1630	18.4748	18.9502	19.5764	20.0582	20.3607	20.4618	20.4457	20.2320	19.5899	18.7876	18.1231	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9411	0.9160	0.8754	0.7936	0.6783	0.5253	0.3911	0.4344	0.6406	0.8327	0.9166	0.9467	(94)
Useful gains	333.7565	376.3212	403.2120	417.3240	382.7028	295.3198	210.5286	216.5613	289.8810	324.0139	321.5920	321.0709	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	821.6126	802.3421	733.9016	621.4067	485.3127	330.7605	221.7337	231.8067	353.6086	521.9930	681.9222	816.4479	(97)
Space heating kWh													
	362.9649	286.2861	246.0331	146.9395	76.3418	0.0000	0.0000	0.0000	0.0000	147.2964	259.4377	368.5605	(98a)
Space heating requirement - total per year (kWh/year)												1893.8600	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	362.9649	286.2861	246.0331	146.9395	76.3418	0.0000	0.0000	0.0000	0.0000	147.2964	259.4377	368.5605	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1893.8600	
Space heating per m2											(98c) / (4) =	38.8883	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	539.7202	424.8861	435.4583	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7908	0.8496	0.8208	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	426.8048	360.9880	357.4054	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	628.9305	602.5978	557.5377	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	145.5305	179.7577	148.8985	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	36.3826	44.9394	37.2246	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												118.5467	(107)
Energy for space heating												38.8883	(99)
Energy for space cooling												2.4342	(108)
Total												41.3225	(109)
Fabric Energy Efficiency (DFEE)												41.3	(109)

Full SAP Calculation Printout

Plot Reference	Unit A	Issued on Date	13/02/2026
Assessment Reference	Unit A - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	83 B	DER	20.26	TER	
Environmental	86 B	% DER < TER			N/A
CO_2 Emissions (t/year)	0.92	DFEE	41.32	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	111.40	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.3000	1.1450	9.5038			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	19.8800	8.3000	11.5800	0.1800	2.0844			(29a)
Total net area of external elements Aum(A, m2)			68.5800					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		18.8932			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							13.7160	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		32.6092	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	59.2667	59.1052	58.9469	58.2036	58.0645	57.4170	57.4170	57.2971	57.6664	58.0645	58.3458	58.6400	(39)
Average = Sum(39)m / 12 =												58.2029	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.2170	1.2137	1.2104	1.1951	1.1923	1.1790	1.1790	1.1765	1.1841	1.1923	1.1981	1.2041	(40)
HLP (average)												1.1951	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6519	(42)
Hot water usage for mixer showers													
	58.4060	57.5283	56.2492	53.8021	51.9961	49.9821	48.8374	50.1067	51.4981	53.6606	56.1603	58.1822	(42a)
Hot water usage for baths													
	22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)
Hot water usage for other uses													
	31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)
Average daily hot water use (litres/day)												103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.4935	46.9513	47.7352	49.2042	49.1192	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
										Total per year (kWh/year) = Sum(64)m =		2308.4862	(64)
12Total per year (kWh/year)												2308	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	71.9305	63.6099	67.4967	59.0699	56.9755	50.6629	49.6029	52.0538	53.1175	59.5208	63.5895	71.1019	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	74.8017	82.8161	74.8017	77.2951	74.8017	77.2951	74.8017	74.8017	77.2951	74.8017	77.2951	74.8017	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	96.6808	94.6576	90.7214	82.0416	76.5800	70.3652	66.6705	69.9648	73.7744	80.0010	88.3188	95.5671	(72)
Total internal gains													
	366.1191	373.6032	357.8907	343.6958	325.6317	309.4090	296.8736	298.6751	308.7398	323.4815	344.4019	358.6580	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	8.3000	19.6403	0.6300	0.7000	0.7700	49.8193	(80)

Solar gains	49.8193	97.4570	160.4979	234.0765	286.8696	293.6621	279.5783	240.1536	186.6656	115.6410	62.1188	40.9689	(83)
Total gains	415.9384	471.0602	518.3885	577.7724	612.5012	603.0711	576.4518	538.8287	495.4054	439.1225	406.5206	399.6269	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	26.2491	26.3208	26.3914	26.7285	26.7925	27.0946	27.0946	27.1513	26.9775	26.7925	26.6633	26.5296	
alpha	2.7499	2.7547	2.7594	2.7819	2.7862	2.8063	2.8063	2.8101	2.7985	2.7862	2.7776	2.7686	
util living area													
	0.9444	0.9216	0.8832	0.8035	0.6880	0.5394	0.4128	0.4533	0.6517	0.8397	0.9209	0.9494	(86)
MIT	18.7551	19.0520	19.5043	20.0912	20.5505	20.8396	20.9442	20.9264	20.7148	20.1089	19.3483	18.7129	(87)
Th 2	19.9064	19.9091	19.9117	19.9239	19.9262	19.9368	19.9368	19.9388	19.9327	19.9262	19.9215	19.9167	(88)
util rest of house													
	0.9357	0.9096	0.8649	0.7728	0.6391	0.4677	0.3221	0.3609	0.5832	0.8075	0.9068	0.9415	(89)
MIT 2	17.3210	17.6935	18.2569	18.9760	19.5068	19.8177	19.9080	19.8982	19.7014	19.0171	18.0795	17.2742	(90)
Living area fraction									fLA = Living area / (4) =			0.5380	(91)
MIT	18.0925	18.4244	18.9280	19.5760	20.0683	20.3675	20.4655	20.4514	20.2466	19.6045	18.7621	18.0482	(92)
Temperature adjustment												-0.1500	
adjusted MIT	17.9425	18.2744	18.7780	19.4260	19.9183	20.2175	20.3155	20.3014	20.0966	19.4545	18.6121	17.8982	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9149	0.8867	0.8419	0.7567	0.6387	0.4875	0.3554	0.3936	0.5945	0.7909	0.8849	0.9216	(94)
Useful gains	380.5445	417.6847	436.4547	437.2277	391.1824	293.9915	204.8832	212.0993	294.5355	347.2905	359.7155	368.3099	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	808.5475	790.4947	723.7491	612.6480	477.1910	322.5390	213.3328	223.5373	345.8046	514.1310	671.6829	803.2621	(97)
Space heating kWh	318.4342	250.5284	213.7470	126.3027	63.9904	0.0000	0.0000	0.0000	0.0000	124.1293	224.6166	323.6045	(98a)
Space heating requirement - total per year (kWh/year)												1645.3530	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	318.4342	250.5284	213.7470	126.3027	63.9904	0.0000	0.0000	0.0000	0.0000	124.1293	224.6166	323.6045	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1645.3530	
Space heating per m2											(98c) / (4) =	33.7855	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	318.4342	250.5284	213.7470	126.3027	63.9904	0.0000	0.0000	0.0000	0.0000	124.1293	224.6166	323.6045	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	355.7924	279.9200	238.8234	141.1203	71.4977	0.0000	0.0000	0.0000	0.0000	138.6920	250.9682	361.5692	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
Efficiency of water heater												81.0000	(216)
(217)m	85.7366	85.4876	85.0194	84.1940	83.0359	81.0000	81.0000	81.0000	81.0000	84.1412	85.2479	85.7933	(217)
Fuel for water heating, kWh/month	267.0695	237.1436	253.6380	225.5385	221.4506	202.4930	198.7971	208.3475	212.2710	227.7764	238.6953	263.9884	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	13.7421	11.0245	9.9263	7.2724	5.6174	4.5895	5.1244	6.6609	8.6519	11.3517	12.8217	14.1241	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	1838.3833	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2757.2088	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	110.9069	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	4747.4990	(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	1838.3833	0.2100	386.0605	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2757.2088	0.2100	579.0138	(264)
Space and water heating			965.0743	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	110.9069	0.1443	16.0073	(268)
Total CO2, kg/year			986.7688	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			20.2600	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	1838.3833	1.1300	2077.3731	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2757.2088	1.1300	3115.6459	(278)
Space and water heating			5193.0190	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	110.9069	1.5338	170.1128	(282)
Total Primary energy kWh/year			5425.1566	(286)
Dwelling Primary energy Rate (DPER)			111.4000	(287)

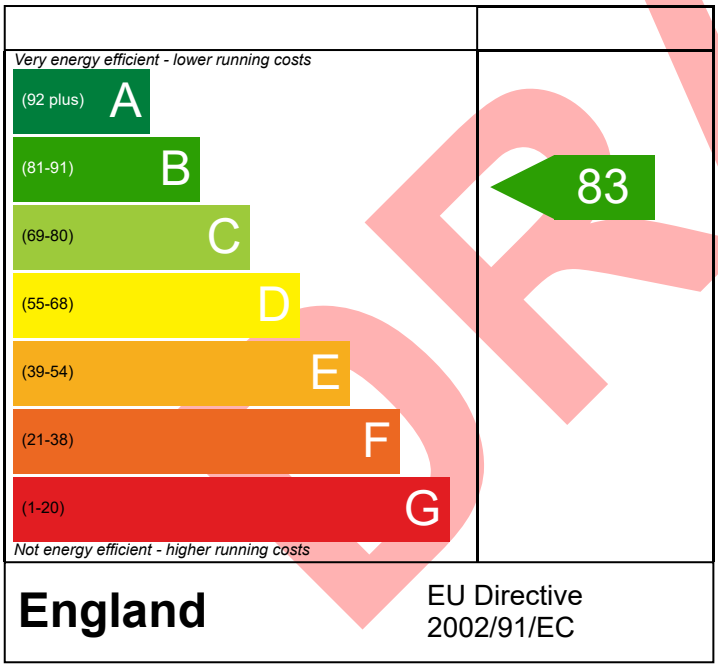
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	48.7 m²
DRRN:	

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

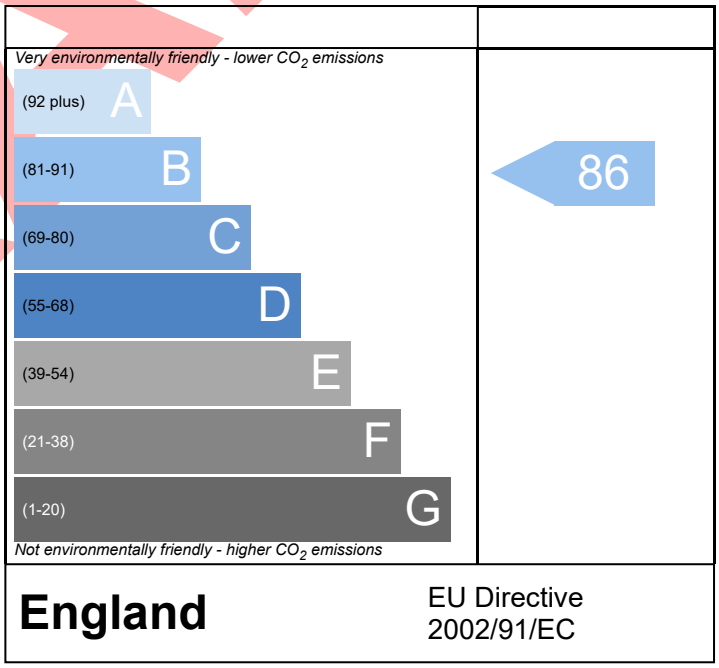
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

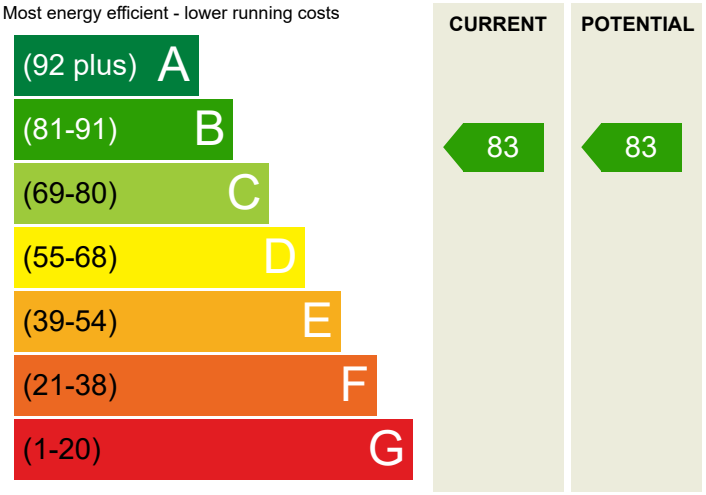
Energy Report

Dwelling Address	
Reference	Unit A-Unit A - BL
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	49

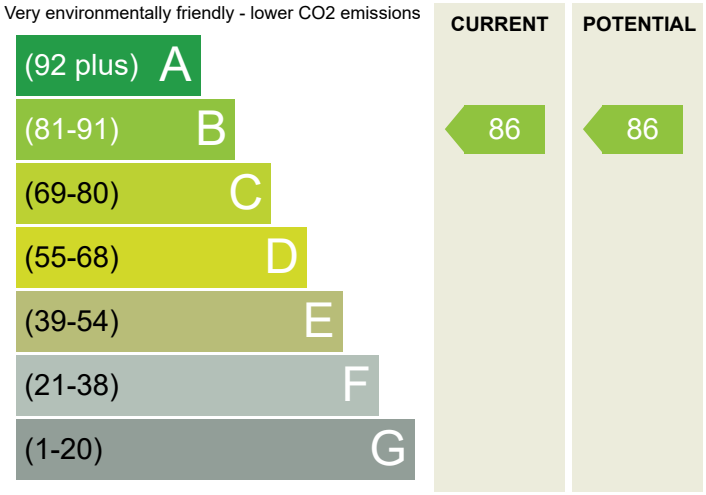
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

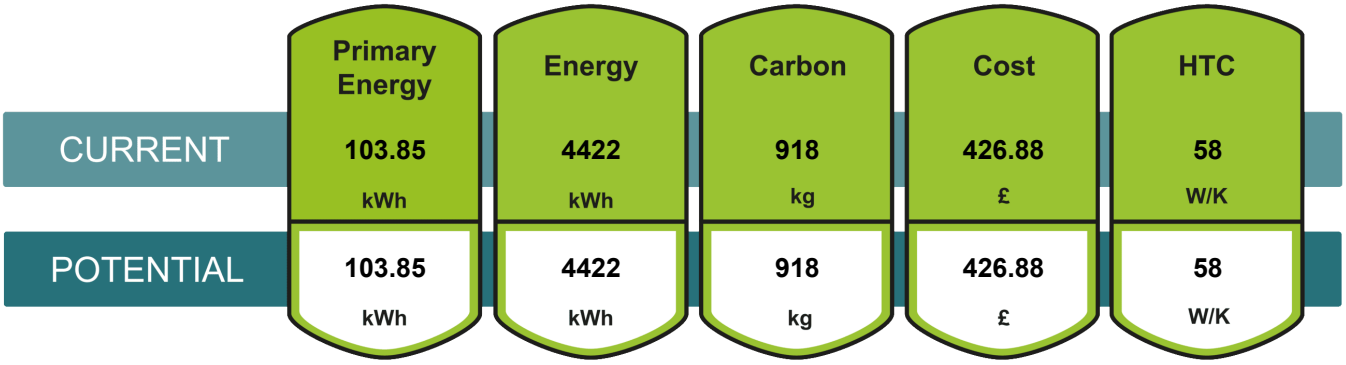


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Floor	Average thermal transmittance 0.15 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£32	£32	
Heating	£214	£214	
Hot Water	£181	£181	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£427	£427	

Estimated energy use and potential savings

Space Heating
1503
kWh per year

Water Heating
2767
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit A	**Issued on Date**	13/02/2026
Assessment Reference	Unit A - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	87 B	**DER**	3.66	**TER**	
Environmental	98 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.15	**DFEE**	41.32	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	42.16	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	7.10 m	48.70 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		19.88	11.58	0.00	None	8.30	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.15	None	0.00	75.00	48.70

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
W	Windows	EW	West	8.30	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%

Summary for Input Data

elmhurst energy

16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	SAP table	
Percentage of Heat	100.00	%
Fuel Type	Electricity	
SAP Code	214	
In Winter	249.90	
In Summer	175.10	
Controls SAP Code	2207	
Controls description	Time and temperature zone control by arrangement	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	35.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	

Summary for Input Data

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	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

32.0 Photovoltaic Unit One Dwelling

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.75	South	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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit A	Issued on Date	13/02/2026
Assessment Reference	Unit A - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	87 B	DER	3.66	TER	
Environmental	98 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.15	DFEE	41.32	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	42.16	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.3000	1.1450	9.5038			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	19.8800	8.3000	11.5800	0.1800	2.0844			(29a)
Total net area of external elements Aum(A, m2)			68.5800					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		18.8932			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							13.7160	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		32.6092	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	59.2667	59.1052	58.9469	58.2036	58.0645	57.4170	57.4170	57.2971	57.6664	58.0645	58.3458	58.6400	(39)
Average = Sum(39)m / 12 =												58.2029	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.2170	1.2137	1.2104	1.1951	1.1923	1.1790	1.1790	1.1765	1.1841	1.1923	1.1981	1.2041	(40)
HLP (average)												1.1951	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy	1.6519	(42)
Hot water usage for mixer showers		
58.4060 57.5283 56.2492 53.8021 51.9961 49.9821 48.8374 50.1067 51.4981 53.6606 56.1603 58.1822		(42a)
Hot water usage for baths		
22.4490 22.1156 21.6461 20.7804 20.1322 19.4135 19.0252 19.4915 19.9991 20.7682 21.6517 22.3731		(42b)
Hot water usage for other uses		
31.5471 30.4000 29.2528 28.1056 26.9585 25.8113 25.8113 26.9585 28.1056 29.2528 30.4000 31.5471		(42c)
Average daily hot water use (litres/day)	103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(64)
										Total per year (kWh/year) = Sum(64)m =		1716.4896	(64)
12Total per year (kWh/year)												1716	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	59.1908	52.1031	54.7570	46.7412	44.3521	38.9251	37.6691	39.7528	40.8377	46.7810	51.2608	58.3622	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	74.8017	82.8161	74.8017	77.2951	74.8017	77.2951	74.8017	74.8017	77.2951	74.8017	77.2951	74.8017	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	79.5575	77.5343	73.5981	64.9183	59.6131	54.0626	50.6305	53.4312	56.7191	62.8777	71.1955	78.4438	(72)
Total internal gains													
	348.9958	356.4799	340.7674	326.5725	308.6647	293.1065	280.8335	282.1414	291.6845	306.3582	327.2786	341.5347	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	8.3000	19.6403	0.6300	0.7000	0.7700	49.8193	(80)

Solar gains	49.8193	97.4570	160.4979	234.0765	286.8696	293.6621	279.5783	240.1536	186.6656	115.6410	62.1188	40.9689	(83)
Total gains	398.8151	453.9369	501.2652	560.6491	595.5343	586.7685	560.4118	522.2950	478.3502	421.9992	389.3973	382.5036	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)	21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)		

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	26.2491	26.3208	26.3914	26.7285	26.7925	27.0946	27.0946	27.1513	26.9775	26.7925	26.6633	26.5296	
alpha	2.7499	2.7547	2.7594	2.7819	2.7862	2.8063	2.8063	2.8101	2.7985	2.7862	2.7776	2.7686	
util living area													
	0.9493	0.9274	0.8904	0.8129	0.6989	0.5506	0.4230	0.4651	0.6657	0.8505	0.9277	0.9541	(86)
MIT	18.7016	19.0025	19.4610	20.0590	20.5309	20.8310	20.9407	20.9214	20.6982	20.0717	19.2986	18.6583	(87)
Th 2	19.9064	19.9091	19.9117	19.9239	19.9262	19.9368	19.9368	19.9388	19.9327	19.9262	19.9215	19.9167	(88)
util rest of house													
	0.9412	0.9161	0.8730	0.7830	0.6504	0.4782	0.3306	0.3711	0.5975	0.8197	0.9146	0.9468	(89)
MIT 2	17.2544	17.6326	18.2049	18.9394	19.4869	19.8107	19.9060	19.8952	19.6864	18.9749	18.0189	17.2060	(90)
Living area fraction									fLA = Living area / (4) =			0.5380	(91)
MIT	18.0330	18.3696	18.8807	19.5417	20.0486	20.3596	20.4627	20.4473	20.2307	19.5650	18.7074	17.9873	(92)
Temperature adjustment												0.0000	
adjusted MIT	18.0330	18.3696	18.8807	19.5417	20.0486	20.3596	20.4627	20.4473	20.2307	19.5650	18.7074	17.9873	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9230	0.8959	0.8532	0.7711	0.6563	0.5081	0.3775	0.4176	0.6179	0.8076	0.8957	0.9295	(94)
Useful gains	368.0961	406.6942	427.6604	432.2957	390.8618	298.1601	211.5425	218.1060	295.5767	340.7975	348.7975	355.5189	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	813.9075	796.1226	729.8023	619.3865	484.7555	330.6997	221.7830	231.8983	353.5362	520.5467	677.2412	808.4882	(97)
Space heating kWh	331.6837	261.6959	224.7936	134.7053	69.8569	0.0000	0.0000	0.0000	0.0000	133.7334	236.4795	337.0091	(98a)
Space heating requirement - total per year (kWh/year)												1729.9575	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	331.6837	261.6959	224.7936	134.7053	69.8569	0.0000	0.0000	0.0000	0.0000	133.7334	236.4795	337.0091	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1729.9575	
Space heating per m2											(98c) / (4) =	35.5227	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												249.9000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	331.6837	261.6959	224.7936	134.7053	69.8569	0.0000	0.0000	0.0000	0.0000	133.7334	236.4795	337.0091	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	132.7266	104.7203	89.9534	53.9037	27.9540	0.0000	0.0000	0.0000	0.0000	53.5148	94.6296	134.8576	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	101.6662	89.4922	94.0506	80.2826	76.1792	66.8578	64.7004	68.2794	70.1429	80.3511	88.0455	100.2429	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	13.7421	11.0245	9.9263	7.2724	5.6174	4.5895	5.1244	6.6609	8.6519	11.3517	12.8217	14.1241	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.2396	-23.3841	-36.3722	-43.6683	-49.0450	-45.0974	-44.4056	-40.7496	-34.4404	-27.6091	-17.3145	-12.9690	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-3.5428	-7.9584	-17.0076	-27.8712	-39.3361	-41.7952	-41.3387	-34.1656	-24.2333	-12.4581	-4.9641	-2.7487	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)
Annual totals kWh/year													
Space heating fuel - main system 1												692.2599	(211)
Space heating fuel - main system 2												0.0000	(213)
Space heating fuel - secondary												0.0000	(215)
Efficiency of water heater												175.1000	
Water heating fuel used												980.2910	(219)
Space cooling fuel												0.0000	(221)
Electricity for pumps and fans:													
Total electricity for the above, kWh/year												0.0000	(231)
Electricity for lighting (calculated in Appendix L)												110.9069	(232)
Energy saving/generation technologies (Appendices M ,N and Q)													
PV generation												-647.7148	(233)
Wind generation												0.0000	(234)
Hydro-electric generation (Appendix N)												0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)												0.0000	(235)
Appendix Q - special features													
Energy saved or generated												-0.0000	(236)
Energy used												0.0000	(237)
Total delivered energy for all uses												1135.7431	(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	692.2599	0.1547	107.0996	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	980.2910	0.1416	138.7878	(264)
Space and water heating			245.8874	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)
Energy for lighting	110.9069	0.1443	16.0073	(268)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-390.2950	0.1335	-52.0987	

PV Unit electricity exported	-257.4198	0.1231	-31.6976	
Total			-83.7963	(269)
Total CO2, kg/year			178.0984	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			3.6600	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	692.2599	1.5728	1088.7652	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	980.2910	1.5235	1493.5109	(278)
Space and water heating			2582.2761	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	110.9069	1.5338	170.1128	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-390.2950	1.4933	-582.8219	
PV Unit electricity exported	-257.4198	0.4518	-116.3071	
Total			-699.1290	(283)
Total Primary energy kWh/year			2053.2599	(286)
Dwelling Primary energy Rate (DPER)			42.1600	(287)

Full SAP Calculation Printout

Plot Reference	Unit A	**Issued on Date**	13/02/2026
Assessment Reference	Unit A - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	87 B	**DER**	3.66	**TER**	
Environmental	98 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.15	**DFEE**	41.32	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	42.16	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

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	m3 per hour		
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)

If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)	0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =	0.0000	(23c)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.3000	1.1450	9.5038			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	19.8800	8.3000	11.5800	0.1800	2.0844			(29a)
Total net area of external elements Aum(A, m2)			68.5800					(31)
Fabric heat loss, W/K = Sum (A x U)				(26)...(30) + (32) =	18.8932			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	13.7160	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	32.6092	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	59.2667	59.1052	58.9469	58.2036	58.0645	57.4170	57.4170	57.2971	57.6664	58.0645	58.3458	58.6400	(39)

Average = Sum(39)m / 12 = 58.2029

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.2170	1.2137	1.2104	1.1951	1.1923	1.1790	1.1790	1.1765	1.1841	1.1923	1.1981	1.2041	(40)
HLP (average)												1.1951	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.6519 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)

Hot water usage for other uses

31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)

Average daily hot water use (litres/day) 49.4930 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	53.9961	52.5156	50.8989	48.8861	47.0907	45.2248	44.8365	46.4499	48.1047	50.0210	52.0516	53.9202	(44)
Energy conte	85.5167	74.7814	78.2297	66.9226	63.3931	55.6091	54.2259	57.5147	59.3179	67.8780	74.1571	84.4260	(45)
Energy content (annual)											Total = Sum(45)m =	821.9722	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(64)
										Total per year (kWh/year) = Sum(64)m =		698.6763	(64)
12Total per year (kWh/year)												699	(64)
Electric shower(s)													
	41.5764	37.0449	40.4516	38.6025	39.3269	37.5140	38.7645	39.3269	38.6025	40.4516	39.6910	41.5764	(64a)

Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m = 472.9292 (64a)

Heat gains from water heating, kWh/month

28.5664	25.1523	26.7367	23.8717	23.3028	21.1954	21.2141	22.0536	22.2557	24.5370	25.6811	28.3346	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	74.8017	82.8161	74.8017	77.2951	74.8017	77.2951	74.8017	74.8017	77.2951	74.8017	77.2951	74.8017	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	38.3957	37.4290	35.9365	33.1551	31.3209	29.4381	28.5136	29.6419	30.9107	32.9798	35.6682	38.0842	(72)
Total internal gains													
	304.8340	313.3746	300.1057	291.8094	277.3726	268.4819	258.7166	258.3522	265.8761	273.4603	288.7513	298.1751	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	8.3000	19.6403	0.6300	0.7000	0.7700	49.8193	(80)

Solar gains	49.8193	97.4570	160.4979	234.0765	286.8696	293.6621	279.5783	240.1536	186.6656	115.6410	62.1188	40.9689	(83)
Total gains	354.6532	410.8316	460.6036	525.8859	564.2422	562.1440	538.2949	498.5058	452.5417	389.1013	350.8700	339.1440	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	26.2491	26.3208	26.3914	26.7285	26.7925	27.0946	27.0946	27.1513	26.9775	26.7925	26.6633	26.5296	
alpha	2.7499	2.7547	2.7594	2.7819	2.7862	2.8063	2.8063	2.8101	2.7985	2.7862	2.7776	2.7686	
util living area													
	0.9610	0.9413	0.9072	0.8319	0.7195	0.5681	0.4377	0.4831	0.6877	0.8711	0.9422	0.9651	(86)
MIT	18.5596	18.8735	19.3537	19.9899	20.4921	20.8168	20.9353	20.9134	20.6706	19.9959	19.1826	18.5161	(87)
Th 2	19.9064	19.9091	19.9117	19.9239	19.9262	19.9368	19.9368	19.9388	19.9327	19.9262	19.9215	19.9167	(88)
util rest of house													
	0.9546	0.9318	0.8918	0.8038	0.6720	0.4949	0.3430	0.3868	0.6202	0.8430	0.9312	0.9594	(89)
MIT 2	17.7012	18.0106	18.4804	19.0950	19.5529	19.8295	19.9105	19.9010	19.7212	19.1171	18.3276	17.6653	(90)
Living area fraction										fLA = Living area / (4) =		0.5380	(91)
MIT	18.1630	18.4748	18.9502	19.5764	20.0582	20.3607	20.4618	20.4457	20.2320	19.5899	18.7876	18.1231	(92)
Temperature adjustment												0.0000	
adjusted MIT	18.1630	18.4748	18.9502	19.5764	20.0582	20.3607	20.4618	20.4457	20.2320	19.5899	18.7876	18.1231	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9411	0.9160	0.8754	0.7936	0.6783	0.5253	0.3911	0.4344	0.6406	0.8327	0.9166	0.9467	(94)
Useful gains	333.7565	376.3212	403.2120	417.3240	382.7028	295.3198	210.5286	216.5613	289.8810	324.0139	321.5920	321.0709	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	821.6126	802.3421	733.9016	621.4067	485.3127	330.7605	221.7337	231.8067	353.6086	521.9930	681.9222	816.4479	(97)
Space heating kWh													
	362.9649	286.2861	246.0331	146.9395	76.3418	0.0000	0.0000	0.0000	0.0000	147.2964	259.4377	368.5605	(98a)
Space heating requirement - total per year (kWh/year)												1893.8600	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	362.9649	286.2861	246.0331	146.9395	76.3418	0.0000	0.0000	0.0000	0.0000	147.2964	259.4377	368.5605	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1893.8600	
Space heating per m2											(98c) / (4) =	38.8883	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	539.7202	424.8861	435.4583	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7908	0.8496	0.8208	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	426.8048	360.9880	357.4054	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	628.9305	602.5978	557.5377	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	145.5305	179.7577	148.8985	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	36.3826	44.9394	37.2246	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												118.5467	(107)
Energy for space heating												38.8883	(99)
Energy for space cooling												2.4342	(108)
Total												41.3225	(109)
Fabric Energy Efficiency (DFEE)												41.3	(109)

Full SAP Calculation Printout

Plot Reference	Unit A	Issued on Date	13/02/2026
Assessment Reference	Unit A - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	87 B	DER	3.66	TER	
Environmental	98 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.15	DFEE	41.32	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	42.16	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.3000	1.1450	9.5038			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	19.8800	8.3000	11.5800	0.1800	2.0844			(29a)
Total net area of external elements Aum(A, m2)			68.5800					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		18.8932			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							13.7160	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		32.6092	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	59.2667	59.1052	58.9469	58.2036	58.0645	57.4170	57.4170	57.2971	57.6664	58.0645	58.3458	58.6400	(39)
Average = Sum(39)m / 12 =												58.2029	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.2170	1.2137	1.2104	1.1951	1.1923	1.1790	1.1790	1.1765	1.1841	1.1923	1.1981	1.2041	(40)
HLP (average)												1.1951	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy	1.6519	(42)
Hot water usage for mixer showers		
58.4060 57.5283 56.2492 53.8021 51.9961 49.9821 48.8374 50.1067 51.4981 53.6606 56.1603 58.1822		(42a)
Hot water usage for baths		
22.4490 22.1156 21.6461 20.7804 20.1322 19.4135 19.0252 19.4915 19.9991 20.7682 21.6517 22.3731		(42b)
Hot water usage for other uses		
31.5471 30.4000 29.2528 28.1056 26.9585 25.8113 25.8113 26.9585 28.1056 29.2528 30.4000 31.5471		(42c)
Average daily hot water use (litres/day)	103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(64)
										Total per year (kWh/year) = Sum(64)m =		1716.4896	(64)
12Total per year (kWh/year)												1716	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	59.1908	52.1031	54.7570	46.7412	44.3521	38.9251	37.6691	39.7528	40.8377	46.7810	51.2608	58.3622	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	74.8017	82.8161	74.8017	77.2951	74.8017	77.2951	74.8017	74.8017	77.2951	74.8017	77.2951	74.8017	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	79.5575	77.5343	73.5981	64.9183	59.6131	54.0626	50.6305	53.4312	56.7191	62.8777	71.1955	78.4438	(72)
Total internal gains													
	348.9958	356.4799	340.7674	326.5725	308.6647	293.1065	280.8335	282.1414	291.6845	306.3582	327.2786	341.5347	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	8.3000	19.6403	0.6300	0.7000	0.7700	49.8193	(80)

Solar gains	49.8193	97.4570	160.4979	234.0765	286.8696	293.6621	279.5783	240.1536	186.6656	115.6410	62.1188	40.9689	(83)
Total gains	398.8151	453.9369	501.2652	560.6491	595.5343	586.7685	560.4118	522.2950	478.3502	421.9992	389.3973	382.5036	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)	21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)		

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	26.2491	26.3208	26.3914	26.7285	26.7925	27.0946	27.0946	27.1513	26.9775	26.7925	26.6633	26.5296	
alpha	2.7499	2.7547	2.7594	2.7819	2.7862	2.8063	2.8063	2.8101	2.7985	2.7862	2.7776	2.7686	
util living area													
	0.9493	0.9274	0.8904	0.8129	0.6989	0.5506	0.4230	0.4651	0.6657	0.8505	0.9277	0.9541	(86)
MIT	18.7016	19.0025	19.4610	20.0590	20.5309	20.8310	20.9407	20.9214	20.6982	20.0717	19.2986	18.6583	(87)
Th 2	19.9064	19.9091	19.9117	19.9239	19.9262	19.9368	19.9368	19.9388	19.9327	19.9262	19.9215	19.9167	(88)
util rest of house													
	0.9412	0.9161	0.8730	0.7830	0.6504	0.4782	0.3306	0.3711	0.5975	0.8197	0.9146	0.9468	(89)
MIT 2	17.2544	17.6326	18.2049	18.9394	19.4869	19.8107	19.9060	19.8952	19.6864	18.9749	18.0189	17.2060	(90)
Living area fraction									fLA = Living area / (4) =			0.5380	(91)
MIT	18.0330	18.3696	18.8807	19.5417	20.0486	20.3596	20.4627	20.4473	20.2307	19.5650	18.7074	17.9873	(92)
Temperature adjustment												0.0000	
adjusted MIT	18.0330	18.3696	18.8807	19.5417	20.0486	20.3596	20.4627	20.4473	20.2307	19.5650	18.7074	17.9873	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9230	0.8959	0.8532	0.7711	0.6563	0.5081	0.3775	0.4176	0.6179	0.8076	0.8957	0.9295	(94)
Useful gains	368.0961	406.6942	427.6604	432.2957	390.8618	298.1601	211.5425	218.1060	295.5767	340.7975	348.7975	355.5189	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	813.9075	796.1226	729.8023	619.3865	484.7555	330.6997	221.7830	231.8983	353.5362	520.5467	677.2412	808.4882	(97)
Space heating kWh	331.6837	261.6959	224.7936	134.7053	69.8569	0.0000	0.0000	0.0000	0.0000	133.7334	236.4795	337.0091	(98a)
Space heating requirement - total per year (kWh/year)												1729.9575	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	331.6837	261.6959	224.7936	134.7053	69.8569	0.0000	0.0000	0.0000	0.0000	133.7334	236.4795	337.0091	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1729.9575	
Space heating per m2											(98c) / (4) =	35.5227	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												249.9000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	331.6837	261.6959	224.7936	134.7053	69.8569	0.0000	0.0000	0.0000	0.0000	133.7334	236.4795	337.0091	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	132.7266	104.7203	89.9534	53.9037	27.9540	0.0000	0.0000	0.0000	0.0000	53.5148	94.6296	134.8576	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	101.6662	89.4922	94.0506	80.2826	76.1792	66.8578	64.7004	68.2794	70.1429	80.3511	88.0455	100.2429	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	13.7421	11.0245	9.9263	7.2724	5.6174	4.5895	5.1244	6.6609	8.6519	11.3517	12.8217	14.1241	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.2396	-23.3841	-36.3722	-43.6683	-49.0450	-45.0974	-44.4056	-40.7496	-34.4404	-27.6091	-17.3145	-12.9690	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-3.5428	-7.9584	-17.0076	-27.8712	-39.3361	-41.7952	-41.3387	-34.1656	-24.2333	-12.4581	-4.9641	-2.7487	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)
Annual totals kWh/year													
Space heating fuel - main system 1												692.2599	(211)
Space heating fuel - main system 2												0.0000	(213)
Space heating fuel - secondary												0.0000	(215)
Efficiency of water heater												175.1000	
Water heating fuel used												980.2910	(219)
Space cooling fuel												0.0000	(221)
Electricity for pumps and fans:													
Total electricity for the above, kWh/year												0.0000	(231)
Electricity for lighting (calculated in Appendix L)												110.9069	(232)
Energy saving/generation technologies (Appendices M ,N and Q)													
PV generation												-647.7148	(233)
Wind generation												0.0000	(234)
Hydro-electric generation (Appendix N)												0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)												0.0000	(235)
Appendix Q - special features													
Energy saved or generated												-0.0000	(236)
Energy used												0.0000	(237)
Total delivered energy for all uses												1135.7431	(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	692.2599	0.1547	107.0996	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	980.2910	0.1416	138.7878	(264)
Space and water heating			245.8874	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)
Energy for lighting	110.9069	0.1443	16.0073	(268)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-390.2950	0.1335	-52.0987	

PV Unit electricity exported	-257.4198	0.1231	-31.6976	
Total			-83.7963	(269)
Total CO2, kg/year			178.0984	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			3.6600	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	692.2599	1.5728	1088.7652	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	980.2910	1.5235	1493.5109	(278)
Space and water heating			2582.2761	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	110.9069	1.5338	170.1128	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-390.2950	1.4933	-582.8219	
PV Unit electricity exported	-257.4198	0.4518	-116.3071	
Total			-699.1290	(283)
Total Primary energy kWh/year			2053.2599	(286)
Dwelling Primary energy Rate (DPER)			42.1600	(287)

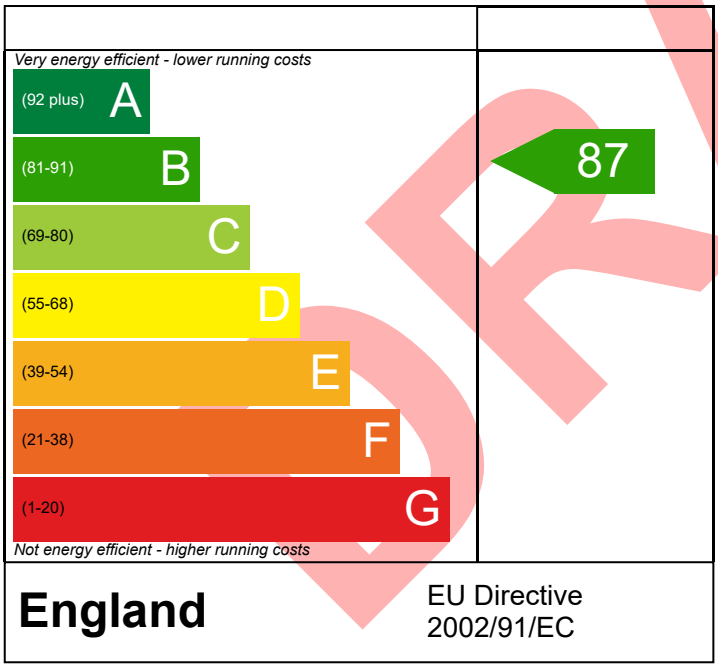
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	48.7 m²
DRRN:	

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

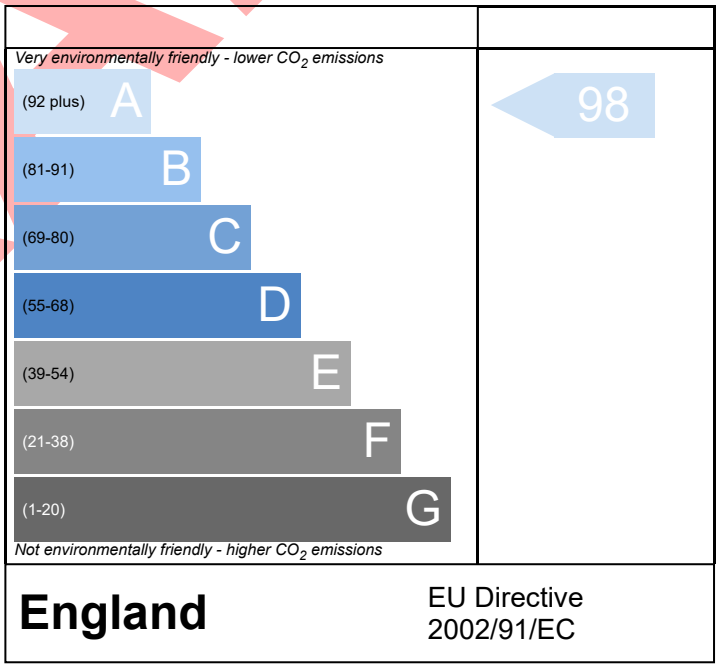
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

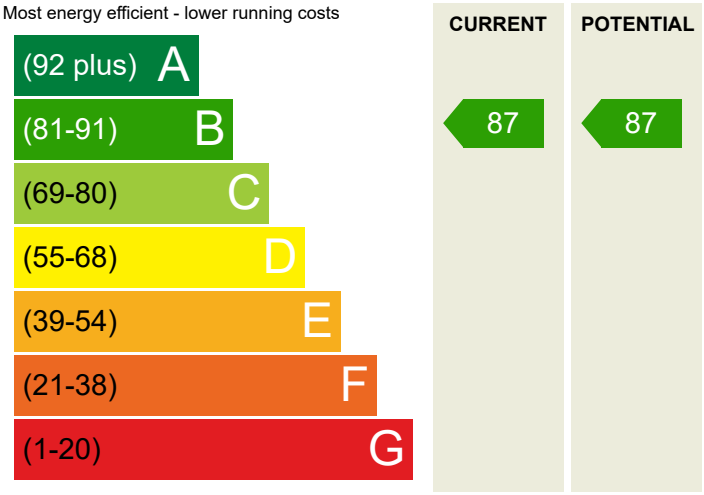
Energy Report

Dwelling Address	
Reference	Unit A-Unit A - BG
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	49

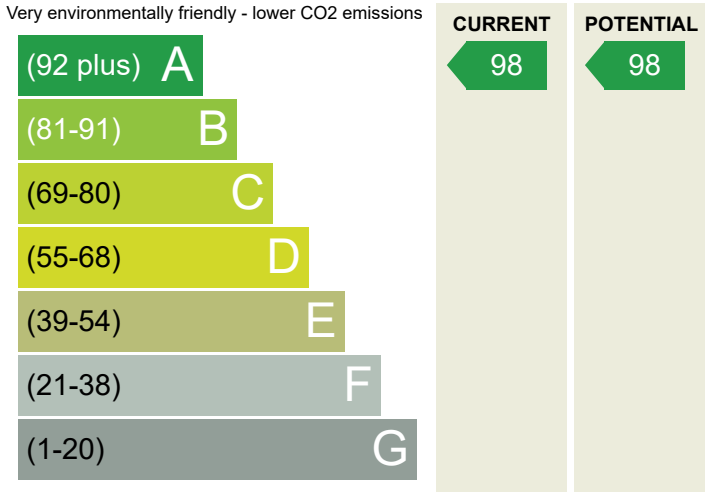
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

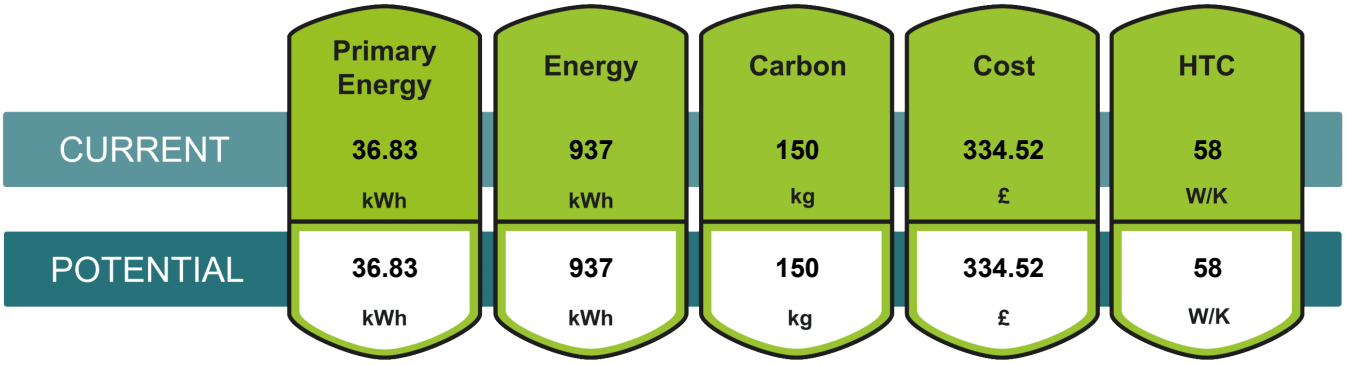


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Floor	Average thermal transmittance 0.15 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Air source heat pump, radiators, electric	Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Average
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£32	£32	
Heating	£162	£162	
Hot Water	£279	£279	
New Technologies e.g. Impact of PV	-(£137)	-(£137)	
TOTAL	£335	£335	

Estimated energy use and potential savings

Space Heating
568
kWh per year

Water Heating
980
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit B	**Issued on Date**	13/02/2026
Assessment Reference	Unit B - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	79 C	**DER**	27.30	**TER**	
Environmental	81 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.21	**DFEE**	74.06	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	149.50	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	14.00 m	48.70 m²	2.80 m

8.0 Living Area 26.20 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.30		39.20	28.40	0.00	None	10.80	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.25	None	0.00	75.00	48.70

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	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
W	Windows	EW	West	8.30	
S	Windows	EW	West	2.50	

14.0 Conservatory None

Summary for Input Data

elmhurst energy

15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	No	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	75.00	5.00	375.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Unknown	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

Summary for Input Data

27.0 Secondary Heating	None
28.0 Water Heating	
Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit B	Issued on Date	13/02/2026
Assessment Reference	Unit B - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	79 C	DER	27.30	TER	
Environmental	81 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.21	DFEE	74.06	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	149.50	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7622	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9718	0.9527	0.9337	0.8384	0.8193	0.7241	0.7241	0.7050	0.7622	0.8193	0.8574	0.8955	(22b)
Effective ac	0.9722	0.9538	0.9359	0.8514	0.8357	0.7621	0.7621	0.7485	0.7905	0.8357	0.8676	0.9010	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			10.8000	1.5038	16.2406			(27)
GF			48.7000	0.2500	12.1750			(28a)
EW	39.2000	10.8000	28.4000	0.3000	8.5200			(29a)
Total net area of external elements Aum(A, m2)			87.9000					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		36.9356			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							17.5800	(36)
Point Thermal bridges					(36a) =		0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		54.5156	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	43.7463	42.9212	42.1125	38.3141	37.6034	34.2950	34.2950	33.6824	35.5694	37.6034	39.0411	40.5441	(38)
Heat transfer coeff	98.2619	97.4368	96.6281	92.8297	92.1190	88.8107	88.8107	88.1980	90.0850	92.1190	93.5567	95.0597	(39)
Average = Sum(39)m / 12 =												92.8263	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	2.0177	2.0008	1.9842	1.9062	1.8916	1.8236	1.8236	1.8110	1.8498	1.8916	1.9211	1.9519	(40)
HLP (average)												1.9061	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6519	(42)
Hot water usage for mixer showers													
	58.4060	57.5283	56.2492	53.8021	51.9961	49.9821	48.8374	50.1067	51.4981	53.6606	56.1603	58.1822	(42a)
Hot water usage for baths													
	22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)
Hot water usage for other uses													
	31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)
Average daily hot water use (litres/day)												103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.4935	46.9513	47.7352	49.2042	49.1192	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
										Total per year (kWh/year) = Sum(64)m =		2308.4862	(64)
12Total per year (kWh/year)												2308	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	71.9305	63.6099	67.4967	59.0699	56.9755	50.6629	49.6029	52.0538	53.1175	59.5208	63.5895	71.1019	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	72.5685	80.3437	72.5685	74.9875	72.5685	74.9875	72.5685	72.5685	74.9875	72.5685	74.9875	72.5685	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	96.6808	94.6576	90.7214	82.0416	76.5800	70.3652	66.6705	69.9648	73.7744	80.0010	88.3188	95.5671	(72)
Total internal gains													
	363.8859	371.1307	355.6575	341.3882	323.3985	307.1014	294.6404	296.4419	306.4322	321.2483	342.0942	356.4248	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	10.8000	19.6403	0.6300	0.7000	0.7700	64.8251	(80)

Solar gains	64.8251	126.8116	208.8406	304.5815	373.2761	382.1145	363.7886	312.4890	242.8902	150.4726	80.8292	53.3090	(83)
Total gains	428.7110	497.9423	564.4981	645.9697	696.6746	689.2159	658.4290	608.9309	549.3224	471.7209	422.9235	409.7338	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	15.8321	15.9662	16.0998	16.7586	16.8879	17.5170	17.5170	17.6387	17.2692	16.8879	16.6284	16.3654	
alpha	2.0555	2.0644	2.0733	2.1172	2.1259	2.1678	2.1678	2.1759	2.1513	2.1259	2.1086	2.0910	
util living area													
	0.9524	0.9342	0.9034	0.8397	0.7472	0.6164	0.4972	0.5394	0.7237	0.8736	0.9348	0.9561	(86)
MIT	17.2891	17.6636	18.2946	19.2015	19.9551	20.5458	20.7994	20.7549	20.2961	19.3031	18.2080	17.3111	(87)
Th 2	19.3216	19.3328	19.3439	19.3966	19.4066	19.4535	19.4535	19.4623	19.4354	19.4066	19.3865	19.3656	(88)
util rest of house													
	0.9428	0.9210	0.8832	0.8046	0.6865	0.5160	0.3535	0.3980	0.6361	0.8381	0.9196	0.9474	(89)
MIT 2	15.2119	15.6821	16.4702	17.5982	18.4864	19.1481	19.3698	19.3496	18.9079	17.7547	16.3907	15.2517	(90)
Living area fraction									fLA = Living area / (4) =			0.5380	(91)
MIT	16.3294	16.7481	17.4517	18.4607	19.2766	19.9001	20.1389	20.1056	19.6548	18.5877	17.3684	16.3596	(92)
Temperature adjustment												-0.1500	
adjusted MIT	16.1794	16.5981	17.3017	18.3107	19.1266	19.7501	19.9889	19.9556	19.5048	18.4377	17.2184	16.2096	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9153	0.8894	0.8487	0.7745	0.6739	0.5374	0.4075	0.4479	0.6406	0.8093	0.8898	0.9215	(94)
Useful gains	392.3977	442.8523	479.1098	500.2897	469.4802	370.3984	268.2968	272.7386	351.9204	381.7862	376.3269	377.5562	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1167.2914	1139.8242	1043.7490	873.5961	684.1279	457.3796	300.9716	313.6004	486.8892	722.0053	946.6448	1141.6317	(97)
Space heating kWh	576.5209	468.3651	420.0916	268.7806	159.6979	0.0000	0.0000	0.0000	0.0000	253.1230	410.6289	568.4722	(98a)
Space heating requirement - total per year (kWh/year)												3125.6801	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	576.5209	468.3651	420.0916	268.7806	159.6979	0.0000	0.0000	0.0000	0.0000	253.1230	410.6289	568.4722	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3125.6801	
Space heating per m2											(98c) / (4) =	64.1823	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	576.5209	468.3651	420.0916	268.7806	159.6979	0.0000	0.0000	0.0000	0.0000	253.1230	410.6289	568.4722	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	644.1574	523.3129	469.3761	300.3135	178.4334	0.0000	0.0000	0.0000	0.0000	282.8190	458.8032	635.1644	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.9075	86.7500	86.4237	85.7736	84.7407	81.0000	81.0000	81.0000	81.0000	85.6281	86.4926	86.9019	(217)
Fuel for water heating, kWh/month	263.4713	233.6926	249.5166	221.3851	216.9953	202.4930	198.7971	208.3475	212.2709	223.8211	235.2604	260.6206	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	15.4276	12.3766	11.1437	8.1644	6.3064	5.1524	5.7529	7.4779	9.7130	12.7440	14.3943	15.8564	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3492.3800	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2726.6714	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	124.5095	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	6384.5608	(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	3492.3800	0.2100	733.3998	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2726.6714	0.2100	572.6010	(264)
Space and water heating			1306.0008	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	124.5095	0.1443	17.9706	(268)
Total CO2, kg/year			1329.6586	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			27.3000	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3492.3800	1.1300	3946.3893	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2726.6714	1.1300	3081.1387	(278)
Space and water heating			7027.5281	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	124.5095	1.5338	190.9768	(282)
Total Primary energy kWh/year			7280.5296	(286)
Dwelling Primary energy Rate (DPER)			149.5000	(287)

Full SAP Calculation Printout

Plot Reference	Unit B	**Issued on Date**	13/02/2026
Assessment Reference	Unit B - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	79 C	**DER**	27.30	**TER**	
Environmental	81 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.21	**DFEE**	74.06	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	149.50	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

---

1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000 (1b)	x	2.8000 (2b)	=	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	136.3600	(5)

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2. Ventilation rate

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	m3 per hour		
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7622	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9718	0.9527	0.9337	0.8384	0.8193	0.7241	0.7241	0.7050	0.7622	0.8193	0.8574	0.8955	(22b)
If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)												0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =												0.0000	(23c)
Effective ac	0.9722	0.9538	0.9359	0.8514	0.8357	0.7621	0.7621	0.7485	0.7905	0.8357	0.8676	0.9010	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			10.8000	1.5038	16.2406			(27)
GF			48.7000	0.2500	12.1750			(28a)
EW	39.2000	10.8000	28.4000	0.3000	8.5200			(29a)
Total net area of external elements Aum(A, m2)			87.9000					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		36.9356			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K		115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)		17.5800	(36)
Point Thermal bridges	(36a) =	0.0000	
Total fabric heat loss	(33) + (36) + (36a) =	54.5156	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	43.7463	42.9212	42.1125	38.3141	37.6034	34.2950	34.2950	33.6824	35.5694	37.6034	39.0411	40.5441	(38)
Heat transfer coeff	98.2619	97.4368	96.6281	92.8297	92.1190	88.8107	88.8107	88.1980	90.0850	92.1190	93.5567	95.0597	(39)

Average = Sum(39)m / 12 = 92.8263

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	2.0177	2.0008	1.9842	1.9062	1.8916	1.8236	1.8236	1.8110	1.8498	1.8916	1.9211	1.9519	(40)
HLP (average)												1.9061	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.6519 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)

Hot water usage for other uses

31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)

Average daily hot water use (litres/day) 49.4930 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	53.9961	52.5155	50.8989	48.8861	47.0907	45.2248	44.8365	46.4499	48.1047	50.0210	52.0516	53.9202	(44)
Energy conte	85.5167	74.7814	78.2297	66.9226	63.3931	55.6091	54.2259	57.5147	59.3179	67.8780	74.1571	84.4260	(45)
Energy content (annual)											Total = Sum(45)m =	821.9721	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(64)
										Total per year (kWh/year) = Sum(64)m =		698.6763	(64)
12Total per year (kWh/year)												699	(64)
Electric shower(s)													
	41.5764	37.0449	40.4516	38.6025	39.3269	37.5140	38.7645	39.3269	38.6025	40.4516	39.6910	41.5764	(64a)
Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =												472.9292	(64a)
Heat gains from water heating, kWh/month													
	28.5664	25.1523	26.7367	23.8717	23.3028	21.1954	21.2141	22.0536	22.2557	24.5370	25.6811	28.3346	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	72.5685	80.3437	72.5685	74.9875	72.5685	74.9875	72.5685	72.5685	74.9875	72.5685	74.9875	72.5685	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	38.3957	37.4290	35.9364	33.1551	31.3209	29.4381	28.5136	29.6419	30.9107	32.9798	35.6682	38.0842	(72)
Total internal gains													
	302.6008	310.9021	297.8726	289.5017	275.1394	266.1743	256.4835	256.1190	263.5685	271.2271	286.4437	295.9419	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	10.8000	19.6403	0.6300	0.7000	0.7700	64.8251	(80)

Solar gains	64.8251	126.8116	208.8406	304.5815	373.2761	382.1145	363.7886	312.4890	242.8902	150.4726	80.8292	53.3090	(83)
Total gains	367.4259	437.7137	506.7132	594.0833	648.4155	648.2888	620.2721	568.6080	506.4587	421.6997	367.2729	349.2509	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	15.8321	15.9662	16.0998	16.7586	16.8879	17.5170	17.5170	17.6387	17.2692	16.8879	16.6284	16.3654	
alpha	2.0555	2.0644	2.0733	2.1172	2.1259	2.1678	2.1678	2.1759	2.1513	2.1259	2.1086	2.0910	
util living area													
	0.9638	0.9472	0.9190	0.8582	0.7687	0.6383	0.5186	0.5644	0.7493	0.8940	0.9491	0.9672	(86)
MIT	17.1260	17.5108	18.1600	19.1006	19.8864	20.5110	20.7814	20.7309	20.2394	19.1940	18.0637	17.1459	(87)
Th 2	19.3216	19.3328	19.3439	19.3966	19.4066	19.4535	19.4535	19.4623	19.4354	19.4066	19.3865	19.3656	(88)
util rest of house													
	0.9563	0.9363	0.9013	0.8258	0.7103	0.5381	0.3717	0.4205	0.6646	0.8628	0.9368	0.9604	(89)
MIT 2	15.9357	16.3203	16.9627	17.8986	18.6316	19.1935	19.3812	19.3640	18.9828	18.0159	16.9019	15.9798	(90)
Living area fraction										fLA = Living area / (4) =		0.5380	(91)
MIT	16.5760	16.9607	17.6068	18.5453	19.3067	19.9023	20.1345	20.0994	19.6589	18.6497	17.5269	16.6072	(92)
Temperature adjustment												0.0000	
adjusted MIT	16.5760	16.9607	17.6068	18.5453	19.3067	19.9023	20.1345	20.0994	19.6589	18.6497	17.5269	16.6072	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9380	0.9141	0.8763	0.8044	0.7061	0.5703	0.4415	0.4857	0.6788	0.8432	0.9165	0.9434	(94)
Useful gains	344.6296	400.1326	444.0383	477.8513	457.8173	369.7124	273.8503	276.1661	343.7863	355.5853	336.6073	329.4960	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	1206.2669	1175.1598	1073.2309	895.3656	700.7190	470.9003	313.8999	326.2756	500.7693	741.5318	975.5102	1179.4213	(97)
Space heating kWh													
	641.0581	520.8183	468.1193	300.6103	180.7188	0.0000	0.0000	0.0000	0.0000	287.1443	460.0101	632.3444	(98a)
Space heating requirement - total per year (kWh/year)												3490.8236	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	641.0581	520.8183	468.1193	300.6103	180.7188	0.0000	0.0000	0.0000	0.0000	287.1443	460.0101	632.3444	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3490.8236	
Space heating per m2											(98c) / (4) =	71.6802	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	834.8201	657.1988	670.3048	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.6384	0.7060	0.6701	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	532.9532	463.9945	449.1898	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	732.1211	700.8143	641.8112	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	143.4009	176.1940	143.3103	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	35.8502	44.0485	35.8276	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												115.7263	(107)
Energy for space heating												71.6802	(99)
Energy for space cooling												2.3763	(108)
Total												74.0565	(109)
Fabric Energy Efficiency (DFEE)												74.1	(109)

Full SAP Calculation Printout

Plot Reference	Unit B	Issued on Date	13/02/2026
Assessment Reference	Unit B - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	79 C	DER	27.30	TER	
Environmental	81 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.21	DFEE	74.06	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	149.50	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

---

1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

---

		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7622	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9718	0.9527	0.9337	0.8384	0.8193	0.7241	0.7241	0.7050	0.7622	0.8193	0.8574	0.8955	(22b)
Effective ac	0.9722	0.9538	0.9359	0.8514	0.8357	0.7621	0.7621	0.7485	0.7905	0.8357	0.8676	0.9010	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			10.8000	1.5038	16.2406			(27)
GF			48.7000	0.2500	12.1750			(28a)
EW	39.2000	10.8000	28.4000	0.3000	8.5200			(29a)
Total net area of external elements Aum(A, m2)			87.9000					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		36.9356			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							17.5800	(36)
Point Thermal bridges					(36a) =		0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		54.5156	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	43.7463	42.9212	42.1125	38.3141	37.6034	34.2950	34.2950	33.6824	35.5694	37.6034	39.0411	40.5441	(38)
Heat transfer coeff	98.2619	97.4368	96.6281	92.8297	92.1190	88.8107	88.8107	88.1980	90.0850	92.1190	93.5567	95.0597	(39)
Average = Sum(39)m / 12 =												92.8263	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	2.0177	2.0008	1.9842	1.9062	1.8916	1.8236	1.8236	1.8110	1.8498	1.8916	1.9211	1.9519	(40)
HLP (average)												1.9061	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6519	(42)
Hot water usage for mixer showers													
	58.4060	57.5283	56.2492	53.8021	51.9961	49.9821	48.8374	50.1067	51.4981	53.6606	56.1603	58.1822	(42a)
Hot water usage for baths													
	22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)
Hot water usage for other uses													
	31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)
Average daily hot water use (litres/day)												103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.4935	46.9513	47.7352	49.2042	49.1192	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
										Total per year (kWh/year) = Sum(64)m =		2308.4862	(64)
12Total per year (kWh/year)												2308	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	71.9305	63.6099	67.4967	59.0699	56.9755	50.6629	49.6029	52.0538	53.1175	59.5208	63.5895	71.1019	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	72.5685	80.3437	72.5685	74.9875	72.5685	74.9875	72.5685	72.5685	74.9875	72.5685	74.9875	72.5685	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	96.6808	94.6576	90.7214	82.0416	76.5800	70.3652	66.6705	69.9648	73.7744	80.0010	88.3188	95.5671	(72)
Total internal gains													
	363.8859	371.1307	355.6575	341.3882	323.3985	307.1014	294.6404	296.4419	306.4322	321.2483	342.0942	356.4248	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	10.8000	19.6403	0.6300	0.7000	0.7700	64.8251	(80)

Solar gains	64.8251	126.8116	208.8406	304.5815	373.2761	382.1145	363.7886	312.4890	242.8902	150.4726	80.8292	53.3090	(83)
Total gains	428.7110	497.9423	564.4981	645.9697	696.6746	689.2159	658.4290	608.9309	549.3224	471.7209	422.9235	409.7338	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	15.8321	15.9662	16.0998	16.7586	16.8879	17.5170	17.5170	17.6387	17.2692	16.8879	16.6284	16.3654	
alpha	2.0555	2.0644	2.0733	2.1172	2.1259	2.1678	2.1678	2.1759	2.1513	2.1259	2.1086	2.0910	
util living area													
	0.9524	0.9342	0.9034	0.8397	0.7472	0.6164	0.4972	0.5394	0.7237	0.8736	0.9348	0.9561	(86)
MIT	17.2891	17.6636	18.2946	19.2015	19.9551	20.5458	20.7994	20.7549	20.2961	19.3031	18.2080	17.3111	(87)
Th 2	19.3216	19.3328	19.3439	19.3966	19.4066	19.4535	19.4535	19.4623	19.4354	19.4066	19.3865	19.3656	(88)
util rest of house													
	0.9428	0.9210	0.8832	0.8046	0.6865	0.5160	0.3535	0.3980	0.6361	0.8381	0.9196	0.9474	(89)
MIT 2	15.2119	15.6821	16.4702	17.5982	18.4864	19.1481	19.3698	19.3496	18.9079	17.7547	16.3907	15.2517	(90)
Living area fraction									fLA = Living area / (4) =			0.5380	(91)
MIT	16.3294	16.7481	17.4517	18.4607	19.2766	19.9001	20.1389	20.1056	19.6548	18.5877	17.3684	16.3596	(92)
Temperature adjustment												-0.1500	
adjusted MIT	16.1794	16.5981	17.3017	18.3107	19.1266	19.7501	19.9889	19.9556	19.5048	18.4377	17.2184	16.2096	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9153	0.8894	0.8487	0.7745	0.6739	0.5374	0.4075	0.4479	0.6406	0.8093	0.8898	0.9215	(94)
Useful gains	392.3977	442.8523	479.1098	500.2897	469.4802	370.3984	268.2968	272.7386	351.9204	381.7862	376.3269	377.5562	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1167.2914	1139.8242	1043.7490	873.5961	684.1279	457.3796	300.9716	313.6004	486.8892	722.0053	946.6448	1141.6317	(97)
Space heating kWh	576.5209	468.3651	420.0916	268.7806	159.6979	0.0000	0.0000	0.0000	0.0000	253.1230	410.6289	568.4722	(98a)
Space heating requirement - total per year (kWh/year)												3125.6801	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	576.5209	468.3651	420.0916	268.7806	159.6979	0.0000	0.0000	0.0000	0.0000	253.1230	410.6289	568.4722	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3125.6801	
Space heating per m2											(98c) / (4) =	64.1823	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	576.5209	468.3651	420.0916	268.7806	159.6979	0.0000	0.0000	0.0000	0.0000	253.1230	410.6289	568.4722	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	644.1574	523.3129	469.3761	300.3135	178.4334	0.0000	0.0000	0.0000	0.0000	282.8190	458.8032	635.1644	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.9075	86.7500	86.4237	85.7736	84.7407	81.0000	81.0000	81.0000	81.0000	85.6281	86.4926	86.9019	(217)
Fuel for water heating, kWh/month	263.4713	233.6926	249.5166	221.3851	216.9953	202.4930	198.7971	208.3475	212.2709	223.8211	235.2604	260.6206	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	15.4276	12.3766	11.1437	8.1644	6.3064	5.1524	5.7529	7.4779	9.7130	12.7440	14.3943	15.8564	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3492.3800	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2726.6714	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	124.5095	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	6384.5608	(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	3492.3800	0.2100	733.3998	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2726.6714	0.2100	572.6010	(264)
Space and water heating			1306.0008	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	124.5095	0.1443	17.9706	(268)
Total CO2, kg/year			1329.6586	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			27.3000	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3492.3800	1.1300	3946.3893	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2726.6714	1.1300	3081.1387	(278)
Space and water heating			7027.5281	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	124.5095	1.5338	190.9768	(282)
Total Primary energy kWh/year			7280.5296	(286)
Dwelling Primary energy Rate (DPER)			149.5000	(287)

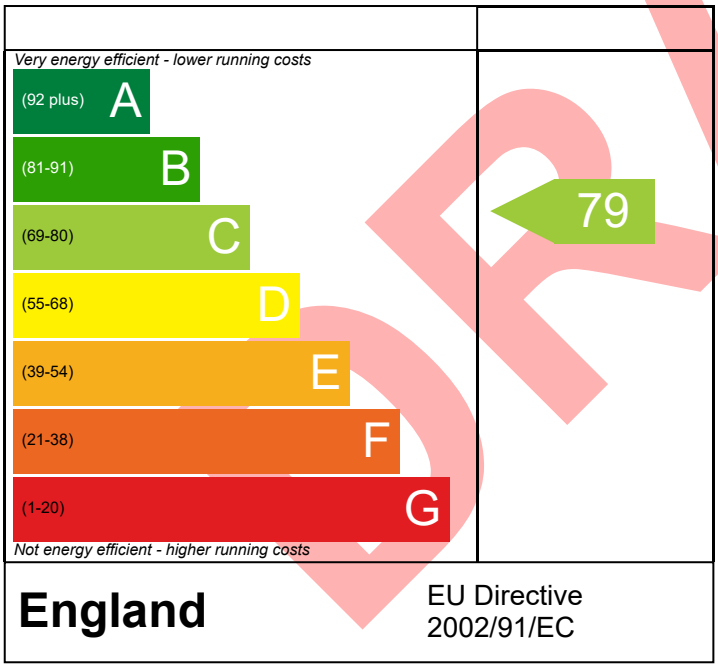
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	48.7 m²
DRRN:	

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

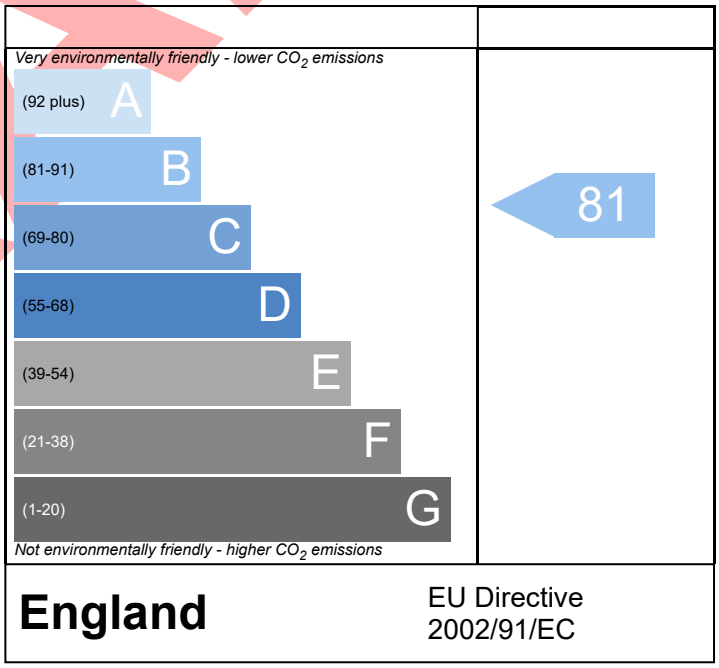
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

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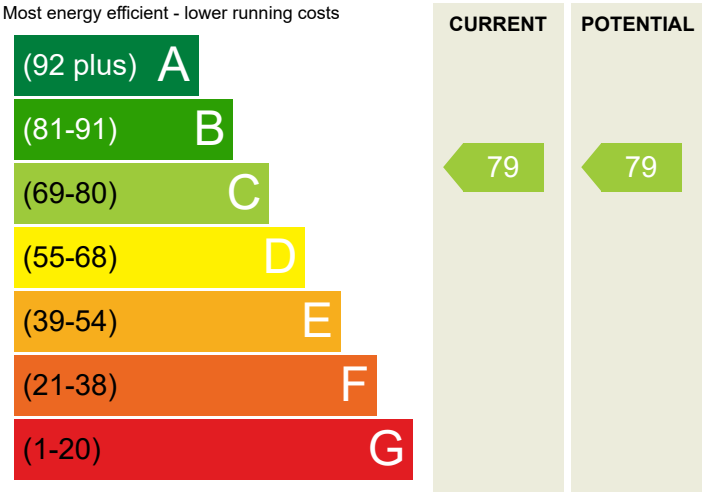
Energy Report

Dwelling Address	
Reference	Unit B-Unit B - BS
SAP Version	10.2
Assessment Date	12/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	49

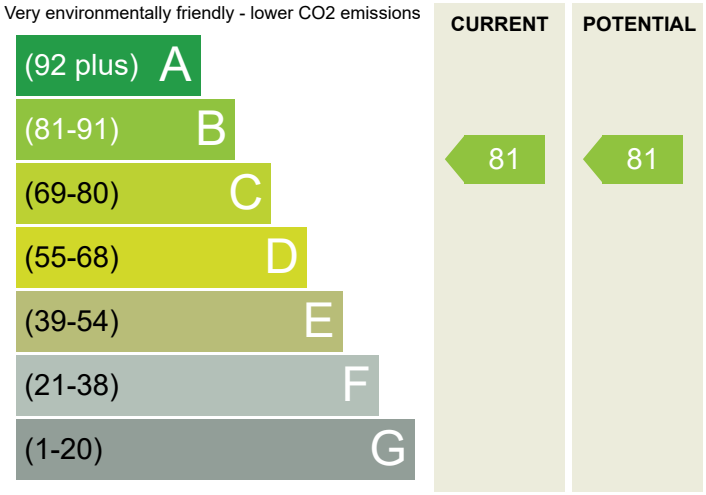
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

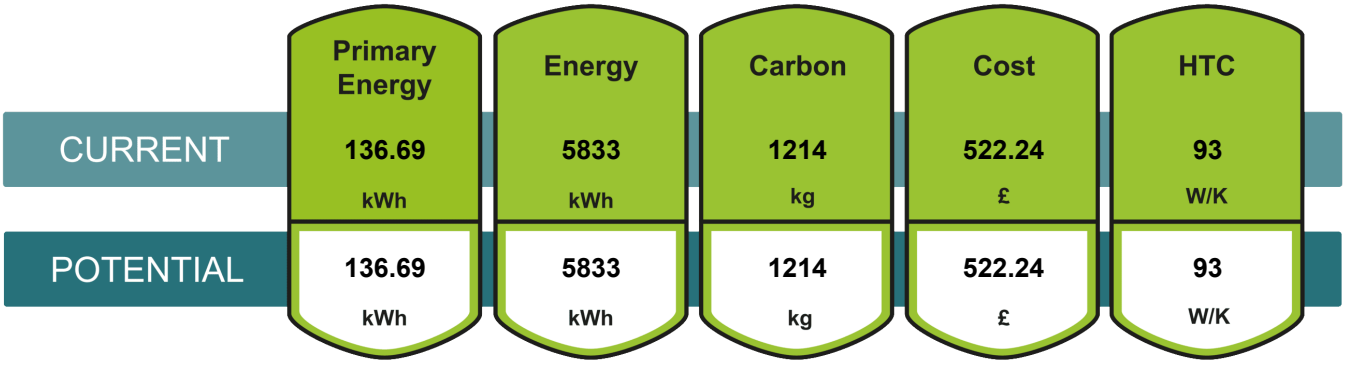


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.3 W/m²K	Good
Floor	Average thermal transmittance 0.25 W/m²K	Good
Windows	High performance glazing	Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Good lighting efficiency	Good
Air tightness	(not tested)	

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total

energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£35	£35	
Heating	£308	£308	
Hot Water	£179	£179	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£522	£522	

Estimated energy use and potential savings

Space Heating
2932
kWh per year

Water Heating
2735
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit B	**Issued on Date**	13/02/2026
Assessment Reference	Unit B - BL	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	82 B	**DER**	21.97	**TER**	
Environmental	85 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.99	**DFEE**	49.75	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	120.52	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	14.00 m	48.70 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		39.20	28.40	0.00	None	10.80	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.15	None	0.00	75.00	48.70

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
W	Windows	EW	West	8.30	
S	Windows	EW	West	2.50	

14.0 Conservatory	None	

Summary for Input Data

elmhurst energy

15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Unknown	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	

Summary for Input Data

26.0 Heat Networks	None
27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

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Assessment Reference	Unit B - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

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Environmental	85 B	% DER < TER			N/A
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Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	120.52	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			10.8000	1.1450	12.3664			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	39.2000	10.8000	28.4000	0.1800	5.1120			(29a)
Total net area of external elements Aum(A, m2)			87.9000					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		24.7834			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							17.5800	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		42.3634	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	69.0209	68.8594	68.7011	67.9578	67.8187	67.1712	67.1712	67.0513	67.4206	67.8187	68.1000	68.3942	(39)
Average = Sum(39)m / 12 =												67.9571	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4173	1.4140	1.4107	1.3954	1.3926	1.3793	1.3793	1.3768	1.3844	1.3926	1.3984	1.4044	(40)
HLP (average)												1.3954	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6519	(42)
Hot water usage for mixer showers													
	58.4060	57.5283	56.2492	53.8021	51.9961	49.9821	48.8374	50.1067	51.4981	53.6606	56.1603	58.1822	(42a)
Hot water usage for baths													
	22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)
Hot water usage for other uses													
	31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)
Average daily hot water use (litres/day)												103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.4935	46.9513	47.7352	49.2042	49.1192	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
										Total per year (kWh/year) = Sum(64)m =		2308.4862	(64)
12Total per year (kWh/year)												2308	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	71.9305	63.6099	67.4967	59.0699	56.9755	50.6629	49.6029	52.0538	53.1175	59.5208	63.5895	71.1019	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	72.5685	80.3437	72.5685	74.9875	72.5685	74.9875	72.5685	72.5685	74.9875	72.5685	74.9875	72.5685	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	96.6808	94.6576	90.7214	82.0416	76.5800	70.3652	66.6705	69.9648	73.7744	80.0010	88.3188	95.5671	(72)
Total internal gains													
	363.8860	371.1307	355.6575	341.3882	323.3985	307.1014	294.6404	296.4419	306.4322	321.2483	342.0942	356.4248	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	10.8000	19.6403	0.6300	0.7000	0.7700	64.8251	(80)

Solar gains	64.8251	126.8116	208.8406	304.5815	373.2761	382.1145	363.7886	312.4890	242.8902	150.4726	80.8292	53.3090	(83)
Total gains	428.7110	497.9423	564.4981	645.9697	696.6746	689.2159	658.4290	608.9309	549.3224	471.7209	422.9235	409.7338	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.5395	22.5923	22.6444	22.8921	22.9390	23.1601	23.1601	23.2015	23.0745	22.9390	22.8443	22.7460	
alpha	2.5026	2.5062	2.5096	2.5261	2.5293	2.5440	2.5440	2.5468	2.5383	2.5293	2.5230	2.5164	
util living area													
	0.9454	0.9211	0.8794	0.7966	0.6802	0.5368	0.4146	0.4580	0.6556	0.8421	0.9230	0.9506	(86)
MIT	18.3544	18.6968	19.2274	19.9037	20.4407	20.7855	20.9193	20.8941	20.6244	19.9014	19.0200	18.3011	(87)
Th 2	19.7501	19.7527	19.7551	19.7668	19.7690	19.7792	19.7792	19.7811	19.7753	19.7690	19.7646	19.7600	(88)
util rest of house													
	0.9362	0.9081	0.8593	0.7625	0.6260	0.4566	0.3116	0.3529	0.5796	0.8073	0.9081	0.9423	(89)
MIT 2	16.7293	17.1584	17.8181	18.6426	19.2605	19.6267	19.7407	19.7267	19.4807	18.6662	17.5793	16.6679	(90)
Living area fraction										fLA = Living area / (4) =		0.5380	(91)
MIT	17.6036	17.9861	18.5763	19.3211	19.8954	20.2501	20.3748	20.3547	20.0960	19.3307	18.3544	17.5466	(92)
Temperature adjustment												-0.1500	
adjusted MIT	17.4536	17.8361	18.4263	19.1711	19.7454	20.1001	20.2248	20.2047	19.9460	19.1807	18.2044	17.3966	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9130	0.8820	0.8326	0.7436	0.6248	0.4789	0.3507	0.3911	0.5912	0.7872	0.8832	0.9202	(94)
Useful gains	391.4147	439.1740	470.0134	480.3241	435.2994	330.0405	230.8979	238.1682	324.7687	371.3553	373.5245	377.0334	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	907.8727	890.7693	819.3515	697.9980	545.6309	369.4485	243.4815	255.1112	394.1401	581.9349	756.2095	902.5679	(97)
Space heating kWh	384.2448	303.4720	259.9075	156.7252	82.0866	0.0000	0.0000	0.0000	0.0000	156.6712	275.5332	390.9977	(98a)
Space heating requirement - total per year (kWh/year)												2009.6383	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	384.2448	303.4720	259.9075	156.7252	82.0866	0.0000	0.0000	0.0000	0.0000	156.6712	275.5332	390.9977	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2009.6383	
Space heating per m2											(98c) / (4) =	41.2657	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	384.2448	303.4720	259.9075	156.7252	82.0866	0.0000	0.0000	0.0000	0.0000	156.6712	275.5332	390.9977	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	429.3238	339.0749	290.3995	175.1119	91.7169	0.0000	0.0000	0.0000	0.0000	175.0516	307.8584	436.8689	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.1253	85.8903	85.4346	84.6344	83.4459	81.0000	81.0000	81.0000	81.0000	84.6145	85.6806	86.1828	(217)
Fuel for water heating, kWh/month	265.8643	236.0316	252.4055	224.3650	220.3624	202.4930	198.7971	208.3475	212.2710	226.5023	237.4899	262.7951	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	13.3319	10.6953	9.6300	7.0553	5.4497	4.4525	4.9714	6.4620	8.3936	11.0128	12.4389	13.7024	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	2245.4059	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2747.7245	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	107.5959	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	5141.7262	(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	2245.4059	0.2100	471.5352	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2747.7245	0.2100	577.0221	(264)
Space and water heating			1048.5574	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	107.5959	0.1443	15.5294	(268)
Total CO2, kg/year			1069.7740	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			21.9700	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	2245.4059	1.1300	2537.3086	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2747.7245	1.1300	3104.9287	(278)
Space and water heating			5642.2373	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	107.5959	1.5338	165.0341	(282)
Total Primary energy kWh/year			5869.2962	(286)
Dwelling Primary energy Rate (DPER)			120.5200	(287)

Full SAP Calculation Printout

Plot Reference	Unit B	Issued on Date	13/02/2026
Assessment Reference	Unit B - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	82 B	DER	21.97	TER	
Environmental	85 B	% DER < TER			N/A
CO_2 Emissions (t/year)	0.99	DFEE	49.75	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	120.52	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000 (1b)	x	2.8000 (2b)	=	136.3600	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	136.3600	(5)

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2. Ventilation rate

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			m3 per hour
Number of open chimneys		0 * 80 =	0.0000 (6a)
Number of open flues		0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire		0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler		0 * 20 =	0.0000 (6d)
Number of flues attached to other heater		0 * 35 =	0.0000 (6e)
Number of blocked chimneys		0 * 20 =	0.0000 (6f)
Number of intermittent extract fans		2 * 10 =	20.0000 (7a)
Number of passive vents		0 * 10 =	0.0000 (7b)
Number of flueless gas fires		0 * 40 =	0.0000 (7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =		20.0000 / (5) =	0.1467 (8)
Pressure test			Yes
Pressure Test Method			Blower Door
Measured/design AP50			5.0000 (17)
Infiltration rate			0.3967 (18)
Number of sides sheltered			2 (19)
Shelter factor		(20) = 1 - [0.075 x (19)] =	0.8500 (20)
Infiltration rate adjusted to include shelter factor		(21) = (18) x (20) =	0.3372 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)
If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)												0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =												0.0000	(23c)
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			10.8000	1.1450	12.3664			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	39.2000	10.8000	28.4000	0.1800	5.1120			(29a)
Total net area of external elements Aum(A, m2)			87.9000					(31)
Fabric heat loss, W/K = Sum (A x U)				(26)...(30) + (32) =	24.7834			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							17.5800	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss						(33) + (36) + (36a) =	42.3634	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	69.0209	68.8594	68.7011	67.9578	67.8187	67.1712	67.1712	67.0513	67.4206	67.8187	68.1000	68.3942	(39)

Average = Sum(39)m / 12 = 67.9571

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4173	1.4140	1.4107	1.3954	1.3926	1.3793	1.3793	1.3768	1.3844	1.3926	1.3984	1.4044	(40)
HLP (average)												1.3954	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.6519 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)

Hot water usage for other uses

31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)

Average daily hot water use (litres/day) 49.4930 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	53.9961	52.5156	50.8989	48.8861	47.0907	45.2248	44.8365	46.4499	48.1047	50.0210	52.0516	53.9202	(44)
Energy conte	85.5167	74.7814	78.2297	66.9226	63.3931	55.6091	54.2259	57.5147	59.3179	67.8780	74.1571	84.4260	(45)
Energy content (annual)										Total = Sum(45)m =		821.9722	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(64)
									Total per year (kWh/year) = Sum(64)m =			698.6763	(64)
12Total per year (kWh/year)												699	(64)
Electric shower(s)													
	41.5764	37.0449	40.4516	38.6025	39.3269	37.5140	38.7645	39.3269	38.6025	40.4516	39.6910	41.5764	(64a)
						Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =						472.9292	(64a)
Heat gains from water heating, kWh/month													
	28.5664	25.1523	26.7367	23.8717	23.3028	21.1954	21.2141	22.0536	22.2557	24.5370	25.6811	28.3346	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	72.5685	80.3437	72.5685	74.9875	72.5685	74.9875	72.5685	72.5685	74.9875	72.5685	74.9875	72.5685	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	38.3957	37.4290	35.9365	33.1551	31.3209	29.4381	28.5136	29.6419	30.9107	32.9798	35.6682	38.0842	(72)
Total internal gains													
	302.6008	310.9021	297.8726	289.5017	275.1394	266.1743	256.4835	256.1190	263.5685	271.2271	286.4437	295.9419	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	10.8000	19.6403	0.6300	0.7000	0.7700	64.8251	(80)

Solar gains	64.8251	126.8116	208.8406	304.5815	373.2761	382.1145	363.7886	312.4890	242.8902	150.4726	80.8292	53.3090	(83)
Total gains	367.4259	437.7137	506.7132	594.0833	648.4155	648.2888	620.2721	568.6080	506.4587	421.6997	367.2729	349.2509	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.5395	22.5923	22.6444	22.8921	22.9390	23.1601	23.1601	23.2015	23.0745	22.9390	22.8443	22.7460	
alpha	2.5026	2.5062	2.5096	2.5261	2.5293	2.5440	2.5440	2.5468	2.5383	2.5293	2.5230	2.5164	
util living area													
	0.9603	0.9387	0.9007	0.8210	0.7067	0.5607	0.4357	0.4834	0.6863	0.8692	0.9418	0.9647	(86)
MIT	18.1686	18.5275	19.0854	19.8081	20.3849	20.7622	20.9094	20.8798	20.5795	19.7920	18.8616	18.1142	(87)
Th 2	19.7501	19.7527	19.7551	19.7668	19.7690	19.7792	19.7792	19.7811	19.7753	19.7690	19.7646	19.7600	(88)
util rest of house													
	0.9533	0.9281	0.8832	0.7893	0.6536	0.4793	0.3290	0.3747	0.6114	0.8385	0.9299	0.9585	(89)
MIT 2	17.2151	17.5681	18.1125	18.8064	19.3290	19.6461	19.7452	19.7323	19.5144	18.8125	17.9102	17.1678	(90)
Living area fraction										fLA = Living area / (4) =		0.5380	(91)
MIT	17.7281	18.0843	18.6359	19.3453	19.8970	20.2466	20.3715	20.3496	20.0875	19.3395	18.4221	17.6770	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.7281	18.0843	18.6359	19.3453	19.8970	20.2466	20.3715	20.3496	20.0875	19.3395	18.4221	17.6770	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9380	0.9098	0.8639	0.7769	0.6596	0.5121	0.3826	0.4277	0.6322	0.8256	0.9130	0.9441	(94)
Useful gains	344.6429	398.2314	437.7429	461.5391	427.7129	331.9627	237.3081	243.1783	320.2032	348.1379	335.3197	329.7411	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	926.8178	907.8611	833.7525	709.8418	555.9124	379.2877	253.3393	264.8289	403.6778	592.6992	771.0327	921.7479	(97)
Space heating kWh													
	433.1381	342.4711	294.6311	178.7780	95.3805	0.0000	0.0000	0.0000	0.0000	181.9536	313.7134	440.4531	(98a)
Space heating requirement - total per year (kWh/year)												2280.5188	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	433.1381	342.4711	294.6311	178.7780	95.3805	0.0000	0.0000	0.0000	0.0000	181.9536	313.7134	440.4531	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2280.5188	
Space heating per m2											(98c) / (4) =	46.8279	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	631.4096	497.0672	509.5902	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7687	0.8277	0.7951	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	485.3627	411.4049	405.1836	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	732.1211	700.8143	641.8112	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	177.6660	215.3206	176.0509	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	44.4165	53.8302	44.0127	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												142.2594	(107)
Energy for space heating												46.8279	(99)
Energy for space cooling												2.9211	(108)
Total												49.7490	(109)
Fabric Energy Efficiency (DFEE)												49.7	(109)

Full SAP Calculation Printout

Plot Reference	Unit B	Issued on Date	13/02/2026
Assessment Reference	Unit B - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	82 B	DER	21.97	TER	
Environmental	85 B	% DER < TER			N/A
CO_2 Emissions (t/year)	0.99	DFEE	49.75	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	120.52	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			10.8000	1.1450	12.3664			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	39.2000	10.8000	28.4000	0.1800	5.1120			(29a)
Total net area of external elements Aum(A, m2)			87.9000					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		24.7834			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							17.5800	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		42.3634	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	69.0209	68.8594	68.7011	67.9578	67.8187	67.1712	67.1712	67.0513	67.4206	67.8187	68.1000	68.3942	(39)
Average = Sum(39)m / 12 =												67.9571	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4173	1.4140	1.4107	1.3954	1.3926	1.3793	1.3793	1.3768	1.3844	1.3926	1.3984	1.4044	(40)
HLP (average)												1.3954	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6519	(42)
Hot water usage for mixer showers													
	58.4060	57.5283	56.2492	53.8021	51.9961	49.9821	48.8374	50.1067	51.4981	53.6606	56.1603	58.1822	(42a)
Hot water usage for baths													
	22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)
Hot water usage for other uses													
	31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)
Average daily hot water use (litres/day)												103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.4935	46.9513	47.7352	49.2042	49.1192	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
										Total per year (kWh/year) = Sum(64)m =		2308.4862	(64)
12Total per year (kWh/year)												2308	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	71.9305	63.6099	67.4967	59.0699	56.9755	50.6629	49.6029	52.0538	53.1175	59.5208	63.5895	71.1019	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	72.5685	80.3437	72.5685	74.9875	72.5685	74.9875	72.5685	72.5685	74.9875	72.5685	74.9875	72.5685	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	96.6808	94.6576	90.7214	82.0416	76.5800	70.3652	66.6705	69.9648	73.7744	80.0010	88.3188	95.5671	(72)
Total internal gains													
	363.8860	371.1307	355.6575	341.3882	323.3985	307.1014	294.6404	296.4419	306.4322	321.2483	342.0942	356.4248	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	10.8000	19.6403	0.6300	0.7000	0.7700	64.8251	(80)

Solar gains	64.8251	126.8116	208.8406	304.5815	373.2761	382.1145	363.7886	312.4890	242.8902	150.4726	80.8292	53.3090	(83)
Total gains	428.7110	497.9423	564.4981	645.9697	696.6746	689.2159	658.4290	608.9309	549.3224	471.7209	422.9235	409.7338	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.5395	22.5923	22.6444	22.8921	22.9390	23.1601	23.1601	23.2015	23.0745	22.9390	22.8443	22.7460	
alpha	2.5026	2.5062	2.5096	2.5261	2.5293	2.5440	2.5440	2.5468	2.5383	2.5293	2.5230	2.5164	
util living area													
	0.9454	0.9211	0.8794	0.7966	0.6802	0.5368	0.4146	0.4580	0.6556	0.8421	0.9230	0.9506	(86)
MIT	18.3544	18.6968	19.2274	19.9037	20.4407	20.7855	20.9193	20.8941	20.6244	19.9014	19.0200	18.3011	(87)
Th 2	19.7501	19.7527	19.7551	19.7668	19.7690	19.7792	19.7792	19.7811	19.7753	19.7690	19.7646	19.7600	(88)
util rest of house													
	0.9362	0.9081	0.8593	0.7625	0.6260	0.4566	0.3116	0.3529	0.5796	0.8073	0.9081	0.9423	(89)
MIT 2	16.7293	17.1584	17.8181	18.6426	19.2605	19.6267	19.7407	19.7267	19.4807	18.6662	17.5793	16.6679	(90)
Living area fraction										fLA = Living area / (4) =		0.5380	(91)
MIT	17.6036	17.9861	18.5763	19.3211	19.8954	20.2501	20.3748	20.3547	20.0960	19.3307	18.3544	17.5466	(92)
Temperature adjustment												-0.1500	
adjusted MIT	17.4536	17.8361	18.4263	19.1711	19.7454	20.1001	20.2248	20.2047	19.9460	19.1807	18.2044	17.3966	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9130	0.8820	0.8326	0.7436	0.6248	0.4789	0.3507	0.3911	0.5912	0.7872	0.8832	0.9202	(94)
Useful gains	391.4147	439.1740	470.0134	480.3241	435.2994	330.0405	230.8979	238.1682	324.7687	371.3553	373.5245	377.0334	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	907.8727	890.7693	819.3515	697.9980	545.6309	369.4485	243.4815	255.1112	394.1401	581.9349	756.2095	902.5679	(97)
Space heating kWh	384.2448	303.4720	259.9075	156.7252	82.0866	0.0000	0.0000	0.0000	0.0000	156.6712	275.5332	390.9977	(98a)
Space heating requirement - total per year (kWh/year)												2009.6383	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	384.2448	303.4720	259.9075	156.7252	82.0866	0.0000	0.0000	0.0000	0.0000	156.6712	275.5332	390.9977	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2009.6383	
Space heating per m2											(98c) / (4) =	41.2657	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	384.2448	303.4720	259.9075	156.7252	82.0866	0.0000	0.0000	0.0000	0.0000	156.6712	275.5332	390.9977	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	429.3238	339.0749	290.3995	175.1119	91.7169	0.0000	0.0000	0.0000	0.0000	175.0516	307.8584	436.8689	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	228.9764	202.7283	215.6416	189.8900	183.8834	164.0193	161.0256	168.7615	171.9395	191.6537	203.4828	226.4842	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.1253	85.8903	85.4346	84.6344	83.4459	81.0000	81.0000	81.0000	81.0000	84.6145	85.6806	86.1828	(217)
Fuel for water heating, kWh/month	265.8643	236.0316	252.4055	224.3650	220.3624	202.4930	198.7971	208.3475	212.2710	226.5023	237.4899	262.7951	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	13.3319	10.6953	9.6300	7.0553	5.4497	4.4525	4.9714	6.4620	8.3936	11.0128	12.4389	13.7024	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	2245.4059	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2747.7245	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	107.5959	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	5141.7262	(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	2245.4059	0.2100	471.5352	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2747.7245	0.2100	577.0221	(264)
Space and water heating			1048.5574	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	107.5959	0.1443	15.5294	(268)
Total CO2, kg/year			1069.7740	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			21.9700	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	2245.4059	1.1300	2537.3086	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2747.7245	1.1300	3104.9287	(278)
Space and water heating			5642.2373	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	107.5959	1.5338	165.0341	(282)
Total Primary energy kWh/year			5869.2962	(286)
Dwelling Primary energy Rate (DPER)			120.5200	(287)

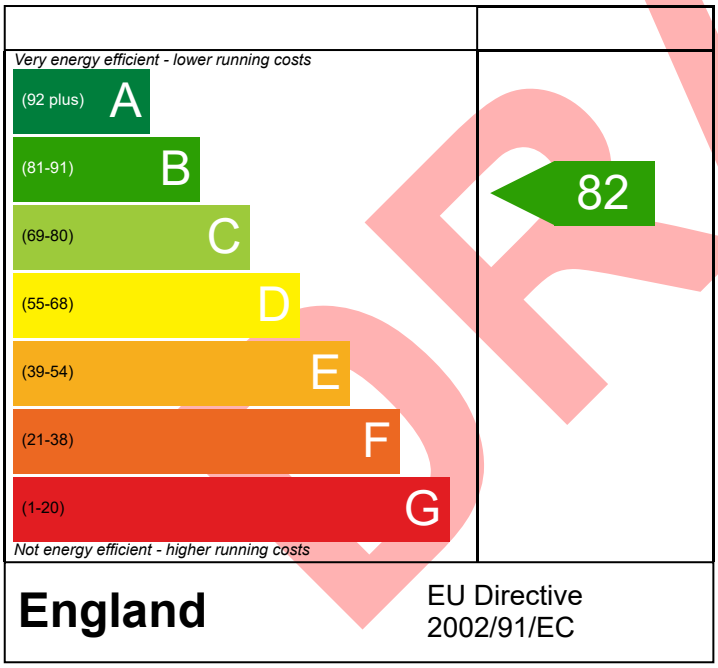
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	48.7 m²
DRRN:	

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

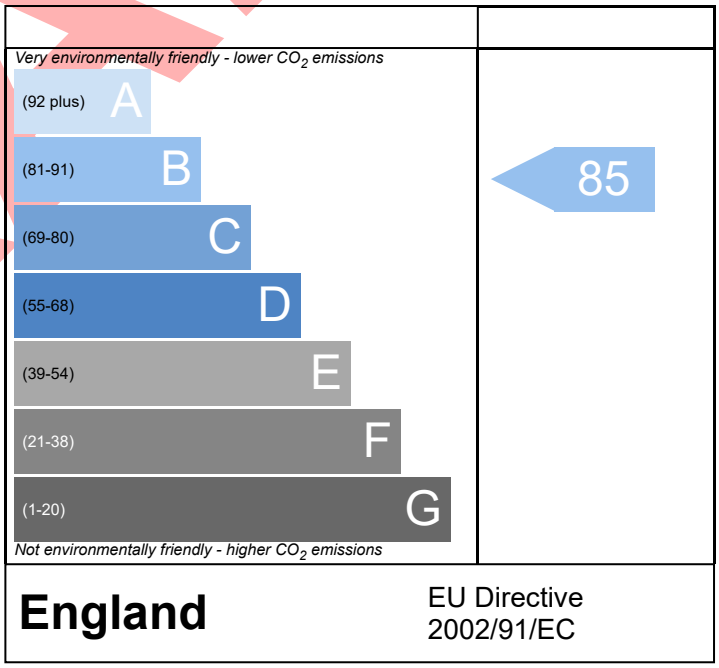
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

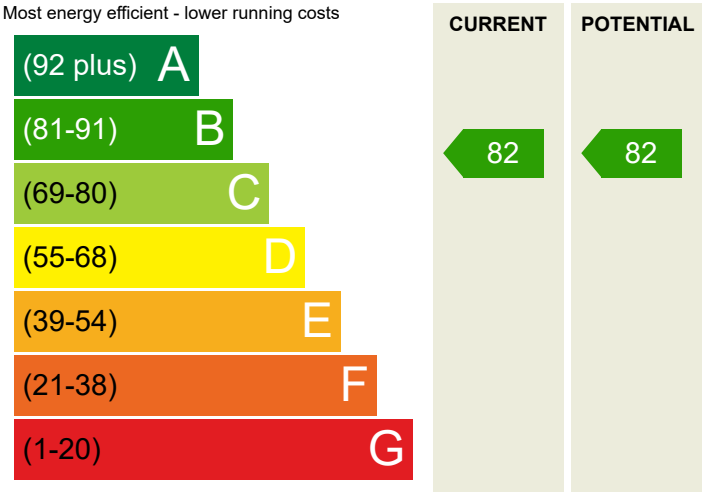
Energy Report

Dwelling Address	
Reference	Unit B-Unit B - BL
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	49

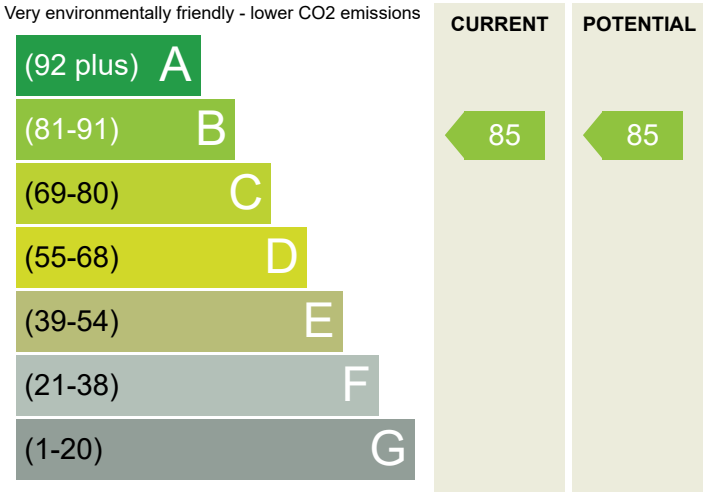
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

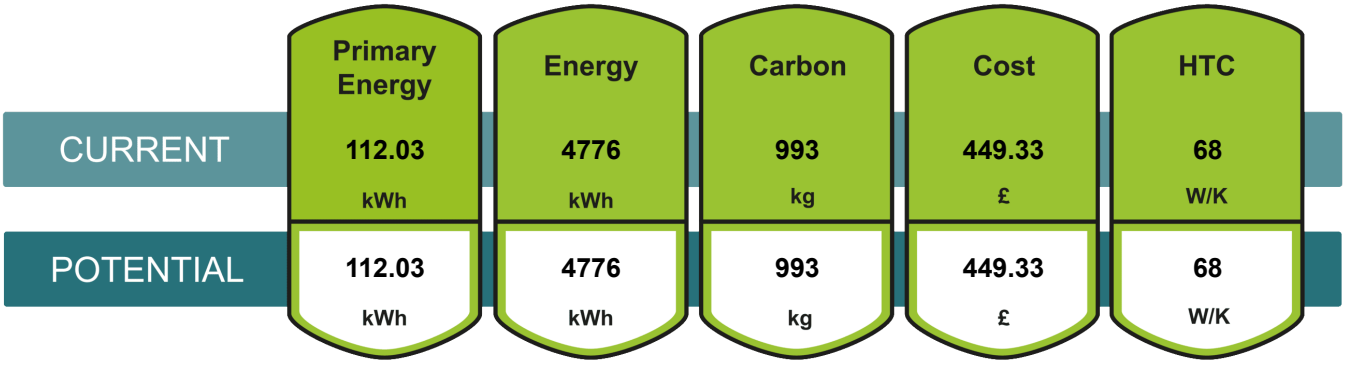


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Floor	Average thermal transmittance 0.15 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£31	£31	
Heating	£238	£238	
Hot Water	£181	£181	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£449	£449	

Estimated energy use and potential savings

Space Heating
1870
kWh per year

Water Heating
2757
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

elmhurst energy

Plot Reference	Unit B	**Issued on Date**	13/02/2026
Assessment Reference	Unit B - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	85 B	**DER**	4.12	**TER**	
Environmental	97 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.17	**DFEE**	49.75	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	46.80	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	14.00 m	48.70 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		39.20	28.40	0.00	None	10.80	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.15	None	0.00	75.00	48.70

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
W	Windows	EW	West	8.30	
S	Windows	EW	West	2.50	

14.0 Conservatory	None	

Summary for Input Data

elmhurst energy

15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	SAP table	
Percentage of Heat	100.00	%
Fuel Type	Electricity	
SAP Code	214	
In Winter	249.90	
In Summer	175.10	
Controls SAP Code	2207	
Controls description	Time and temperature zone control by arrangement	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	35.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	

Summary for Input Data

elmhurst energy

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	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

32.0 Photovoltaic Unit One Dwelling

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.75	South	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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit B	Issued on Date	13/02/2026
Assessment Reference	Unit B - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	85 B	DER	4.12	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.17	DFEE	49.75	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	46.80	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

		Area		Storey height		Volume	
Main dwelling		(m2)		(m)		(m3)	
Ground floor		48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000						(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross	Openings	NetArea	U-value	A x U	K-value	A x K	
Main dwelling	m2	m2	m2	W/m2K	W/K	kJ/m2K	kJ/K	
Windows			10.8000	1.1450	12.3664			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	39.2000	10.8000	28.4000	0.1800	5.1120			(29a)
Total net area of external elements Aum(A, m2)			87.9000					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		24.7834			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							17.5800	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		42.3634	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	69.0209	68.8594	68.7011	67.9578	67.8187	67.1712	67.1712	67.0513	67.4206	67.8187	68.1000	68.3942	(39)
Average = Sum(39)m / 12 =												67.9571	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4173	1.4140	1.4107	1.3954	1.3926	1.3793	1.3793	1.3768	1.3844	1.3926	1.3984	1.4044	(40)
HLP (average)												1.3954	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6519	(42)
Hot water usage for mixer showers													
	58.4060	57.5283	56.2492	53.8021	51.9961	49.9821	48.8374	50.1067	51.4981	53.6606	56.1603	58.1822	(42a)
Hot water usage for baths													
	22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)
Hot water usage for other uses													
	31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)
Average daily hot water use (litres/day)												103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(64)
										Total per year (kWh/year) = Sum(64)m =		1716.4896	(64)
12Total per year (kWh/year)												1716	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	59.1908	52.1031	54.7570	46.7412	44.3521	38.9251	37.6691	39.7528	40.8377	46.7810	51.2608	58.3622	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	72.5685	80.3437	72.5685	74.9875	72.5685	74.9875	72.5685	72.5685	74.9875	72.5685	74.9875	72.5685	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	79.5575	77.5343	73.5981	64.9183	59.6131	54.0626	50.6305	53.4312	56.7191	62.8777	71.1955	78.4438	(72)
Total internal gains													
	346.7627	354.0074	338.5342	324.2649	306.4316	290.7989	278.6004	279.9082	289.3769	304.1250	324.9710	339.3015	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	10.8000	19.6403	0.6300	0.7000	0.7700	64.8251	(80)

Solar gains	64.8251	126.8116	208.8406	304.5815	373.2761	382.1145	363.7886	312.4890	242.8902	150.4726	80.8292	53.3090	(83)
Total gains	411.5877	480.8190	547.3748	628.8464	679.7077	672.9134	642.3889	592.3973	532.2671	454.5976	405.8002	392.6105	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.5395	22.5923	22.6444	22.8921	22.9390	23.1601	23.1601	23.2015	23.0745	22.9390	22.8443	22.7460	
alpha	2.5026	2.5062	2.5096	2.5261	2.5293	2.5440	2.5440	2.5468	2.5383	2.5293	2.5230	2.5164	
util living area													
	0.9498	0.9263	0.8858	0.8046	0.6894	0.5461	0.4233	0.4681	0.6676	0.8514	0.9290	0.9548	(86)
MIT	18.3034	18.6497	19.1864	19.8731	20.4218	20.7766	20.9153	20.8885	20.6073	19.8652	18.9723	18.2491	(87)
Th 2	19.7501	19.7527	19.7551	19.7668	19.7690	19.7792	19.7792	19.7811	19.7753	19.7690	19.7646	19.7600	(88)
util rest of house													
	0.9412	0.9140	0.8664	0.7713	0.6355	0.4654	0.3187	0.3615	0.5920	0.8180	0.9150	0.9471	(89)
MIT 2	16.6658	17.1005	17.7690	18.6082	19.2416	19.6198	19.7387	19.7235	19.4655	18.6252	17.5211	16.6029	(90)
Living area fraction									fLA = Living area / (4) =			0.5380	(91)
MIT	17.5468	17.9339	18.5316	19.2887	19.8765	20.2421	20.3717	20.3503	20.0798	19.2923	18.3018	17.4885	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.5468	17.9339	18.5316	19.2887	19.8765	20.2421	20.3717	20.3503	20.0798	19.2923	18.3018	17.4885	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9205	0.8906	0.8430	0.7565	0.6406	0.4975	0.3711	0.4133	0.6124	0.8024	0.8932	0.9275	(94)
Useful gains	378.8853	428.2071	461.4231	475.7367	435.4289	334.7859	238.4114	244.8662	325.9616	364.7870	362.4755	364.1450	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	914.3068	897.5087	826.5824	705.9923	554.5218	378.9874	253.3498	264.8700	403.1596	589.4985	762.8453	908.8588	(97)
Space heating kWh	398.3536	315.3706	271.6786	165.7841	88.6051	0.0000	0.0000	0.0000	0.0000	167.1854	288.2663	405.2671	(98a)
Space heating requirement - total per year (kWh/year)												2100.5108	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	398.3536	315.3706	271.6786	165.7841	88.6051	0.0000	0.0000	0.0000	0.0000	167.1854	288.2663	405.2671	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2100.5108	
Space heating per m2											(98c) / (4) =	43.1316	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	249.9000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	398.3536	315.3706	271.6786	165.7841	88.6051	0.0000	0.0000	0.0000	0.0000	167.1854	288.2663	405.2671	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	159.4052	126.1987	108.7149	66.3402	35.4562	0.0000	0.0000	0.0000	0.0000	66.9009	115.3526	162.1717	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	101.6662	89.4922	94.0506	80.2826	76.1792	66.8578	64.7004	68.2794	70.1429	80.3511	88.0455	100.2429	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	13.3319	10.6953	9.6300	7.0553	5.4497	4.4525	4.9714	6.4620	8.3936	11.0128	12.4389	13.7024	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.3364	-23.5792	-36.7197	-44.1055	-49.4505	-45.0875	-44.3945	-40.7375	-34.4290	-27.8373	-17.4398	-13.0475	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-3.4461	-7.7633	-16.6602	-27.4340	-38.9305	-41.8051	-41.3498	-34.1777	-24.2447	-12.2299	-4.8389	-2.6702	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	840.5405	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	175.1000	
Water heating fuel used	980.2910	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
Total electricity for the above, kWh/year	0.0000	(231)
Electricity for lighting (calculated in Appendix L)	107.5959	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	-647.7148	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	1280.7126	(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	840.5405	0.1546	129.9259	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	980.2910	0.1416	138.7878	(264)
Space and water heating			268.7137	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)
Energy for lighting	107.5959	0.1443	15.5294	(268)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-392.1645	0.1335	-52.3724	

PV Unit electricity exported	-255.5503	0.1229	-31.3979	
Total			-83.7703	(269)
Total CO2, kg/year			200.4727	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			4.1200	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	840.5405	1.5723	1321.5524	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	980.2910	1.5235	1493.5109	(278)
Space and water heating			2815.0633	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	107.5959	1.5338	165.0341	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-392.1645	1.4935	-585.7052	
PV Unit electricity exported	-255.5503	0.4508	-115.2008	
Total			-700.9060	(283)
Total Primary energy kWh/year			2279.1914	(286)
Dwelling Primary energy Rate (DPER)			46.8000	(287)

Full SAP Calculation Printout

Plot Reference	Unit B	**Issued on Date**	13/02/2026
Assessment Reference	Unit B - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	85 B	**DER**	4.12	**TER**	
Environmental	97 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.17	**DFEE**	49.75	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	46.80	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	48.7000 (1b)	x	2.8000 (2b)	=	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000					(4)
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)

If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)	0.0000 (23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =	0.0000 (23c)

Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			10.8000	1.1450	12.3664			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	39.2000	10.8000	28.4000	0.1800	5.1120			(29a)
Total net area of external elements Aum(A, m2)			87.9000					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		24.7834			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	17.5800	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	42.3634	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	69.0209	68.8594	68.7011	67.9578	67.8187	67.1712	67.1712	67.0513	67.4206	67.8187	68.1000	68.3942	(39)

Average = Sum(39)m / 12 = 67.9571

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4173	1.4140	1.4107	1.3954	1.3926	1.3793	1.3793	1.3768	1.3844	1.3926	1.3984	1.4044	(40)
HLP (average)												1.3954	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.6519 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)

Hot water usage for other uses

31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)

Average daily hot water use (litres/day) 49.4930 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	53.9961	52.5156	50.8989	48.8861	47.0907	45.2248	44.8365	46.4499	48.1047	50.0210	52.0516	53.9202	(44)
Energy conte	85.5167	74.7814	78.2297	66.9226	63.3931	55.6091	54.2259	57.5147	59.3179	67.8780	74.1571	84.4260	(45)
Energy content (annual)										Total = Sum(45)m =		821.9722	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	72.6892	63.5642	66.4952	56.8842	53.8841	47.2678	46.0920	48.8875	50.4202	57.6963	63.0335	71.7621	(64)
									Total per year (kWh/year) = Sum(64)m =			698.6763	(64)
12Total per year (kWh/year)												699	(64)
Electric shower(s)													
	41.5764	37.0449	40.4516	38.6025	39.3269	37.5140	38.7645	39.3269	38.6025	40.4516	39.6910	41.5764	(64a)
						Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =						472.9292	(64a)
Heat gains from water heating, kWh/month													
	28.5664	25.1523	26.7367	23.8717	23.3028	21.1954	21.2141	22.0536	22.2557	24.5370	25.6811	28.3346	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	72.5685	80.3437	72.5685	74.9875	72.5685	74.9875	72.5685	72.5685	74.9875	72.5685	74.9875	72.5685	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	38.3957	37.4290	35.9365	33.1551	31.3209	29.4381	28.5136	29.6419	30.9107	32.9798	35.6682	38.0842	(72)
Total internal gains													
	302.6008	310.9021	297.8726	289.5017	275.1394	266.1743	256.4835	256.1190	263.5685	271.2271	286.4437	295.9419	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	10.8000	19.6403	0.6300	0.7000	0.7700	64.8251	(80)

Solar gains	64.8251	126.8116	208.8406	304.5815	373.2761	382.1145	363.7886	312.4890	242.8902	150.4726	80.8292	53.3090	(83)
Total gains	367.4259	437.7137	506.7132	594.0833	648.4155	648.2888	620.2721	568.6080	506.4587	421.6997	367.2729	349.2509	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.5395	22.5923	22.6444	22.8921	22.9390	23.1601	23.1601	23.2015	23.0745	22.9390	22.8443	22.7460	
alpha	2.5026	2.5062	2.5096	2.5261	2.5293	2.5440	2.5440	2.5468	2.5383	2.5293	2.5230	2.5164	
util living area													
	0.9603	0.9387	0.9007	0.8210	0.7067	0.5607	0.4357	0.4834	0.6863	0.8692	0.9418	0.9647	(86)
MIT	18.1686	18.5275	19.0854	19.8081	20.3849	20.7622	20.9094	20.8798	20.5795	19.7920	18.8616	18.1142	(87)
Th 2	19.7501	19.7527	19.7551	19.7668	19.7690	19.7792	19.7792	19.7811	19.7753	19.7690	19.7646	19.7600	(88)
util rest of house													
	0.9533	0.9281	0.8832	0.7893	0.6536	0.4793	0.3290	0.3747	0.6114	0.8385	0.9299	0.9585	(89)
MIT 2	17.2151	17.5681	18.1125	18.8064	19.3290	19.6461	19.7452	19.7323	19.5144	18.8125	17.9102	17.1678	(90)
Living area fraction										fLA = Living area / (4) =		0.5380	(91)
MIT	17.7281	18.0843	18.6359	19.3453	19.8970	20.2466	20.3715	20.3496	20.0875	19.3395	18.4221	17.6770	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.7281	18.0843	18.6359	19.3453	19.8970	20.2466	20.3715	20.3496	20.0875	19.3395	18.4221	17.6770	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9380	0.9098	0.8639	0.7769	0.6596	0.5121	0.3826	0.4277	0.6322	0.8256	0.9130	0.9441	(94)
Useful gains	344.6429	398.2314	437.7429	461.5391	427.7129	331.9627	237.3081	243.1783	320.2032	348.1379	335.3197	329.7411	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	926.8178	907.8611	833.7525	709.8418	555.9124	379.2877	253.3393	264.8289	403.6778	592.6992	771.0327	921.7479	(97)
Space heating kWh													
	433.1381	342.4711	294.6311	178.7780	95.3805	0.0000	0.0000	0.0000	0.0000	181.9536	313.7134	440.4531	(98a)
Space heating requirement - total per year (kWh/year)												2280.5188	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	433.1381	342.4711	294.6311	178.7780	95.3805	0.0000	0.0000	0.0000	0.0000	181.9536	313.7134	440.4531	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2280.5188	
Space heating per m2											(98c) / (4) =	46.8279	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	631.4096	497.0672	509.5902	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7687	0.8277	0.7951	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	485.3627	411.4049	405.1836	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	732.1211	700.8143	641.8112	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	177.6660	215.3206	176.0509	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	44.4165	53.8302	44.0127	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												142.2594	(107)
Energy for space heating												46.8279	(99)
Energy for space cooling												2.9211	(108)
Total												49.7490	(109)
Fabric Energy Efficiency (DFEE)												49.7	(109)

Full SAP Calculation Printout

Plot Reference	Unit B	Issued on Date	13/02/2026
Assessment Reference	Unit B - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	85 B	DER	4.12	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.17	DFEE	49.75	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	46.80	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

		Area		Storey height		Volume	
Main dwelling		(m2)		(m)		(m3)	
Ground floor		48.7000	(1b)	x 2.8000	(2b) =	136.3600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	48.7000						(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	136.3600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1467	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3967	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3372	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4299	0.4215	0.4130	0.3709	0.3625	0.3203	0.3203	0.3119	0.3372	0.3625	0.3793	0.3962	(22b)
Effective ac	0.5924	0.5888	0.5853	0.5688	0.5657	0.5513	0.5513	0.5486	0.5568	0.5657	0.5719	0.5785	(25)

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3. Heat losses and heat loss parameter

Element	Gross	Openings	NetArea	U-value	A x U	K-value	A x K	
Main dwelling	m2	m2	m2	W/m2K	W/K	kJ/m2K	kJ/K	
Windows			10.8000	1.1450	12.3664			(27)
GF			48.7000	0.1500	7.3050			(28a)
EW	39.2000	10.8000	28.4000	0.1800	5.1120			(29a)
Total net area of external elements Aum(A, m2)			87.9000					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		24.7834			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							17.5800	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		42.3634	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	26.6574	26.4960	26.3377	25.5944	25.4553	24.8078	24.8078	24.6879	25.0572	25.4553	25.7366	26.0308	(38)
Heat transfer coeff	69.0209	68.8594	68.7011	67.9578	67.8187	67.1712	67.1712	67.0513	67.4206	67.8187	68.1000	68.3942	(39)
Average = Sum(39)m / 12 =												67.9571	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4173	1.4140	1.4107	1.3954	1.3926	1.3793	1.3793	1.3768	1.3844	1.3926	1.3984	1.4044	(40)
HLP (average)												1.3954	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6519	(42)
Hot water usage for mixer showers													
	58.4060	57.5283	56.2492	53.8021	51.9961	49.9821	48.8374	50.1067	51.4981	53.6606	56.1603	58.1822	(42a)
Hot water usage for baths													
	22.4490	22.1156	21.6461	20.7804	20.1322	19.4135	19.0252	19.4915	19.9991	20.7682	21.6517	22.3731	(42b)
Hot water usage for other uses													
	31.5471	30.4000	29.2528	28.1056	26.9585	25.8113	25.8113	26.9585	28.1056	29.2528	30.4000	31.5471	(42c)
Average daily hot water use (litres/day)												103.3413	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	112.4021	110.0438	107.1481	102.6881	99.0868	95.2069	93.6739	96.5566	99.6028	103.6815	108.2119	112.1024	(44)
Energy conte	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(45)
Energy content (annual)										Total = Sum(45)m =		1716.4896	
Distribution loss (46)m = 0.15 x (45)m													
	26.7026	23.5051	24.7024	21.0862	20.0085	17.5602	16.9936	17.9336	18.4230	21.1042	23.1252	26.3288	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(64)
										Total per year (kWh/year) = Sum(64)m =		1716.4896	(64)
12Total per year (kWh/year)												1716	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	59.1908	52.1031	54.7570	46.7412	44.3521	38.9251	37.6691	39.7528	40.8377	46.7810	51.2608	58.3622	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	82.5951	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	72.5685	80.3437	72.5685	74.9875	72.5685	74.9875	72.5685	72.5685	74.9875	72.5685	74.9875	72.5685	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	143.8581	145.3509	141.5891	133.5807	123.4715	113.9703	107.6229	106.1301	109.8919	117.9003	128.0095	137.5107	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	31.2595	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	-66.0761	(71)
Water heating gains (Table 5)													
	79.5575	77.5343	73.5981	64.9183	59.6131	54.0626	50.6305	53.4312	56.7191	62.8777	71.1955	78.4438	(72)
Total internal gains													
	346.7627	354.0074	338.5342	324.2649	306.4316	290.7989	278.6004	279.9082	289.3769	304.1250	324.9710	339.3015	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
West	10.8000	19.6403	0.6300	0.7000	0.7700	64.8251	(80)

Solar gains	64.8251	126.8116	208.8406	304.5815	373.2761	382.1145	363.7886	312.4890	242.8902	150.4726	80.8292	53.3090	(83)
Total gains	411.5877	480.8190	547.3748	628.8464	679.7077	672.9134	642.3889	592.3973	532.2671	454.5976	405.8002	392.6105	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.5395	22.5923	22.6444	22.8921	22.9390	23.1601	23.1601	23.2015	23.0745	22.9390	22.8443	22.7460	
alpha	2.5026	2.5062	2.5096	2.5261	2.5293	2.5440	2.5440	2.5468	2.5383	2.5293	2.5230	2.5164	
util living area													
	0.9498	0.9263	0.8858	0.8046	0.6894	0.5461	0.4233	0.4681	0.6676	0.8514	0.9290	0.9548	(86)
MIT	18.3034	18.6497	19.1864	19.8731	20.4218	20.7766	20.9153	20.8885	20.6073	19.8652	18.9723	18.2491	(87)
Th 2	19.7501	19.7527	19.7551	19.7668	19.7690	19.7792	19.7792	19.7811	19.7753	19.7690	19.7646	19.7600	(88)
util rest of house													
	0.9412	0.9140	0.8664	0.7713	0.6355	0.4654	0.3187	0.3615	0.5920	0.8180	0.9150	0.9471	(89)
MIT 2	16.6658	17.1005	17.7690	18.6082	19.2416	19.6198	19.7387	19.7235	19.4655	18.6252	17.5211	16.6029	(90)
Living area fraction									fLA = Living area / (4) =			0.5380	(91)
MIT	17.5468	17.9339	18.5316	19.2887	19.8765	20.2421	20.3717	20.3503	20.0798	19.2923	18.3018	17.4885	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.5468	17.9339	18.5316	19.2887	19.8765	20.2421	20.3717	20.3503	20.0798	19.2923	18.3018	17.4885	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9205	0.8906	0.8430	0.7565	0.6406	0.4975	0.3711	0.4133	0.6124	0.8024	0.8932	0.9275	(94)
Useful gains	378.8853	428.2071	461.4231	475.7367	435.4289	334.7859	238.4114	244.8662	325.9616	364.7870	362.4755	364.1450	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	914.3068	897.5087	826.5824	705.9923	554.5218	378.9874	253.3498	264.8700	403.1596	589.4985	762.8453	908.8588	(97)
Space heating kWh	398.3536	315.3706	271.6786	165.7841	88.6051	0.0000	0.0000	0.0000	0.0000	167.1854	288.2663	405.2671	(98a)
Space heating requirement - total per year (kWh/year)												2100.5108	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	398.3536	315.3706	271.6786	165.7841	88.6051	0.0000	0.0000	0.0000	0.0000	167.1854	288.2663	405.2671	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2100.5108	
Space heating per m2											(98c) / (4) =	43.1316	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	249.9000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	398.3536	315.3706	271.6786	165.7841	88.6051	0.0000	0.0000	0.0000	0.0000	167.1854	288.2663	405.2671	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	159.4052	126.1987	108.7149	66.3402	35.4562	0.0000	0.0000	0.0000	0.0000	66.9009	115.3526	162.1717	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	178.0175	156.7009	164.6827	140.5749	133.3899	117.0680	113.2905	119.5573	122.8203	140.6948	154.1677	175.5253	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	101.6662	89.4922	94.0506	80.2826	76.1792	66.8578	64.7004	68.2794	70.1429	80.3511	88.0455	100.2429	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	13.3319	10.6953	9.6300	7.0553	5.4497	4.4525	4.9714	6.4620	8.3936	11.0128	12.4389	13.7024	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.3364	-23.5792	-36.7197	-44.1055	-49.4505	-45.0875	-44.3945	-40.7375	-34.4290	-27.8373	-17.4398	-13.0475	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-3.4461	-7.7633	-16.6602	-27.4340	-38.9305	-41.8051	-41.3498	-34.1777	-24.2447	-12.2299	-4.8389	-2.6702	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	840.5405	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	175.1000	
Water heating fuel used	980.2910	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
Total electricity for the above, kWh/year	0.0000	(231)
Electricity for lighting (calculated in Appendix L)	107.5959	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	-647.7148	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	1280.7126	(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	840.5405	0.1546	129.9259	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	980.2910	0.1416	138.7878	(264)
Space and water heating			268.7137	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)
Energy for lighting	107.5959	0.1443	15.5294	(268)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-392.1645	0.1335	-52.3724	

PV Unit electricity exported	-255.5503	0.1229	-31.3979	
Total			-83.7703	(269)
Total CO2, kg/year			200.4727	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			4.1200	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	840.5405	1.5723	1321.5524	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	980.2910	1.5235	1493.5109	(278)
Space and water heating			2815.0633	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	107.5959	1.5338	165.0341	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-392.1645	1.4935	-585.7052	
PV Unit electricity exported	-255.5503	0.4508	-115.2008	
Total			-700.9060	(283)
Total Primary energy kWh/year			2279.1914	(286)
Dwelling Primary energy Rate (DPER)			46.8000	(287)

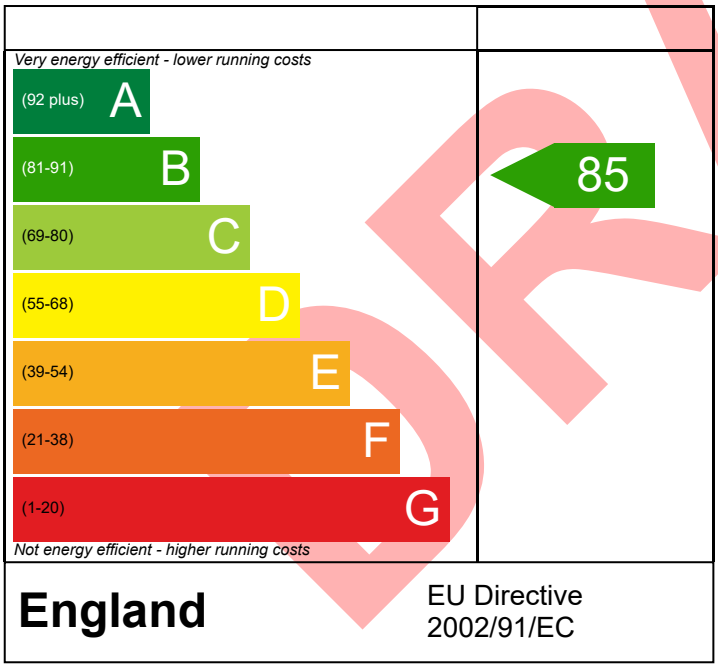
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	48.7 m²
DRRN:	

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

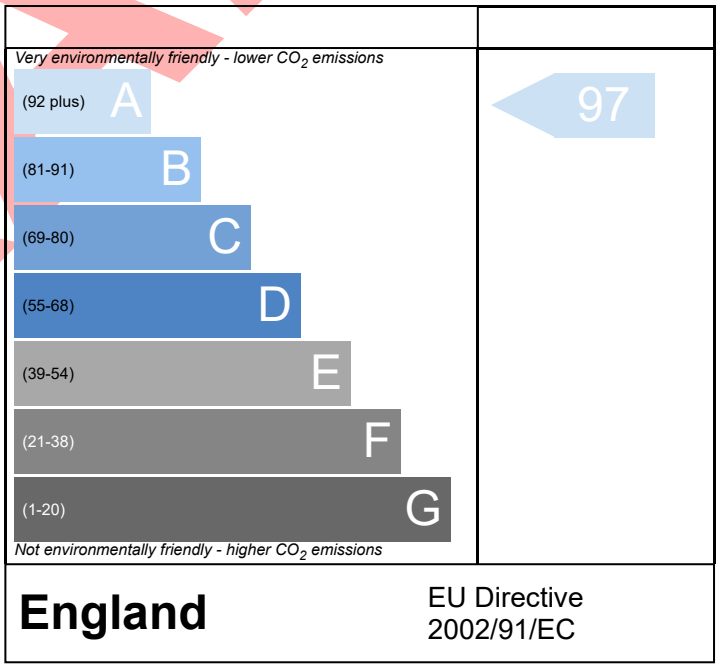
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

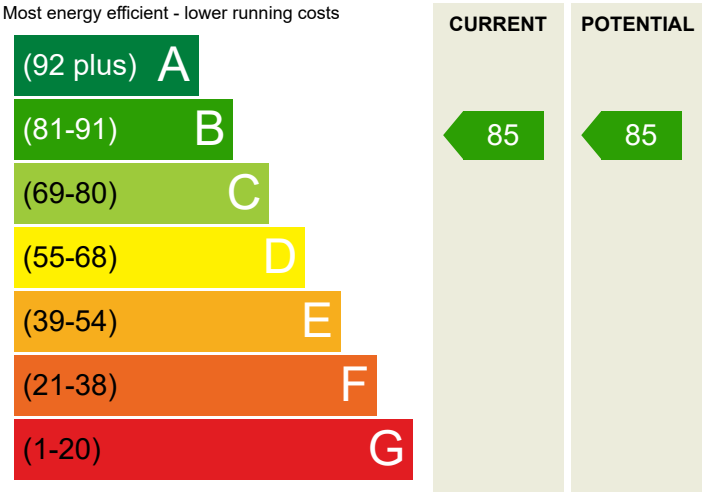
Energy Report

Dwelling Address	
Reference	Unit B-Unit B - BG
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	49

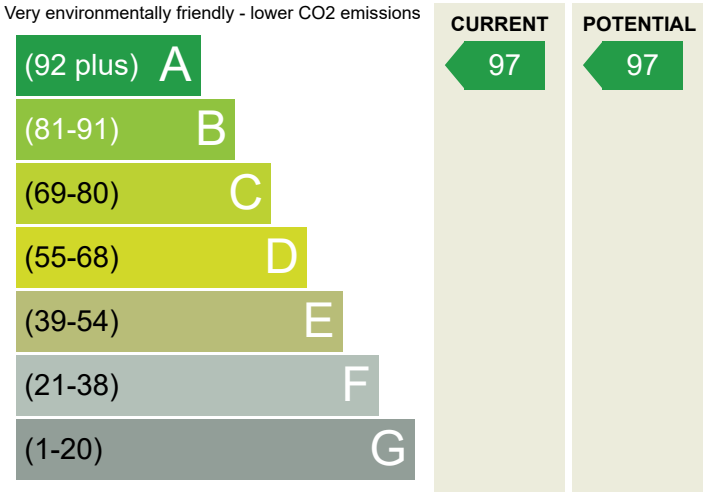
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

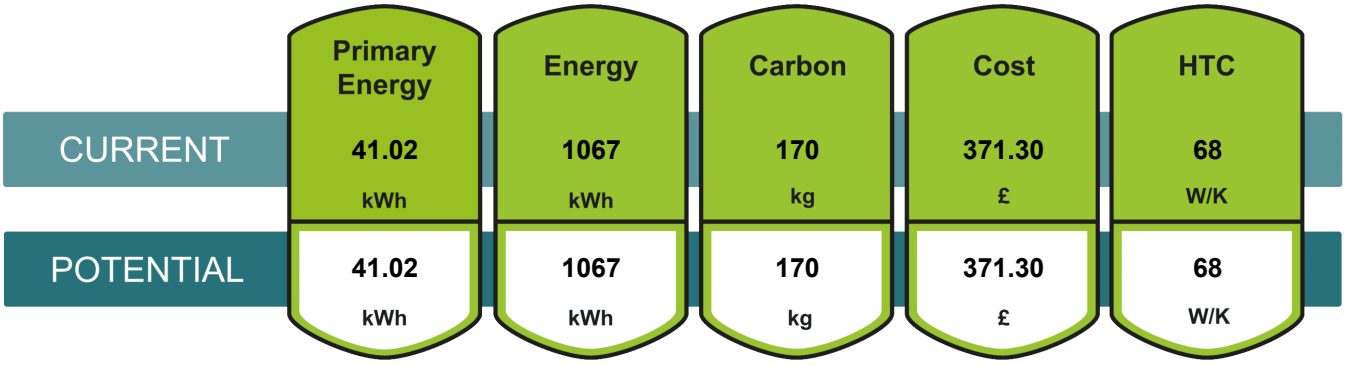


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Floor	Average thermal transmittance 0.15 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Air source heat pump, radiators, electric	Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Average
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£31	£31	
Heating	£200	£200	
Hot Water	£279	£279	
New Technologies e.g. Impact of PV	-(£138)	-(£138)	
TOTAL	£371	£371	

Estimated energy use and potential savings

Space Heating
702
kWh per year

Water Heating
980
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit C	**Issued on Date**	13/02/2026
Assessment Reference	Unit C - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	78 C	**DER**	28.63	**TER**	
Environmental	81 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.14	**DFEE**	75.42	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	156.81	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	13.90 m	43.60 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.30		38.92	31.62	0.00	None	7.30	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.25	None	0.00	75.00	43.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	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
E	Windows	EW	East	7.30	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%

Summary for Input Data

16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	No	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	75.00	5.00	375.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Unknown	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	

Summary for Input Data

elmhurst energy

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit C	Issued on Date	13/02/2026
Assessment Reference	Unit C - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	78 C	DER	28.63	TER	
Environmental	81 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.14	DFEE	75.42	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	156.81	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

---

1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	43.6000	(1b)	x 2.8000	(2b) =	122.0800	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	43.6000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	122.0800	(5)

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2. Ventilation rate

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	m3 per hour		
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1638	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.9138	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7768	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9904	0.9709	0.9515	0.8544	0.8350	0.7379	0.7379	0.7185	0.7768	0.8350	0.8738	0.9127	(22b)
Effective ac	0.9904	0.9714	0.9527	0.8650	0.8486	0.7723	0.7723	0.7581	0.8017	0.8486	0.8818	0.9165	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.3000	1.5038	10.9774			(27)
GF			43.6000	0.2500	10.9000			(28a)
EW	38.9200	7.3000	31.6200	0.3000	9.4860			(29a)
Total net area of external elements Aum(A, m2)			82.5200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		31.3634			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	16.5040	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	47.8674	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	39.8999	39.1327	38.3807	34.8487	34.1879	31.1116	31.1116	30.5419	32.2965	34.1879	35.5247	36.9224	(38)
Heat transfer coeff	87.7674	87.0002	86.2482	82.7161	82.0553	78.9790	78.9790	78.4093	80.1639	82.0553	83.3922	84.7898	(39)
Average = Sum(39)m / 12 =												82.7130	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	2.0130	1.9954	1.9782	1.8972	1.8820	1.8114	1.8114	1.7984	1.8386	1.8820	1.9127	1.9447	(40)
HLP (average)												1.8971	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

---

4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.5050 (42)

Hot water usage for mixer showers

55.6343	54.7983	53.5799	51.2489	49.5286	47.6102	46.5198	47.7289	49.0543	51.1141	53.4952	55.4212	(42a)

Hot water usage for baths

21.3895	21.0719	20.6245	19.7997	19.1821	18.4973	18.1274	18.5716	19.0552	19.7880	20.6298	21.3172	(42b)

Hot water usage for other uses

30.0423	28.9499	27.8574	26.7650	25.6725	24.5801	24.5801	25.6725	26.7650	27.8574	28.9499	30.0423	(42c)

Average daily hot water use (litres/day) 98.4357 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	107.0662	104.8200	102.0619	97.8136	94.3833	90.6876	89.2272	91.9730	94.8745	98.7596	103.0749	106.7807	(44)
Energy conte	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(45)
Energy content (annual)										Total = Sum(45)m =		1635.0071	
Distribution loss (46)m = 0.15 x (45)m													
	25.4350	22.3893	23.5298	20.0853	19.0587	16.7266	16.1869	17.0823	17.5485	20.1024	22.0274	25.0789	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	48.2368	48.0967	44.7226	45.4692	46.8684	46.7874	50.3268	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(64)
										Total per year (kWh/year) = Sum(64)m =		2213.7343	(64)
12Total per year (kWh/year)												2214	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	69.1206	61.1366	64.8974	56.5816	54.2710	48.2581	47.2483	49.5828	50.5960	57.1419	61.1561	68.3313	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	68.1712	75.4753	68.1712	70.4436	68.1712	70.4436	68.1712	68.1712	70.4436	68.1712	70.4436	68.1712	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	130.6818	132.0379	128.6207	121.3457	112.1625	103.5315	97.7654	96.4094	99.8266	107.1015	116.2848	124.9158	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	(71)
Water heating gains (Table 5)													
	92.9041	90.9770	87.2277	78.5855	72.9448	67.0251	63.5057	66.6436	70.2722	76.8037	84.9390	91.8432	(72)
Total internal gains													
	340.3316	347.0647	332.5941	318.9493	301.8530	286.5746	275.0168	276.7986	286.1168	300.6509	320.2419	333.5047	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	7.3000	19.6403	0.6300	0.7000	0.7700	43.8169	(76)

Solar gains	43.8169	85.7152	141.1608	205.8746	252.3070	258.2811	245.8941	211.2194	164.1758	101.7083	54.6346	36.0329	(83)
Total gains	384.1485	432.7799	473.7548	524.8239	554.1600	544.8557	520.9110	488.0180	450.2926	402.3592	374.8765	369.5376	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, nil,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	15.8690	16.0089	16.1485	16.8380	16.9736	17.6348	17.6348	17.7629	17.3741	16.9736	16.7015	16.4262	
alpha	2.0579	2.0673	2.0766	2.1225	2.1316	2.1757	2.1757	2.1842	2.1583	2.1316	2.1134	2.0951	
util living area													
	0.9523	0.9373	0.9128	0.8606	0.7812	0.6590	0.5399	0.5779	0.7504	0.8824	0.9358	0.9555	(86)
MIT	17.2971	17.6353	18.2215	19.0960	19.8508	20.4811	20.7651	20.7202	20.2424	19.2656	18.2088	17.3305	(87)
Th 2	19.3247	19.3364	19.3479	19.4028	19.4132	19.4620	19.4620	19.4711	19.4431	19.4132	19.3922	19.3704	(88)
util rest of house													
	0.9427	0.9247	0.8942	0.8287	0.7246	0.5599	0.3910	0.4337	0.6661	0.8488	0.9209	0.9466	(89)
MIT 2	15.2228	15.6486	16.3841	17.4811	18.3840	19.1038	19.3604	19.3384	18.8650	17.7154	16.3939	15.2774	(90)
Living area fraction									fLA = Living area / (4) =			0.6009	(91)
MIT	16.4693	16.8424	17.4882	18.4515	19.2655	19.9314	20.2045	20.1687	19.6927	18.6470	17.4845	16.5112	(92)
Temperature adjustment												-0.1500	
adjusted MIT	16.3193	16.6924	17.3382	18.3015	19.1155	19.7814	20.0545	20.0187	19.5427	18.4970	17.3345	16.3612	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9167	0.8955	0.8628	0.8004	0.7119	0.5831	0.4537	0.4909	0.6725	0.8229	0.8932	0.9220	(94)
Useful gains	352.1409	387.5634	408.7500	420.0831	394.4993	317.7041	236.3352	239.5495	302.8346	331.1052	334.8434	340.7129	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	1054.9014	1025.9439	934.7780	777.6579	608.4786	409.2254	272.8325	283.7432	436.3089	647.9880	853.4772	1031.1421	(97)
Space heating kWh													
	522.8538	428.9917	391.3648	257.4538	159.2006	0.0000	0.0000	0.0000	0.0000	235.7608	373.4163	513.6793	(98a)
Space heating requirement - total per year (kWh/year)												2882.7212	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	522.8538	428.9917	391.3648	257.4538	159.2006	0.0000	0.0000	0.0000	0.0000	235.7608	373.4163	513.6793	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2882.7212	
Space heating per m2											(98c) / (4) =	66.1175	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement													
	522.8538	428.9917	391.3648	257.4538	159.2006	0.0000	0.0000	0.0000	0.0000	235.7608	373.4163	513.6793	(98)
Space heating efficiency (main heating system 1)													
	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)													
	584.1942	479.3204	437.2791	287.6579	177.8778	0.0000	0.0000	0.0000	0.0000	263.4199	417.2250	573.9434	(211)
Space heating efficiency (main heating system 2)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement													
	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.7980	86.6554	86.3569	85.7707	84.8363	81.0000	81.0000	81.0000	81.0000	85.5602	86.3782	86.7853	(217)
Fuel for water heating, kWh/month													
	254.0677	225.3637	240.6574	212.3554	206.4619	192.8810	189.3603	198.4571	202.1941	215.4537	227.0991	251.3695	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	14.4928	11.6266	10.4685	7.6697	5.9243	4.8402	5.4043	7.0247	9.1244	11.9717	13.5221	14.8955	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3220.9176	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2615.7209	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	116.9648	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	5994.6033	(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	3220.9176	0.2100	676.3927	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2615.7209	0.2100	549.3014	(264)
Space and water heating			1225.6941	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	116.9648	0.1443	16.8816	(268)
Total CO2, kg/year			1248.2629	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			28.6300	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3220.9176	1.1300	3639.6369	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2615.7209	1.1300	2955.7646	(278)
Space and water heating			6595.4015	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	116.9648	1.5338	179.4045	(282)
Total Primary energy kWh/year			6836.8308	(286)
Dwelling Primary energy Rate (DPER)			156.8100	(287)

Full SAP Calculation Printout

Plot Reference	Unit C	**Issued on Date**	13/02/2026
Assessment Reference	Unit C - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	78 C	**DER**	28.63	**TER**	
Environmental	81 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.14	**DFEE**	75.42	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	156.81	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	43.6000	(1b)	x 2.8000	(2b) =	122.0800	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	43.6000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	122.0800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1638	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.9138	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7768	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9904	0.9709	0.9515	0.8544	0.8350	0.7379	0.7379	0.7185	0.7768	0.8350	0.8738	0.9127	(22b)
If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)												0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =												0.0000	(23c)
Effective ac	0.9904	0.9714	0.9527	0.8650	0.8486	0.7723	0.7723	0.7581	0.8017	0.8486	0.8818	0.9165	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.3000	1.5038	10.9774			(27)
GF			43.6000	0.2500	10.9000			(28a)
EW	38.9200	7.3000	31.6200	0.3000	9.4860			(29a)
Total net area of external elements Aum(A, m2)			82.5200					(31)
Fabric heat loss, W/K = Sum (A x U)				(26)...(30) + (32) =	31.3634			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	16.5040	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	47.8674	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	39.8999	39.1327	38.3807	34.8487	34.1879	31.1116	31.1116	30.5419	32.2965	34.1879	35.5247	36.9224	(38)
Heat transfer coeff	87.7674	87.0002	86.2482	82.7161	82.0553	78.9790	78.9790	78.4093	80.1639	82.0553	83.3922	84.7898	(39)

Average = Sum(39)m / 12 = 82.7130

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	2.0130	1.9954	1.9782	1.8972	1.8820	1.8114	1.8114	1.7984	1.8386	1.8820	1.9127	1.9447	(40)
HLP (average)												1.8971	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.5050 (42)

Hot water usage for mixer showers

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

21.3895	21.0719	20.6245	19.7997	19.1821	18.4973	18.1274	18.5716	19.0552	19.7880	20.6298	21.3172	(42b)

Hot water usage for other uses

30.0423	28.9499	27.8574	26.7650	25.6725	24.5801	24.5801	25.6725	26.7650	27.8574	28.9499	30.0423	(42c)

Average daily hot water use (litres/day) 47.1427 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	51.4319	50.0218	48.4820	46.5647	44.8546	43.0774	42.7075	44.2441	45.8202	47.6455	49.5797	51.3596	(44)
Energy conte	81.4555	71.2303	74.5150	63.7448	60.3830	52.9686	51.6510	54.7835	56.5009	64.6544	70.6354	80.4166	(45)
Energy content (annual)										Total = Sum(45)m =		782.9390	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	69.2372	60.5458	63.3377	54.1830	51.3255	45.0234	43.9033	46.5659	48.0258	54.9563	60.0401	68.3542	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	69.2372	60.5458	63.3377	54.1830	51.3255	45.0234	43.9033	46.5659	48.0258	54.9563	60.0401	68.3542	(64)
										Total per year (kWh/year) = Sum(64)m =		665.4981	(64)
12Total per year (kWh/year)												665	(64)
Electric shower(s)													
	39.6034	35.2870	38.5320	36.7706	37.4606	35.7338	36.9249	37.4606	36.7706	38.5320	37.8075	39.6034	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		450.4863	(64a)
Heat gains from water heating, kWh/month													
	27.2101	23.9582	25.4674	22.7384	22.1965	20.1893	20.2071	21.0066	21.1991	23.3721	24.4619	26.9894	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	68.1712	75.4753	68.1712	70.4436	68.1712	70.4436	68.1712	68.1712	70.4436	68.1712	70.4436	68.1712	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	130.6818	132.0379	128.6207	121.3457	112.1625	103.5315	97.7654	96.4094	99.8266	107.1015	116.2848	124.9158	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	(71)
Water heating gains (Table 5)													
	36.5728	35.6521	34.2304	31.5811	29.8341	28.0407	27.1600	28.2347	29.4432	31.4141	33.9748	36.2761	(72)
Total internal gains													
	281.0003	288.7397	276.5968	268.9449	255.7422	247.5902	238.6711	238.3898	245.2879	252.2613	266.2777	274.9375	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	7.3000	19.6403	0.6300	0.7000	0.7700	43.8169	(76)

Solar gains	43.8169	85.7152	141.1608	205.8746	252.3070	258.2811	245.8941	211.2194	164.1758	101.7083	54.6346	36.0329	(83)
Total gains	324.8172	374.4549	417.7575	474.8195	508.0492	505.8713	484.5653	449.6092	409.4637	353.9696	320.9123	310.9705	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	15.8690	16.0089	16.1485	16.8380	16.9736	17.6348	17.6348	17.7629	17.3741	16.9736	16.7015	16.4262	
alpha	2.0579	2.0673	2.0766	2.1225	2.1316	2.1757	2.1757	2.1842	2.1583	2.1316	2.1134	2.0951	
util living area													
	0.9646	0.9512	0.9292	0.8804	0.8050	0.6848	0.5662	0.6078	0.7787	0.9042	0.9512	0.9675	(86)
MIT	17.1204	17.4680	18.0712	18.9794	19.7676	20.4363	20.7408	20.6890	20.1754	19.1439	18.0514	17.1517	(87)
Th 2	19.3247	19.3364	19.3479	19.4028	19.4132	19.4620	19.4620	19.4711	19.4431	19.4132	19.3922	19.3704	(88)
util rest of house													
	0.9572	0.9411	0.9135	0.8517	0.7518	0.5870	0.4145	0.4619	0.6986	0.8754	0.9394	0.9608	(89)
MIT 2	15.9320	16.2809	16.8807	17.7930	18.5397	19.1534	19.3727	19.3533	18.9424	17.9747	16.8935	15.9882	(90)
Living area fraction										fLA = Living area / (4) =		0.6009	(91)
MIT	16.6461	16.9943	17.5961	18.5059	19.2775	19.9243	20.1948	20.1560	19.6833	18.6773	17.5893	16.6873	(92)
Temperature adjustment												0.0000	
adjusted MIT	16.6461	16.9943	17.5961	18.5059	19.2775	19.9243	20.1948	20.1560	19.6833	18.6773	17.5893	16.6873	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9398	0.9206	0.8907	0.8313	0.7463	0.6199	0.4931	0.5338	0.7132	0.8577	0.9204	0.9445	(94)
Useful gains	305.2660	344.7079	372.0962	394.7063	379.1759	313.5947	238.9358	240.0154	292.0369	303.5882	295.3805	293.7188	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	1083.5846	1052.2038	957.0161	794.5661	621.7773	420.5061	283.9142	294.5028	447.5784	662.7844	874.7265	1058.7996	(97)
Space heating kWh													
	579.0691	475.4372	435.1804	287.8990	180.4954	0.0000	0.0000	0.0000	0.0000	267.2420	417.1291	569.2201	(98a)
Space heating requirement - total per year (kWh/year)												3211.6724	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	579.0691	475.4372	435.1804	287.8990	180.4954	0.0000	0.0000	0.0000	0.0000	267.2420	417.1291	569.2201	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3211.6724	
Space heating per m2											(98c) / (4) =	73.6622	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	742.4026	584.4446	595.9108	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.5886	0.6593	0.6262	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	436.9637	385.3184	373.1604	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	566.0510	542.5665	503.0208	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	92.9429	116.9926	96.6161	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	23.2357	29.2481	24.1540	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												76.6379	(107)
Energy for space heating												73.6622	(99)
Energy for space cooling												1.7577	(108)
Total												75.4200	(109)
Fabric Energy Efficiency (DFEE)												75.4	(109)

Full SAP Calculation Printout

Plot Reference	Unit C	Issued on Date	13/02/2026
Assessment Reference	Unit C - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	78 C	DER	28.63	TER	
Environmental	81 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.14	DFEE	75.42	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	156.81	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	43.6000	(1b)	x 2.8000	(2b) =	122.0800	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	43.6000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	122.0800	(5)

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2. Ventilation rate

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	m3 per hour		
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1638	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.9138	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7768	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9904	0.9709	0.9515	0.8544	0.8350	0.7379	0.7379	0.7185	0.7768	0.8350	0.8738	0.9127	(22b)
Effective ac	0.9904	0.9714	0.9527	0.8650	0.8486	0.7723	0.7723	0.7581	0.8017	0.8486	0.8818	0.9165	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.3000	1.5038	10.9774			(27)
GF			43.6000	0.2500	10.9000			(28a)
EW	38.9200	7.3000	31.6200	0.3000	9.4860			(29a)
Total net area of external elements Aum(A, m2)			82.5200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		31.3634			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	16.5040	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	47.8674	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	39.8999	39.1327	38.3807	34.8487	34.1879	31.1116	31.1116	30.5419	32.2965	34.1879	35.5247	36.9224	(38)
Heat transfer coeff	87.7674	87.0002	86.2482	82.7161	82.0553	78.9790	78.9790	78.4093	80.1639	82.0553	83.3922	84.7898	(39)
Average = Sum(39)m / 12 =												82.7130	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	2.0130	1.9954	1.9782	1.8972	1.8820	1.8114	1.8114	1.7984	1.8386	1.8820	1.9127	1.9447	(40)
HLP (average)												1.8971	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.5050 (42)

Hot water usage for mixer showers

55.6343	54.7983	53.5799	51.2489	49.5286	47.6102	46.5198	47.7289	49.0543	51.1141	53.4952	55.4212	(42a)

Hot water usage for baths

21.3895	21.0719	20.6245	19.7997	19.1821	18.4973	18.1274	18.5716	19.0552	19.7880	20.6298	21.3172	(42b)

Hot water usage for other uses

30.0423	28.9499	27.8574	26.7650	25.6725	24.5801	24.5801	25.6725	26.7650	27.8574	28.9499	30.0423	(42c)

Average daily hot water use (litres/day) 98.4357 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	107.0662	104.8200	102.0619	97.8136	94.3833	90.6876	89.2272	91.9730	94.8745	98.7596	103.0749	106.7807	(44)
Energy conte	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(45)
Energy content (annual)										Total = Sum(45)m =		1635.0071	
Distribution loss (46)m = 0.15 x (45)m													
	25.4350	22.3893	23.5298	20.0853	19.0587	16.7266	16.1869	17.0823	17.5485	20.1024	22.0274	25.0789	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	48.2368	48.0967	44.7226	45.4692	46.8684	46.7874	50.3268	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(64)
										Total per year (kWh/year) = Sum(64)m =		2213.7343	(64)
12Total per year (kWh/year)												2214	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	69.1206	61.1366	64.8974	56.5816	54.2710	48.2581	47.2483	49.5828	50.5960	57.1419	61.1561	68.3313	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	68.1712	75.4753	68.1712	70.4436	68.1712	70.4436	68.1712	68.1712	70.4436	68.1712	70.4436	68.1712	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	130.6818	132.0379	128.6207	121.3457	112.1625	103.5315	97.7654	96.4094	99.8266	107.1015	116.2848	124.9158	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	(71)
Water heating gains (Table 5)													
	92.9041	90.9770	87.2277	78.5855	72.9448	67.0251	63.5057	66.6436	70.2722	76.8037	84.9390	91.8432	(72)
Total internal gains													
	340.3316	347.0647	332.5941	318.9493	301.8530	286.5746	275.0168	276.7986	286.1168	300.6509	320.2419	333.5047	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	7.3000	19.6403	0.6300	0.7000	0.7700	43.8169	(76)

Solar gains	43.8169	85.7152	141.1608	205.8746	252.3070	258.2811	245.8941	211.2194	164.1758	101.7083	54.6346	36.0329	(83)
Total gains	384.1485	432.7799	473.7548	524.8239	554.1600	544.8557	520.9110	488.0180	450.2926	402.3592	374.8765	369.5376	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, nil,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	15.8690	16.0089	16.1485	16.8380	16.9736	17.6348	17.6348	17.7629	17.3741	16.9736	16.7015	16.4262	
alpha	2.0579	2.0673	2.0766	2.1225	2.1316	2.1757	2.1757	2.1842	2.1583	2.1316	2.1134	2.0951	
util living area													
	0.9523	0.9373	0.9128	0.8606	0.7812	0.6590	0.5399	0.5779	0.7504	0.8824	0.9358	0.9555	(86)
MIT	17.2971	17.6353	18.2215	19.0960	19.8508	20.4811	20.7651	20.7202	20.2424	19.2656	18.2088	17.3305	(87)
Th 2	19.3247	19.3364	19.3479	19.4028	19.4132	19.4620	19.4620	19.4711	19.4431	19.4132	19.3922	19.3704	(88)
util rest of house													
	0.9427	0.9247	0.8942	0.8287	0.7246	0.5599	0.3910	0.4337	0.6661	0.8488	0.9209	0.9466	(89)
MIT 2	15.2228	15.6486	16.3841	17.4811	18.3840	19.1038	19.3604	19.3384	18.8650	17.7154	16.3939	15.2774	(90)
Living area fraction									fLA = Living area / (4) =			0.6009	(91)
MIT	16.4693	16.8424	17.4882	18.4515	19.2655	19.9314	20.2045	20.1687	19.6927	18.6470	17.4845	16.5112	(92)
Temperature adjustment												-0.1500	
adjusted MIT	16.3193	16.6924	17.3382	18.3015	19.1155	19.7814	20.0545	20.0187	19.5427	18.4970	17.3345	16.3612	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9167	0.8955	0.8628	0.8004	0.7119	0.5831	0.4537	0.4909	0.6725	0.8229	0.8932	0.9220	(94)
Useful gains	352.1409	387.5634	408.7500	420.0831	394.4993	317.7041	236.3352	239.5495	302.8346	331.1052	334.8434	340.7129	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	1054.9014	1025.9439	934.7780	777.6579	608.4786	409.2254	272.8325	283.7432	436.3089	647.9880	853.4772	1031.1421	(97)
Space heating kWh													
	522.8538	428.9917	391.3648	257.4538	159.2006	0.0000	0.0000	0.0000	0.0000	235.7608	373.4163	513.6793	(98a)
Space heating requirement - total per year (kWh/year)												2882.7212	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	522.8538	428.9917	391.3648	257.4538	159.2006	0.0000	0.0000	0.0000	0.0000	235.7608	373.4163	513.6793	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2882.7212	
Space heating per m2											(98c) / (4) =	66.1175	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement													
	522.8538	428.9917	391.3648	257.4538	159.2006	0.0000	0.0000	0.0000	0.0000	235.7608	373.4163	513.6793	(98)
Space heating efficiency (main heating system 1)													
	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)													
	584.1942	479.3204	437.2791	287.6579	177.8778	0.0000	0.0000	0.0000	0.0000	263.4199	417.2250	573.9434	(211)
Space heating efficiency (main heating system 2)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement													
	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.7980	86.6554	86.3569	85.7707	84.8363	81.0000	81.0000	81.0000	81.0000	85.5602	86.3782	86.7853	(217)
Fuel for water heating, kWh/month													
	254.0677	225.3637	240.6574	212.3554	206.4619	192.8810	189.3603	198.4571	202.1941	215.4537	227.0991	251.3695	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	14.4928	11.6266	10.4685	7.6697	5.9243	4.8402	5.4043	7.0247	9.1244	11.9717	13.5221	14.8955	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3220.9176	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2615.7209	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	116.9648	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	5994.6033	(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	3220.9176	0.2100	676.3927	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2615.7209	0.2100	549.3014	(264)
Space and water heating			1225.6941	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	116.9648	0.1443	16.8816	(268)
Total CO2, kg/year			1248.2629	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			28.6300	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3220.9176	1.1300	3639.6369	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2615.7209	1.1300	2955.7646	(278)
Space and water heating			6595.4015	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	116.9648	1.5338	179.4045	(282)
Total Primary energy kWh/year			6836.8308	(286)
Dwelling Primary energy Rate (DPER)			156.8100	(287)

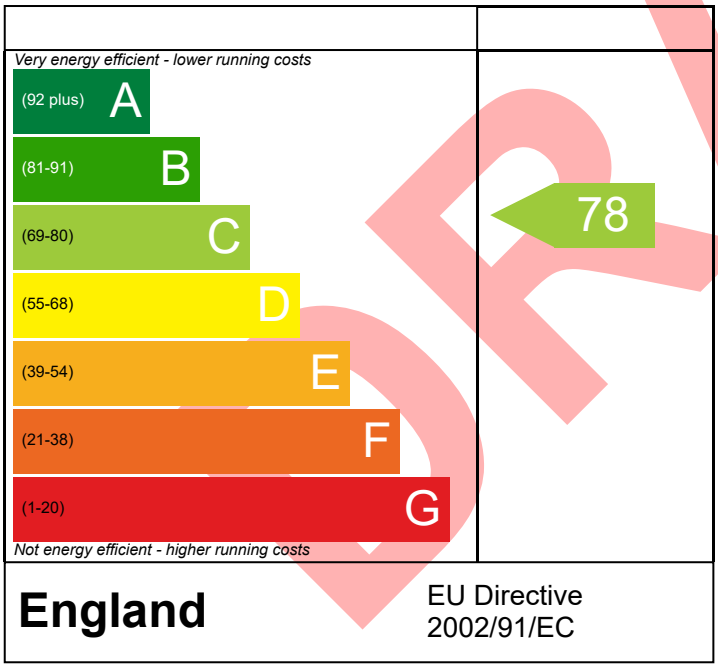
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	43.6 m²
DRRN:	

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

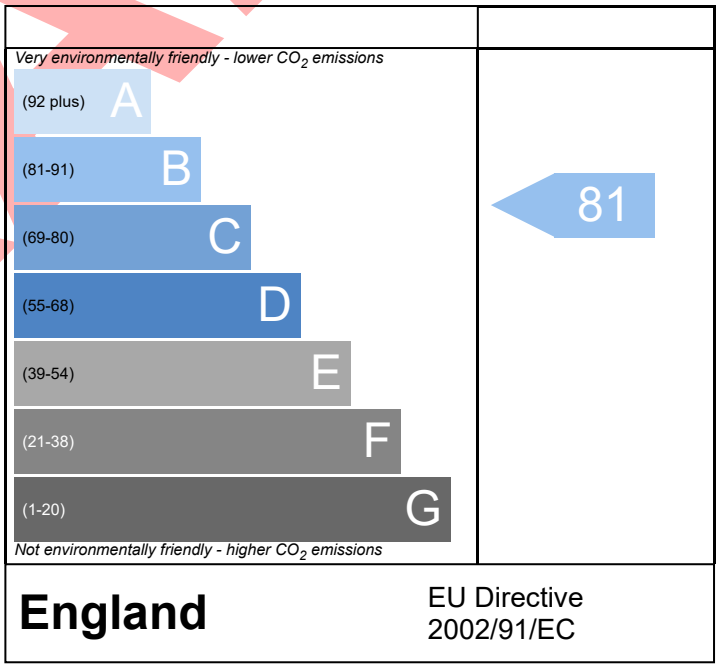
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

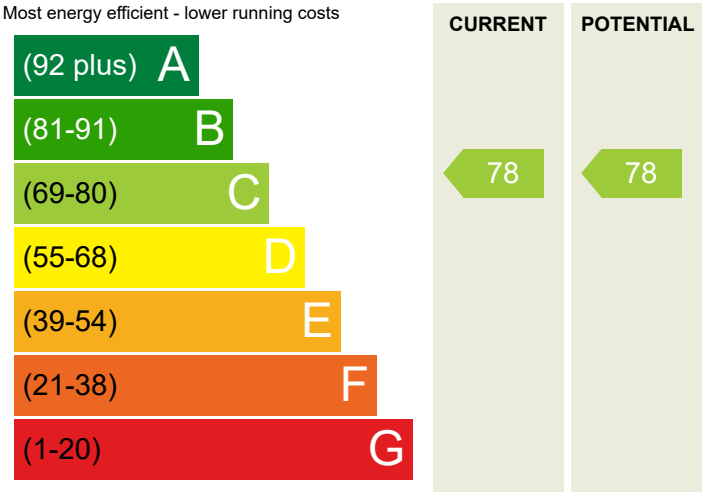
Energy Report

Dwelling Address	
Reference	Unit C-Unit C - BS
SAP Version	10.2
Assessment Date	12/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	44

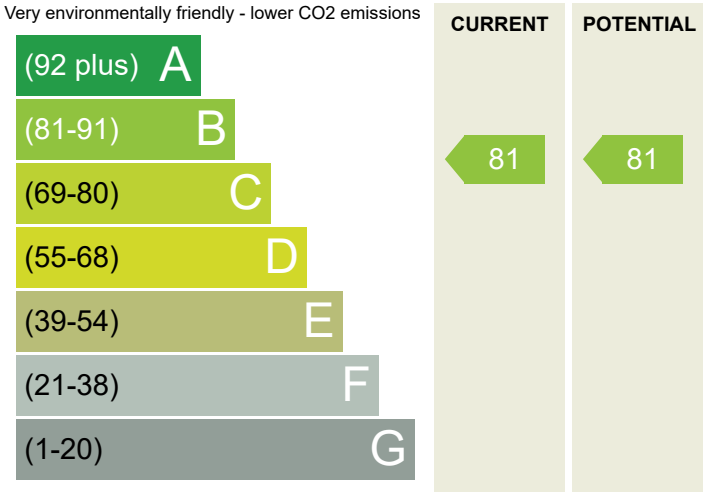
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

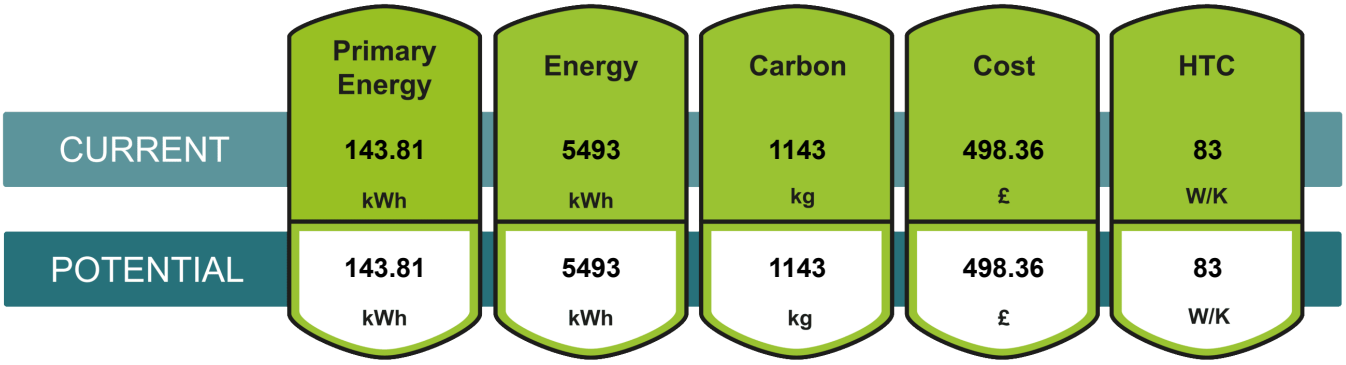


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.3 W/m²K	Good
Floor	Average thermal transmittance 0.25 W/m²K	Good
Windows	High performance glazing	Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Good lighting efficiency	Good
Air tightness	(not tested)	

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total

energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£33	£33	You could save £0
Heating	£293	£293	
Hot Water	£172	£172	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£498	£498	

Estimated energy use and potential savings

Space Heating
2711
kWh per year

Water Heating
2624
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit C	**Issued on Date**	13/02/2026
Assessment Reference	Unit C - BL	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	81 B	**DER**	23.09	**TER**	
Environmental	85 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.94	**DFEE**	50.28	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	126.76	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	13.90 m	43.60 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		38.92	31.62	0.00	None	7.30	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.15	None	0.00	75.00	43.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
E	Windows	EW	East	7.30	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%

Summary for Input Data

elmhurst energy

16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Unknown	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	

Summary for Input Data

26.0 Heat Networks	None
27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit C	Issued on Date	13/02/2026
Assessment Reference	Unit C - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	81 B	DER	23.09	TER	
Environmental	85 B	% DER < TER			N/A
CO_2 Emissions (t/year)	0.94	DFEE	50.28	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	126.76	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	43.6000	(1b)	x 2.8000	(2b) =	122.0800	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	43.6000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	122.0800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1638	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.4138	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3518	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4485	0.4397	0.4309	0.3869	0.3781	0.3342	0.3342	0.3254	0.3518	0.3781	0.3957	0.4133	(22b)
Effective ac	0.6006	0.5967	0.5928	0.5749	0.5715	0.5558	0.5558	0.5529	0.5619	0.5715	0.5783	0.5854	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.3000	1.1450	8.3588			(27)
GF			43.6000	0.1500	6.5400			(28a)
EW	38.9200	7.3000	31.6200	0.1800	5.6916			(29a)
Total net area of external elements Aum(A, m2)			82.5200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		20.5904			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	16.5040	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	37.0944	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	24.1948	24.0375	23.8832	23.1589	23.0234	22.3925	22.3925	22.2757	22.6355	23.0234	23.2975	23.5842	(38)
Heat transfer coeff	61.2892	61.1318	60.9776	60.2533	60.1178	59.4869	59.4869	59.3701	59.7299	60.1178	60.3919	60.6785	(39)
Average = Sum(39)m / 12 =												60.2526	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4057	1.4021	1.3986	1.3820	1.3788	1.3644	1.3644	1.3617	1.3700	1.3788	1.3851	1.3917	(40)
HLP (average)												1.3819	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.5050	(42)
Hot water usage for mixer showers													
	55.6343	54.7983	53.5799	51.2489	49.5286	47.6102	46.5198	47.7289	49.0543	51.1141	53.4952	55.4212	(42a)
Hot water usage for baths													
	21.3895	21.0719	20.6245	19.7997	19.1821	18.4973	18.1274	18.5716	19.0552	19.7880	20.6298	21.3172	(42b)
Hot water usage for other uses													
	30.0423	28.9499	27.8574	26.7650	25.6725	24.5801	24.5801	25.6725	26.7650	27.8574	28.9499	30.0423	(42c)
Average daily hot water use (litres/day)												98.4357	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	107.0662	104.8200	102.0619	97.8136	94.3833	90.6876	89.2272	91.9730	94.8745	98.7596	103.0749	106.7807	(44)
Energy conte	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(45)
Energy content (annual)										Total = Sum(45)m =		1635.0070	
Distribution loss (46)m = 0.15 x (45)m													
	25.4350	22.3893	23.5298	20.0853	19.0587	16.7266	16.1869	17.0823	17.5485	20.1024	22.0274	25.0789	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	48.2368	48.0967	44.7226	45.4692	46.8684	46.7874	50.3268	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(64)
										Total per year (kWh/year) = Sum(64)m =		2213.7342	(64)
12Total per year (kWh/year)												2214	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	69.1206	61.1366	64.8974	56.5816	54.2710	48.2581	47.2483	49.5828	50.5960	57.1419	61.1561	68.3313	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	68.1712	75.4753	68.1712	70.4436	68.1712	70.4436	68.1712	68.1712	70.4436	68.1712	70.4436	68.1712	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	130.6818	132.0379	128.6207	121.3457	112.1625	103.5315	97.7654	96.4094	99.8266	107.1015	116.2848	124.9158	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	(71)
Water heating gains (Table 5)													
	92.9041	90.9770	87.2277	78.5855	72.9448	67.0251	63.5057	66.6436	70.2722	76.8037	84.9390	91.8432	(72)
Total internal gains													
	340.3316	347.0647	332.5941	318.9493	301.8530	286.5746	275.0168	276.7986	286.1168	300.6509	320.2419	333.5047	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	7.3000	19.6403	0.6300	0.7000	0.7700	43.8169	(76)

Solar gains	43.8169	85.7152	141.1608	205.8746	252.3070	258.2811	245.8941	211.2194	164.1758	101.7083	54.6346	36.0329	(83)
Total gains	384.1485	432.7799	473.7548	524.8239	554.1600	544.8557	520.9110	488.0180	450.2926	402.3592	374.8765	369.5376	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, ni1,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.7247	22.7832	22.8408	23.1154	23.1675	23.4132	23.4132	23.4593	23.3179	23.1675	23.0623	22.9534	
alpha	2.5150	2.5189	2.5227	2.5410	2.5445	2.5609	2.5609	2.5640	2.5545	2.5445	2.5375	2.5302	
util living area													
	0.9451	0.9251	0.8918	0.8233	0.7210	0.5822	0.4555	0.4959	0.6862	0.8531	0.9241	0.9497	(86)
MIT	18.3796	18.6811	19.1644	19.8135	20.3621	20.7449	20.9018	20.8751	20.5864	19.8723	19.0319	18.3369	(87)
Th 2	19.7590	19.7617	19.7644	19.7772	19.7796	19.7907	19.7907	19.7928	19.7864	19.7796	19.7747	19.7697	(88)
util rest of house													
	0.9359	0.9127	0.8733	0.7920	0.6691	0.5006	0.3464	0.3866	0.6118	0.8200	0.9094	0.9412	(89)
MIT 2	16.7657	17.1445	17.7486	18.5482	19.1899	19.6051	19.7426	19.7269	19.4563	18.6408	17.6001	16.7181	(90)
Living area fraction									fLA = Living area / (4) =			0.6009	(91)
MIT	17.7355	18.0679	18.5994	19.3085	19.8943	20.2900	20.4391	20.4169	20.1354	19.3808	18.4605	17.6909	(92)
Temperature adjustment												-0.1500	
adjusted MIT	17.5855	17.9179	18.4494	19.1585	19.7443	20.1400	20.2891	20.2669	19.9854	19.2308	18.3105	17.5409	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9140	0.8886	0.8487	0.7735	0.6675	0.5257	0.3934	0.4318	0.6253	0.8021	0.8864	0.9203	(94)
Useful gains	351.1188	384.5611	402.0829	405.9623	369.8893	286.4232	204.9052	210.7076	281.5456	322.7221	332.2807	340.0718	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	814.2573	795.8055	728.6461	618.1083	483.6029	329.5585	219.4559	229.5762	351.5343	518.8662	677.0245	809.5039	(97)
Space heating kWh	344.5750	276.3562	242.9630	152.7451	84.6029	0.0000	0.0000	0.0000	0.0000	145.9312	248.2155	349.2574	(98a)
Space heating requirement - total per year (kWh/year)												1844.6465	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	344.5750	276.3562	242.9630	152.7451	84.6029	0.0000	0.0000	0.0000	0.0000	145.9312	248.2155	349.2574	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1844.6465	
Space heating per m2											(98c) / (4) =	42.3084	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												89.5000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	344.5750	276.3562	242.9630	152.7451	84.6029	0.0000	0.0000	0.0000	0.0000	145.9312	248.2155	349.2574	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	385.0000	308.7779	271.4671	170.6649	94.5284	0.0000	0.0000	0.0000	0.0000	163.0517	277.3357	390.2318	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(64)
Efficiency of water heater												81.0000	(216)
(217)m	85.9791	85.7731	85.3699	84.6676	83.5855	81.0000	81.0000	81.0000	81.0000	84.5479	85.5376	86.0291	(217)
Fuel for water heating, kWh/month	256.4876	227.6817	243.4398	215.1220	209.5515	192.8810	189.3603	198.4571	202.1941	218.0333	229.3309	253.5790	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	12.6636	10.1592	9.1472	6.7017	5.1766	4.2293	4.7222	6.1381	7.9728	10.4608	11.8154	13.0156	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)
Annual totals kWh/year													
Space heating fuel - main system 1												2061.0575	(211)
Space heating fuel - main system 2												0.0000	(213)
Space heating fuel - secondary												0.0000	(215)
Efficiency of water heater												81.0000	
Water heating fuel used												2636.1182	(219)
Space cooling fuel												0.0000	(221)
Electricity for pumps and fans:													
central heating pump												41.0000	(230c)
Total electricity for the above, kWh/year												41.0000	(231)
Electricity for lighting (calculated in Appendix L)												102.2025	(232)
Energy saving/generation technologies (Appendices M ,N and Q)													
PV generation												0.0000	(233)
Wind generation												0.0000	(234)
Hydro-electric generation (Appendix N)												0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)												0.0000	(235)
Appendix Q - special features													
Energy saved or generated												-0.0000	(236)
Energy used												0.0000	(237)
Total delivered energy for all uses												4840.3782	(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	2061.0575	0.2100	432.8221	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2636.1182	0.2100	553.5848	(264)
Space and water heating			986.4069	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	102.2025	0.1443	14.7510	(268)
Total CO2, kg/year			1006.8451	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			23.0900	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	2061.0575	1.1300	2328.9950	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2636.1182	1.1300	2978.8136	(278)
Space and water heating			5307.8085	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	102.2025	1.5338	156.7616	(282)
Total Primary energy kWh/year			5526.5949	(286)
Dwelling Primary energy Rate (DPER)			126.7600	(287)

Full SAP Calculation Printout

Plot Reference	Unit C	**Issued on Date**	13/02/2026
Assessment Reference	Unit C - BL	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	81 B	**DER**	23.09	**TER**	
Environmental	85 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.94	**DFEE**	50.28	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	126.76	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	43.6000	(1b)	x 2.8000	(2b) =	122.0800	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	43.6000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	122.0800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys		0 * 80 =	0.0000 (6a)
Number of open flues		0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire		0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler		0 * 20 =	0.0000 (6d)
Number of flues attached to other heater		0 * 35 =	0.0000 (6e)
Number of blocked chimneys		0 * 20 =	0.0000 (6f)
Number of intermittent extract fans		2 * 10 =	20.0000 (7a)
Number of passive vents		0 * 10 =	0.0000 (7b)
Number of flueless gas fires		0 * 40 =	0.0000 (7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =		20.0000 / (5) =	0.1638 (8)
Pressure test			Yes
Pressure Test Method			Blower Door
Measured/design AP50			5.0000 (17)
Infiltration rate			0.4138 (18)
Number of sides sheltered			2 (19)
Shelter factor		(20) = 1 - [0.075 x (19)] =	0.8500 (20)
Infiltration rate adjusted to include shelter factor		(21) = (18) x (20) =	0.3518 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4485	0.4397	0.4309	0.3869	0.3781	0.3342	0.3342	0.3254	0.3518	0.3781	0.3957	0.4133	(22b)

If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)	0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =	0.0000	(23c)

Effective ac	0.6006	0.5967	0.5928	0.5749	0.5715	0.5558	0.5558	0.5529	0.5619	0.5715	0.5783	0.5854	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.3000	1.1450	8.3588			(27)
GF			43.6000	0.1500	6.5400			(28a)
EW	38.9200	7.3000	31.6200	0.1800	5.6916			(29a)
Total net area of external elements Aum(A, m2)			82.5200					(31)
Fabric heat loss, W/K = Sum (A x U)				(26)...(30) + (32) =	20.5904			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	16.5040	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	37.0944	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	24.1948	24.0375	23.8832	23.1589	23.0234	22.3925	22.3925	22.2757	22.6355	23.0234	23.2975	23.5842	(38)
Heat transfer coeff	61.2892	61.1318	60.9776	60.2533	60.1178	59.4869	59.4869	59.3701	59.7299	60.1178	60.3919	60.6785	(39)

Average = Sum(39)m / 12 = 60.2526

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4057	1.4021	1.3986	1.3820	1.3788	1.3644	1.3644	1.3617	1.3700	1.3788	1.3851	1.3917	(40)
HLP (average)												1.3819	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.5050 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

21.3895	21.0719	20.6245	19.7997	19.1821	18.4973	18.1274	18.5716	19.0552	19.7880	20.6298	21.3172	(42b)

Hot water usage for other uses

30.0423	28.9499	27.8574	26.7650	25.6725	24.5801	24.5801	25.6725	26.7650	27.8574	28.9499	30.0423	(42c)

Average daily hot water use (litres/day) 47.1427 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	51.4319	50.0218	48.4820	46.5647	44.8546	43.0774	42.7075	44.2441	45.8202	47.6455	49.5797	51.3596	(44)
Energy conte	81.4555	71.2303	74.5150	63.7448	60.3830	52.9686	51.6510	54.7835	56.5009	64.6544	70.6354	80.4166	(45)
Energy content (annual)										Total = Sum(45)m =		782.9390	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	69.2372	60.5458	63.3377	54.1830	51.3255	45.0234	43.9033	46.5659	48.0258	54.9563	60.0401	68.3542	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	69.2372	60.5458	63.3377	54.1830	51.3255	45.0234	43.9033	46.5659	48.0258	54.9563	60.0401	68.3542	(64)
										Total per year (kWh/year) = Sum(64)m =		665.4981	(64)
12Total per year (kWh/year)												665	(64)
Electric shower(s)													
	39.6034	35.2870	38.5320	36.7706	37.4606	35.7338	36.9249	37.4606	36.7706	38.5320	37.8075	39.6034	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		450.4863	(64a)
Heat gains from water heating, kWh/month													
	27.2101	23.9582	25.4674	22.7384	22.1965	20.1893	20.2071	21.0066	21.1991	23.3721	24.4619	26.9894	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	68.1712	75.4753	68.1712	70.4436	68.1712	70.4436	68.1712	68.1712	70.4436	68.1712	70.4436	68.1712	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	130.6818	132.0379	128.6207	121.3457	112.1625	103.5315	97.7654	96.4094	99.8266	107.1015	116.2848	124.9158	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	(71)
Water heating gains (Table 5)													
	36.5728	35.6521	34.2304	31.5811	29.8341	28.0407	27.1600	28.2347	29.4432	31.4141	33.9748	36.2761	(72)
Total internal gains													
	281.0003	288.7397	276.5967	268.9449	255.7422	247.5902	238.6711	238.3898	245.2879	252.2613	266.2777	274.9375	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	7.3000	19.6403	0.6300	0.7000	0.7700	43.8169	(76)

Solar gains	43.8169	85.7152	141.1608	205.8746	252.3070	258.2811	245.8941	211.2194	164.1758	101.7083	54.6346	36.0329	(83)
Total gains	324.8172	374.4549	417.7575	474.8195	508.0492	505.8713	484.5653	449.6092	409.4637	353.9696	320.9123	310.9705	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.7247	22.7832	22.8408	23.1154	23.1675	23.4132	23.4132	23.4593	23.3179	23.1675	23.0623	22.9534	
alpha	2.5150	2.5189	2.5227	2.5410	2.5445	2.5609	2.5609	2.5640	2.5545	2.5445	2.5375	2.5302	
util living area													
	0.9612	0.9438	0.9143	0.8498	0.7513	0.6113	0.4824	0.5275	0.7210	0.8823	0.9443	0.9650	(86)
MIT	18.1779	18.4946	19.0032	19.6992	20.2906	20.7130	20.8876	20.8555	20.5312	19.7486	18.8588	18.1343	(87)
Th 2	19.7590	19.7617	19.7644	19.7772	19.7796	19.7907	19.7907	19.7928	19.7864	19.7796	19.7747	19.7697	(88)
util rest of house													
	0.9544	0.9340	0.8988	0.8215	0.7016	0.5292	0.3693	0.4145	0.6488	0.8539	0.9329	0.9589	(89)
MIT 2	17.2298	17.5424	18.0415	18.7171	19.2625	19.6258	19.7471	19.7323	19.4897	18.7814	17.9143	17.1938	(90)
Living area fraction										fLA = Living area / (4) =		0.6009	(91)
MIT	17.7995	18.1146	18.6194	19.3073	19.8803	20.2791	20.4325	20.4073	20.1156	19.3626	18.4819	17.7589	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.7995	18.1146	18.6194	19.3073	19.8803	20.2791	20.4325	20.4073	20.1156	19.3626	18.4819	17.7589	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9399	0.9171	0.8809	0.8088	0.7061	0.5644	0.4317	0.4748	0.6703	0.8421	0.9172	0.9452	(94)
Useful gains	305.2995	343.4181	368.0192	384.0541	358.7319	285.4966	209.1928	213.4770	274.4661	298.0933	294.3547	293.9240	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	827.3741	807.8312	739.0128	627.0743	491.7822	337.8332	227.9817	237.9120	359.3097	526.7882	687.3741	822.7372	(97)
Space heating kWh													
	388.4235	312.0855	276.0192	174.9745	98.9894	0.0000	0.0000	0.0000	0.0000	170.1490	282.9740	393.4370	(98a)
Space heating requirement - total per year (kWh/year)												2097.0521	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	388.4235	312.0855	276.0192	174.9745	98.9894	0.0000	0.0000	0.0000	0.0000	170.1490	282.9740	393.4370	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2097.0521	
Space heating per m2											(98c) / (4) =	48.0975	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	559.1768	440.2030	451.2125	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7235	0.7896	0.7573	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	404.5924	347.5971	341.7070	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	566.0510	542.5665	503.0208	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	116.2502	145.0572	120.0174	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	29.0626	36.2643	30.0044	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												95.3312	(107)
Energy for space heating												48.0975	(99)
Energy for space cooling												2.1865	(108)
Total												50.2840	(109)
Fabric Energy Efficiency (DFEE)												50.3	(109)

Full SAP Calculation Printout

Plot Reference	Unit C	Issued on Date	13/02/2026
Assessment Reference	Unit C - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	81 B	DER	23.09	TER	
Environmental	85 B	% DER < TER			N/A
CO_2 Emissions (t/year)	0.94	DFEE	50.28	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	126.76	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	43.6000	(1b)	x 2.8000	(2b) =	122.0800	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	43.6000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	122.0800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1638	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.4138	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3518	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4485	0.4397	0.4309	0.3869	0.3781	0.3342	0.3342	0.3254	0.3518	0.3781	0.3957	0.4133	(22b)
Effective ac	0.6006	0.5967	0.5928	0.5749	0.5715	0.5558	0.5558	0.5529	0.5619	0.5715	0.5783	0.5854	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.3000	1.1450	8.3588			(27)
GF			43.6000	0.1500	6.5400			(28a)
EW	38.9200	7.3000	31.6200	0.1800	5.6916			(29a)
Total net area of external elements Aum(A, m2)			82.5200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		20.5904			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	16.5040	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	37.0944	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	24.1948	24.0375	23.8832	23.1589	23.0234	22.3925	22.3925	22.2757	22.6355	23.0234	23.2975	23.5842	(38)
Heat transfer coeff	61.2892	61.1318	60.9776	60.2533	60.1178	59.4869	59.4869	59.3701	59.7299	60.1178	60.3919	60.6785	(39)
Average = Sum(39)m / 12 =												60.2526	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4057	1.4021	1.3986	1.3820	1.3788	1.3644	1.3644	1.3617	1.3700	1.3788	1.3851	1.3917	(40)
HLP (average)												1.3819	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.5050	(42)
Hot water usage for mixer showers													
	55.6343	54.7983	53.5799	51.2489	49.5286	47.6102	46.5198	47.7289	49.0543	51.1141	53.4952	55.4212	(42a)
Hot water usage for baths													
	21.3895	21.0719	20.6245	19.7997	19.1821	18.4973	18.1274	18.5716	19.0552	19.7880	20.6298	21.3172	(42b)
Hot water usage for other uses													
	30.0423	28.9499	27.8574	26.7650	25.6725	24.5801	24.5801	25.6725	26.7650	27.8574	28.9499	30.0423	(42c)
Average daily hot water use (litres/day)												98.4357	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	107.0662	104.8200	102.0619	97.8136	94.3833	90.6876	89.2272	91.9730	94.8745	98.7596	103.0749	106.7807	(44)
Energy conte	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(45)
Energy content (annual)										Total = Sum(45)m =		1635.0070	
Distribution loss (46)m = 0.15 x (45)m													
	25.4350	22.3893	23.5298	20.0853	19.0587	16.7266	16.1869	17.0823	17.5485	20.1024	22.0274	25.0789	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	48.2368	48.0967	44.7226	45.4692	46.8684	46.7874	50.3268	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(64)
										Total per year (kWh/year) = Sum(64)m =		2213.7342	(64)
12Total per year (kWh/year)												2214	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	69.1206	61.1366	64.8974	56.5816	54.2710	48.2581	47.2483	49.5828	50.5960	57.1419	61.1561	68.3313	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	68.1712	75.4753	68.1712	70.4436	68.1712	70.4436	68.1712	68.1712	70.4436	68.1712	70.4436	68.1712	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	130.6818	132.0379	128.6207	121.3457	112.1625	103.5315	97.7654	96.4094	99.8266	107.1015	116.2848	124.9158	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	(71)
Water heating gains (Table 5)													
	92.9041	90.9770	87.2277	78.5855	72.9448	67.0251	63.5057	66.6436	70.2722	76.8037	84.9390	91.8432	(72)
Total internal gains													
	340.3316	347.0647	332.5941	318.9493	301.8530	286.5746	275.0168	276.7986	286.1168	300.6509	320.2419	333.5047	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	7.3000	19.6403	0.6300	0.7000	0.7700	43.8169	(76)

Solar gains	43.8169	85.7152	141.1608	205.8746	252.3070	258.2811	245.8941	211.2194	164.1758	101.7083	54.6346	36.0329	(83)
Total gains	384.1485	432.7799	473.7548	524.8239	554.1600	544.8557	520.9110	488.0180	450.2926	402.3592	374.8765	369.5376	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, ni1,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.7247	22.7832	22.8408	23.1154	23.1675	23.4132	23.4132	23.4593	23.3179	23.1675	23.0623	22.9534	
alpha	2.5150	2.5189	2.5227	2.5410	2.5445	2.5609	2.5609	2.5640	2.5545	2.5445	2.5375	2.5302	
util living area													
	0.9451	0.9251	0.8918	0.8233	0.7210	0.5822	0.4555	0.4959	0.6862	0.8531	0.9241	0.9497	(86)
MIT	18.3796	18.6811	19.1644	19.8135	20.3621	20.7449	20.9018	20.8751	20.5864	19.8723	19.0319	18.3369	(87)
Th 2	19.7590	19.7617	19.7644	19.7772	19.7796	19.7907	19.7907	19.7928	19.7864	19.7796	19.7747	19.7697	(88)
util rest of house													
	0.9359	0.9127	0.8733	0.7920	0.6691	0.5006	0.3464	0.3866	0.6118	0.8200	0.9094	0.9412	(89)
MIT 2	16.7657	17.1445	17.7486	18.5482	19.1899	19.6051	19.7426	19.7269	19.4563	18.6408	17.6001	16.7181	(90)
Living area fraction									fLA = Living area / (4) =			0.6009	(91)
MIT	17.7355	18.0679	18.5994	19.3085	19.8943	20.2900	20.4391	20.4169	20.1354	19.3808	18.4605	17.6909	(92)
Temperature adjustment												-0.1500	
adjusted MIT	17.5855	17.9179	18.4494	19.1585	19.7443	20.1400	20.2891	20.2669	19.9854	19.2308	18.3105	17.5409	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9140	0.8886	0.8487	0.7735	0.6675	0.5257	0.3934	0.4318	0.6253	0.8021	0.8864	0.9203	(94)
Useful gains	351.1188	384.5611	402.0829	405.9623	369.8893	286.4232	204.9052	210.7076	281.5456	322.7221	332.2807	340.0718	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	814.2573	795.8055	728.6461	618.1083	483.6029	329.5585	219.4559	229.5762	351.5343	518.8662	677.0245	809.5039	(97)
Space heating kWh	344.5750	276.3562	242.9630	152.7451	84.6029	0.0000	0.0000	0.0000	0.0000	145.9312	248.2155	349.2574	(98a)
Space heating requirement - total per year (kWh/year)												1844.6465	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	344.5750	276.3562	242.9630	152.7451	84.6029	0.0000	0.0000	0.0000	0.0000	145.9312	248.2155	349.2574	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1844.6465	
Space heating per m2											(98c) / (4) =	42.3084	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												89.5000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	344.5750	276.3562	242.9630	152.7451	84.6029	0.0000	0.0000	0.0000	0.0000	145.9312	248.2155	349.2574	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	385.0000	308.7779	271.4671	170.6649	94.5284	0.0000	0.0000	0.0000	0.0000	163.0517	277.3357	390.2318	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	220.5256	195.2897	207.8242	182.1387	175.1547	156.2336	153.3818	160.7502	163.7772	184.3426	196.1642	218.1517	(64)
Efficiency of water heater												81.0000	(216)
(217)m	85.9791	85.7731	85.3699	84.6676	83.5855	81.0000	81.0000	81.0000	81.0000	84.5479	85.5376	86.0291	(217)
Fuel for water heating, kWh/month	256.4876	227.6817	243.4398	215.1220	209.5515	192.8810	189.3603	198.4571	202.1941	218.0333	229.3309	253.5790	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	12.6636	10.1592	9.1472	6.7017	5.1766	4.2293	4.7222	6.1381	7.9728	10.4608	11.8154	13.0156	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)
Annual totals kWh/year													
Space heating fuel - main system 1												2061.0575	(211)
Space heating fuel - main system 2												0.0000	(213)
Space heating fuel - secondary												0.0000	(215)
Efficiency of water heater												81.0000	
Water heating fuel used												2636.1182	(219)
Space cooling fuel												0.0000	(221)
Electricity for pumps and fans:													
central heating pump												41.0000	(230c)
Total electricity for the above, kWh/year												41.0000	(231)
Electricity for lighting (calculated in Appendix L)												102.2025	(232)
Energy saving/generation technologies (Appendices M ,N and Q)													
PV generation												0.0000	(233)
Wind generation												0.0000	(234)
Hydro-electric generation (Appendix N)												0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)												0.0000	(235)
Appendix Q - special features													
Energy saved or generated												-0.0000	(236)
Energy used												0.0000	(237)
Total delivered energy for all uses												4840.3782	(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	2061.0575	0.2100	432.8221	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2636.1182	0.2100	553.5848	(264)
Space and water heating			986.4069	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	102.2025	0.1443	14.7510	(268)
Total CO2, kg/year			1006.8451	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			23.0900	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	2061.0575	1.1300	2328.9950	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2636.1182	1.1300	2978.8136	(278)
Space and water heating			5307.8085	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	102.2025	1.5338	156.7616	(282)
Total Primary energy kWh/year			5526.5949	(286)
Dwelling Primary energy Rate (DPER)			126.7600	(287)

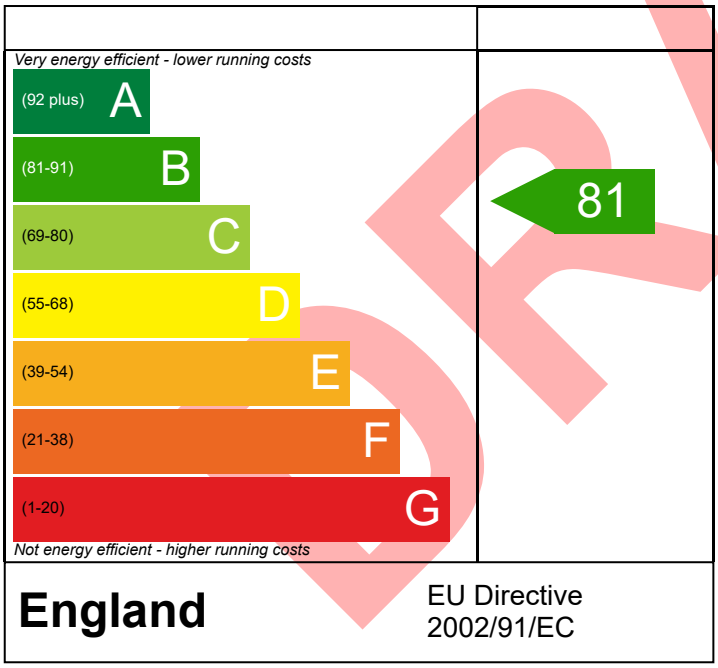
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	43.6 m²
DRRN:	

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

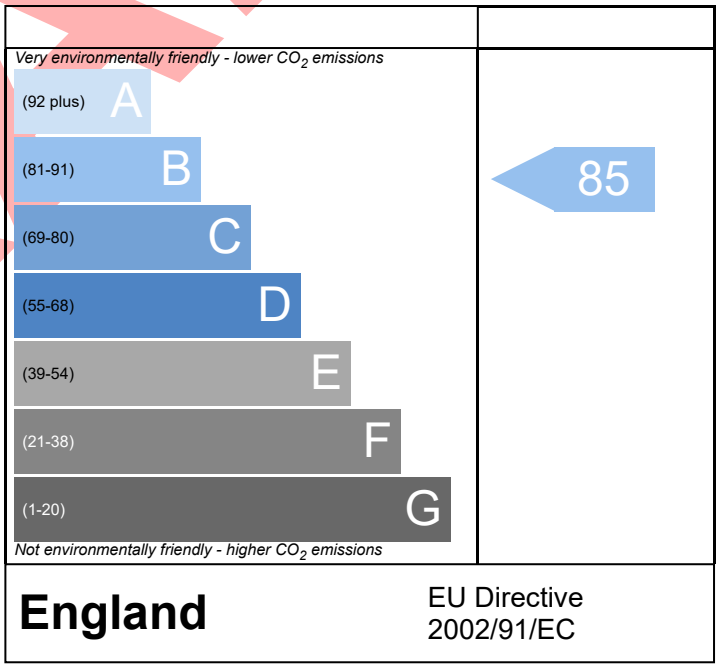
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

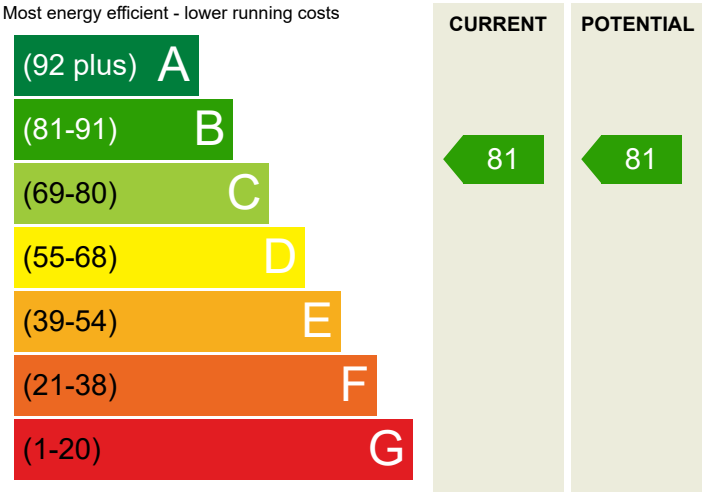
Energy Report

Dwelling Address	
Reference	Unit C-Unit C - BL
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	44

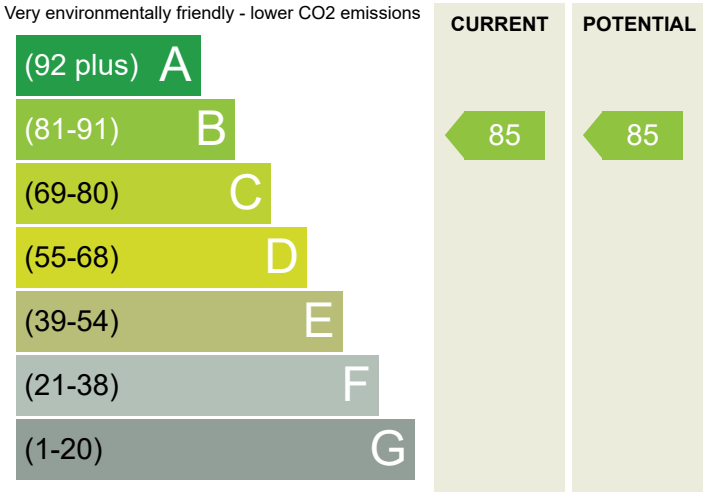
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

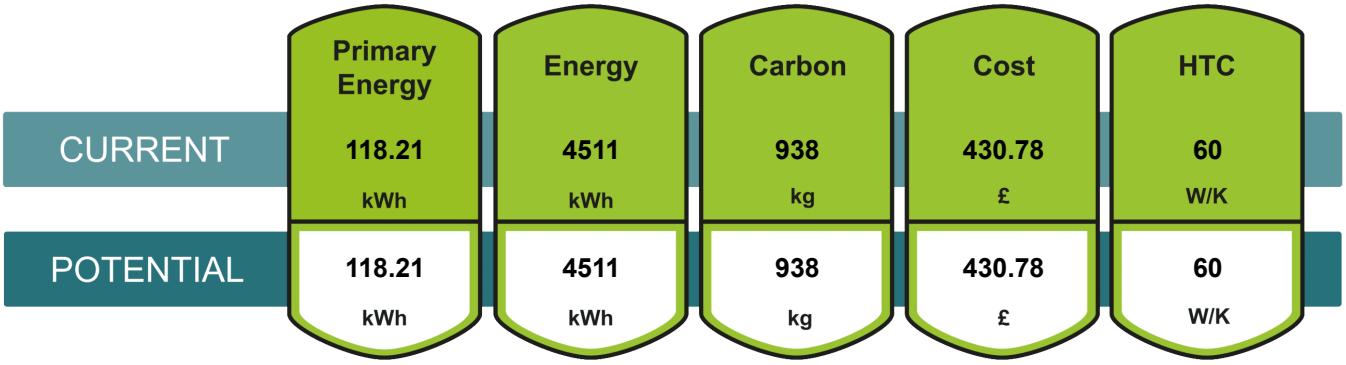


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Floor	Average thermal transmittance 0.15 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£29	£29	
Heating	£228	£228	
Hot Water	£173	£173	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£431	£431	

Estimated energy use and potential savings

Space Heating
1722
kWh per year

Water Heating
2645
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit C	**Issued on Date**	13/02/2026
Assessment Reference	Unit C - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	86 B	**DER**	4.19	**TER**	
Environmental	97 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.15	**DFEE**	50.28	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	48.19	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	13.90 m	43.60 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		38.92	31.62	0.00	None	7.30	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.15	None	0.00	75.00	43.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
E	Windows	EW	East	7.30	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%

Summary for Input Data

elmhurst energy

16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	SAP table	
Percentage of Heat	100.00	%
Fuel Type	Electricity	
SAP Code	214	
In Winter	249.90	
In Summer	175.10	
Controls SAP Code	2207	
Controls description	Time and temperature zone control by arrangement	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	35.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	

Summary for Input Data

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	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

32.0 Photovoltaic Unit One Dwelling

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.75	South	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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit C	Issued on Date	13/02/2026
Assessment Reference	Unit C - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	86 B	DER	4.19	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.15	DFEE	50.28	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	48.19	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

		Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling							
Ground floor		43.6000	(1b)	x 2.8000	(2b) =	122.0800	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	43.6000						(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	122.0800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1638	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.4138	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3518	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4485	0.4397	0.4309	0.3869	0.3781	0.3342	0.3342	0.3254	0.3518	0.3781	0.3957	0.4133	(22b)
Effective ac	0.6006	0.5967	0.5928	0.5749	0.5715	0.5558	0.5558	0.5529	0.5619	0.5715	0.5783	0.5854	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.3000	1.1450	8.3588			(27)
GF			43.6000	0.1500	6.5400			(28a)
EW	38.9200	7.3000	31.6200	0.1800	5.6916			(29a)
Total net area of external elements Aum(A, m2)			82.5200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		20.5904			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							16.5040	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		37.0944	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	24.1948	24.0375	23.8832	23.1589	23.0234	22.3925	22.3925	22.2757	22.6355	23.0234	23.2975	23.5842	(38)
Heat transfer coeff	61.2892	61.1318	60.9776	60.2533	60.1178	59.4869	59.4869	59.3701	59.7299	60.1178	60.3919	60.6785	(39)
Average = Sum(39)m / 12 =												60.2526	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4057	1.4021	1.3986	1.3820	1.3788	1.3644	1.3644	1.3617	1.3700	1.3788	1.3851	1.3917	(40)
HLP (average)												1.3819	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.5050	(42)
Hot water usage for mixer showers													
	55.6343	54.7983	53.5799	51.2489	49.5286	47.6102	46.5198	47.7289	49.0543	51.1141	53.4952	55.4212	(42a)
Hot water usage for baths													
	21.3895	21.0719	20.6245	19.7997	19.1821	18.4973	18.1274	18.5716	19.0552	19.7880	20.6298	21.3172	(42b)
Hot water usage for other uses													
	30.0423	28.9499	27.8574	26.7650	25.6725	24.5801	24.5801	25.6725	26.7650	27.8574	28.9499	30.0423	(42c)
Average daily hot water use (litres/day)												98.4357	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	107.0662	104.8200	102.0619	97.8136	94.3833	90.6876	89.2272	91.9730	94.8745	98.7596	103.0749	106.7807	(44)
Energy conte	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(45)
Energy content (annual)										Total = Sum(45)m =		1635.0070	
Distribution loss (46)m = 0.15 x (45)m													
	25.4350	22.3893	23.5298	20.0853	19.0587	16.7266	16.1869	17.0823	17.5485	20.1024	22.0274	25.0789	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(64)
										Total per year (kWh/year) = Sum(64)m =		1635.0070	(64)
12Total per year (kWh/year)												1635	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	56.3809	49.6297	52.1577	44.5224	42.2468	37.0774	35.8809	37.8657	38.8991	44.5602	48.8273	55.5916	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	68.1712	75.4753	68.1712	70.4436	68.1712	70.4436	68.1712	68.1712	70.4436	68.1712	70.4436	68.1712	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	130.6818	132.0379	128.6207	121.3457	112.1625	103.5315	97.7654	96.4094	99.8266	107.1015	116.2848	124.9158	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	(71)
Water heating gains (Table 5)													
	75.7808	73.8537	70.1045	61.8366	56.7833	51.4964	48.2271	50.8948	54.0265	59.8928	67.8157	74.7199	(72)
Total internal gains													
	323.2083	329.9414	315.4708	302.2004	285.6915	271.0459	259.7382	261.0498	269.8712	283.7400	303.1186	316.3814	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	7.3000	19.6403	0.6300	0.7000	0.7700	43.8169	(76)

Solar gains	43.8169	85.7152	141.1608	205.8746	252.3070	258.2811	245.8941	211.2194	164.1758	101.7083	54.6346	36.0329	(83)
Total gains	367.0253	415.6566	456.6316	508.0750	537.9984	529.3270	505.6323	472.2692	434.0470	385.4484	357.7532	352.4143	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.7247	22.7832	22.8408	23.1154	23.1675	23.4132	23.4132	23.4593	23.3179	23.1675	23.0623	22.9534	
alpha	2.5150	2.5189	2.5227	2.5410	2.5445	2.5609	2.5609	2.5640	2.5545	2.5445	2.5375	2.5302	
util living area													
	0.9500	0.9308	0.8988	0.8322	0.7315	0.5935	0.4665	0.5085	0.6998	0.8634	0.9307	0.9544	(86)
MIT	18.3225	18.6275	19.1164	19.7764	20.3380	20.7327	20.8961	20.8675	20.5654	19.8305	18.9783	18.2787	(87)
Th 2	19.7590	19.7617	19.7644	19.7772	19.7796	19.7907	19.7907	19.7928	19.7864	19.7796	19.7747	19.7697	(88)
util rest of house													
	0.9415	0.9192	0.8812	0.8019	0.6803	0.5117	0.3557	0.3976	0.6262	0.8319	0.9171	0.9466	(89)
MIT 2	16.6945	17.0785	17.6908	18.5058	19.1652	19.5953	19.7395	19.7224	19.4373	18.5931	17.5345	16.6454	(90)
Living area fraction									fLA = Living area / (4) =			0.6009	(91)
MIT	17.6728	18.0094	18.5475	19.2694	19.8700	20.2788	20.4345	20.4105	20.1152	19.3367	18.4021	17.6269	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.6728	18.0094	18.5475	19.2694	19.8700	20.2788	20.4345	20.4105	20.1152	19.3367	18.4021	17.6269	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9222	0.8977	0.8597	0.7872	0.6845	0.5466	0.4169	0.4569	0.6480	0.8182	0.8972	0.9282	(94)
Useful gains	338.4580	373.1545	392.5600	399.9775	368.2449	289.3204	210.7821	215.7640	281.2483	315.3643	320.9601	327.1082	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	819.6071	801.3986	734.6277	624.7876	491.1605	337.8145	228.1041	238.1049	359.2868	525.2309	682.5544	814.7255	(97)
Space heating kWh	357.9749	287.7800	254.4984	161.8632	91.4492	0.0000	0.0000	0.0000	0.0000	156.1407	260.3479	362.7873	(98a)
Space heating requirement - total per year (kWh/year)												1932.8417	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	357.9749	287.7800	254.4984	161.8632	91.4492	0.0000	0.0000	0.0000	0.0000	156.1407	260.3479	362.7873	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1932.8417	
Space heating per m2											(98c) / (4) =	44.3312	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	249.9000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	357.9749	287.7800	254.4984	161.8632	91.4492	0.0000	0.0000	0.0000	0.0000	156.1407	260.3479	362.7873	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	143.2473	115.1581	101.8401	64.7712	36.5943	0.0000	0.0000	0.0000	0.0000	62.4813	104.1808	145.1730	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	96.8399	85.2440	89.5861	76.4717	72.5631	63.6842	61.6291	65.0381	66.8131	76.5367	83.8659	95.4842	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	12.6636	10.1592	9.1472	6.7017	5.1766	4.2293	4.7222	6.1381	7.9728	10.4608	11.8154	13.0156	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.1991	-23.3029	-36.2123	-43.4075	-48.5678	-43.9579	-43.2820	-39.8019	-33.7386	-27.4609	-17.2587	-12.9383	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-3.5834	-8.0396	-17.1676	-28.1320	-39.8133	-42.9347	-42.4623	-35.1134	-24.9351	-12.6063	-5.0200	-2.7794	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	773.4461	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	175.1000	
Water heating fuel used	933.7562	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
Total electricity for the above, kWh/year	0.0000	(231)
Electricity for lighting (calculated in Appendix L)	102.2025	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	-647.7148	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	1161.6899	(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	773.4461	0.1543	119.3408	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	933.7562	0.1416	132.1995	(264)
Space and water heating			251.5403	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)
Energy for lighting	102.2025	0.1443	14.7510	(268)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-385.1278	0.1336	-51.4675	

PV Unit electricity exported	-262.5870	0.1229	-32.2759	
Total			-83.7434	(269)
Total CO2, kg/year			182.5479	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			4.1900	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	773.4461	1.5712	1215.2730	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	933.7562	1.5235	1422.6132	(278)
Space and water heating			2637.8862	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	102.2025	1.5338	156.7616	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-385.1278	1.4939	-575.3266	
PV Unit electricity exported	-262.5870	0.4510	-118.4214	
Total			-693.7480	(283)
Total Primary energy kWh/year			2100.8998	(286)
Dwelling Primary energy Rate (DPER)			48.1900	(287)

Full SAP Calculation Printout

Plot Reference	Unit C	**Issued on Date**	13/02/2026
Assessment Reference	Unit C - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	86 B	**DER**	4.19	**TER**	
Environmental	97 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.15	**DFEE**	50.28	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	48.19	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	43.6000	(1b)	x 2.8000	(2b) =	122.0800	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	43.6000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	122.0800	(5)

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2. Ventilation rate

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	m3 per hour		
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1638	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.4138	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3518	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4485	0.4397	0.4309	0.3869	0.3781	0.3342	0.3342	0.3254	0.3518	0.3781	0.3957	0.4133	(22b)

If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)	0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =	0.0000	(23c)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Effective ac	0.6006	0.5967	0.5928	0.5749	0.5715	0.5558	0.5558	0.5529	0.5619	0.5715	0.5783	0.5854	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.3000	1.1450	8.3588			(27)
GF			43.6000	0.1500	6.5400			(28a)
EW	38.9200	7.3000	31.6200	0.1800	5.6916			(29a)
Total net area of external elements Aum(A, m2)			82.5200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		20.5904			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	16.5040	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	37.0944	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	24.1948	24.0375	23.8832	23.1589	23.0234	22.3925	22.3925	22.2757	22.6355	23.0234	23.2975	23.5842	(38)
Heat transfer coeff	61.2892	61.1318	60.9776	60.2533	60.1178	59.4869	59.4869	59.3701	59.7299	60.1178	60.3919	60.6785	(39)

Average = Sum(39)m / 12 = 60.2526

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4057	1.4021	1.3986	1.3820	1.3788	1.3644	1.3644	1.3617	1.3700	1.3788	1.3851	1.3917	(40)
HLP (average)												1.3819	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.5050 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

21.3895	21.0719	20.6245	19.7997	19.1821	18.4973	18.1274	18.5716	19.0552	19.7880	20.6298	21.3172	(42b)

Hot water usage for other uses

30.0423	28.9499	27.8574	26.7650	25.6725	24.5801	24.5801	25.6725	26.7650	27.8574	28.9499	30.0423	(42c)

Average daily hot water use (litres/day) 47.1427 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	51.4319	50.0218	48.4820	46.5647	44.8546	43.0774	42.7075	44.2441	45.8202	47.6455	49.5797	51.3596	(44)
Energy conte	81.4555	71.2303	74.5150	63.7448	60.3830	52.9686	51.6510	54.7835	56.5009	64.6544	70.6354	80.4166	(45)
Energy content (annual)										Total = Sum(45)m =		782.9390	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	69.2372	60.5458	63.3377	54.1830	51.3255	45.0234	43.9033	46.5659	48.0258	54.9563	60.0401	68.3542	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	69.2372	60.5458	63.3377	54.1830	51.3255	45.0234	43.9033	46.5659	48.0258	54.9563	60.0401	68.3542	(64)
										Total per year (kWh/year) = Sum(64)m =		665.4981	(64)
12Total per year (kWh/year)												665	(64)
Electric shower(s)													
	39.6034	35.2870	38.5320	36.7706	37.4606	35.7338	36.9249	37.4606	36.7706	38.5320	37.8075	39.6034	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		450.4863	(64a)
Heat gains from water heating, kWh/month													
	27.2101	23.9582	25.4674	22.7384	22.1965	20.1893	20.2071	21.0066	21.1991	23.3721	24.4619	26.9894	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	68.1712	75.4753	68.1712	70.4436	68.1712	70.4436	68.1712	68.1712	70.4436	68.1712	70.4436	68.1712	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	130.6818	132.0379	128.6207	121.3457	112.1625	103.5315	97.7654	96.4094	99.8266	107.1015	116.2848	124.9158	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	(71)
Water heating gains (Table 5)													
	36.5728	35.6521	34.2304	31.5811	29.8341	28.0407	27.1600	28.2347	29.4432	31.4141	33.9748	36.2761	(72)
Total internal gains													
	281.0003	288.7397	276.5967	268.9449	255.7422	247.5902	238.6711	238.3898	245.2879	252.2613	266.2777	274.9375	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	7.3000	19.6403	0.6300	0.7000	0.7700	43.8169	(76)

Solar gains	43.8169	85.7152	141.1608	205.8746	252.3070	258.2811	245.8941	211.2194	164.1758	101.7083	54.6346	36.0329	(83)
Total gains	324.8172	374.4549	417.7575	474.8195	508.0492	505.8713	484.5653	449.6092	409.4637	353.9696	320.9123	310.9705	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.7247	22.7832	22.8408	23.1154	23.1675	23.4132	23.4132	23.4593	23.3179	23.1675	23.0623	22.9534	
alpha	2.5150	2.5189	2.5227	2.5410	2.5445	2.5609	2.5609	2.5640	2.5545	2.5445	2.5375	2.5302	
util living area													
	0.9612	0.9438	0.9143	0.8498	0.7513	0.6113	0.4824	0.5275	0.7210	0.8823	0.9443	0.9650	(86)
MIT	18.1779	18.4946	19.0032	19.6992	20.2906	20.7130	20.8876	20.8555	20.5312	19.7486	18.8588	18.1343	(87)
Th 2	19.7590	19.7617	19.7644	19.7772	19.7796	19.7907	19.7907	19.7928	19.7864	19.7796	19.7747	19.7697	(88)
util rest of house													
	0.9544	0.9340	0.8988	0.8215	0.7016	0.5292	0.3693	0.4145	0.6488	0.8539	0.9329	0.9589	(89)
MIT 2	17.2298	17.5424	18.0415	18.7171	19.2625	19.6258	19.7471	19.7323	19.4897	18.7814	17.9143	17.1938	(90)
Living area fraction										fLA = Living area / (4) =		0.6009	(91)
MIT	17.7995	18.1146	18.6194	19.3073	19.8803	20.2791	20.4325	20.4073	20.1156	19.3626	18.4819	17.7589	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.7995	18.1146	18.6194	19.3073	19.8803	20.2791	20.4325	20.4073	20.1156	19.3626	18.4819	17.7589	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9399	0.9171	0.8809	0.8088	0.7061	0.5644	0.4317	0.4748	0.6703	0.8421	0.9172	0.9452	(94)
Useful gains	305.2995	343.4181	368.0192	384.0541	358.7319	285.4966	209.1928	213.4770	274.4661	298.0933	294.3547	293.9240	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	827.3741	807.8312	739.0128	627.0743	491.7822	337.8332	227.9817	237.9120	359.3097	526.7882	687.3741	822.7372	(97)
Space heating kWh													
	388.4235	312.0855	276.0192	174.9745	98.9894	0.0000	0.0000	0.0000	0.0000	170.1490	282.9740	393.4370	(98a)
Space heating requirement - total per year (kWh/year)												2097.0521	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	388.4235	312.0855	276.0192	174.9745	98.9894	0.0000	0.0000	0.0000	0.0000	170.1490	282.9740	393.4370	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2097.0521	
Space heating per m2											(98c) / (4) =	48.0975	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	559.1768	440.2030	451.2125	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7235	0.7896	0.7573	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	404.5924	347.5971	341.7070	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	566.0510	542.5665	503.0208	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	116.2502	145.0572	120.0174	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	29.0626	36.2643	30.0044	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												95.3312	(107)
Energy for space heating												48.0975	(99)
Energy for space cooling												2.1865	(108)
Total												50.2840	(109)
Fabric Energy Efficiency (DFEE)												50.3	(109)

Full SAP Calculation Printout

Plot Reference	Unit C	Issued on Date	13/02/2026
Assessment Reference	Unit C - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	86 B	DER	4.19	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.15	DFEE	50.28	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	48.19	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

---

1. Overall dwelling characteristics

		Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling							
Ground floor		43.6000	(1b)	x 2.8000	(2b) =	122.0800	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	43.6000						(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	122.0800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1638	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.4138	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3518	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4485	0.4397	0.4309	0.3869	0.3781	0.3342	0.3342	0.3254	0.3518	0.3781	0.3957	0.4133	(22b)
Effective ac	0.6006	0.5967	0.5928	0.5749	0.5715	0.5558	0.5558	0.5529	0.5619	0.5715	0.5783	0.5854	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.3000	1.1450	8.3588			(27)
GF			43.6000	0.1500	6.5400			(28a)
EW	38.9200	7.3000	31.6200	0.1800	5.6916			(29a)
Total net area of external elements Aum(A, m2)			82.5200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		20.5904			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							16.5040	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		37.0944	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	24.1948	24.0375	23.8832	23.1589	23.0234	22.3925	22.3925	22.2757	22.6355	23.0234	23.2975	23.5842	(38)
Heat transfer coeff	61.2892	61.1318	60.9776	60.2533	60.1178	59.4869	59.4869	59.3701	59.7299	60.1178	60.3919	60.6785	(39)
Average = Sum(39)m / 12 =												60.2526	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4057	1.4021	1.3986	1.3820	1.3788	1.3644	1.3644	1.3617	1.3700	1.3788	1.3851	1.3917	(40)
HLP (average)												1.3819	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.5050	(42)
Hot water usage for mixer showers													
	55.6343	54.7983	53.5799	51.2489	49.5286	47.6102	46.5198	47.7289	49.0543	51.1141	53.4952	55.4212	(42a)
Hot water usage for baths													
	21.3895	21.0719	20.6245	19.7997	19.1821	18.4973	18.1274	18.5716	19.0552	19.7880	20.6298	21.3172	(42b)
Hot water usage for other uses													
	30.0423	28.9499	27.8574	26.7650	25.6725	24.5801	24.5801	25.6725	26.7650	27.8574	28.9499	30.0423	(42c)
Average daily hot water use (litres/day)												98.4357	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	107.0662	104.8200	102.0619	97.8136	94.3833	90.6876	89.2272	91.9730	94.8745	98.7596	103.0749	106.7807	(44)
Energy conte	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(45)
Energy content (annual)										Total = Sum(45)m =		1635.0070	
Distribution loss (46)m = 0.15 x (45)m													
	25.4350	22.3893	23.5298	20.0853	19.0587	16.7266	16.1869	17.0823	17.5485	20.1024	22.0274	25.0789	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(64)
										Total per year (kWh/year) = Sum(64)m =		1635.0070	(64)
12Total per year (kWh/year)												1635	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	56.3809	49.6297	52.1577	44.5224	42.2468	37.0774	35.8809	37.8657	38.8991	44.5602	48.8273	55.5916	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	75.2482	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	68.1712	75.4753	68.1712	70.4436	68.1712	70.4436	68.1712	68.1712	70.4436	68.1712	70.4436	68.1712	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	130.6818	132.0379	128.6207	121.3457	112.1625	103.5315	97.7654	96.4094	99.8266	107.1015	116.2848	124.9158	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	30.5248	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	-60.1986	(71)
Water heating gains (Table 5)													
	75.7808	73.8537	70.1045	61.8366	56.7833	51.4964	48.2271	50.8948	54.0265	59.8928	67.8157	74.7199	(72)
Total internal gains													
	323.2083	329.9414	315.4708	302.2004	285.6915	271.0459	259.7382	261.0498	269.8712	283.7400	303.1186	316.3814	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	7.3000	19.6403	0.6300	0.7000	0.7700	43.8169	(76)

Solar gains	43.8169	85.7152	141.1608	205.8746	252.3070	258.2811	245.8941	211.2194	164.1758	101.7083	54.6346	36.0329	(83)
Total gains	367.0253	415.6566	456.6316	508.0750	537.9984	529.3270	505.6323	472.2692	434.0470	385.4484	357.7532	352.4143	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, nil,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.7247	22.7832	22.8408	23.1154	23.1675	23.4132	23.4132	23.4593	23.3179	23.1675	23.0623	22.9534	
alpha	2.5150	2.5189	2.5227	2.5410	2.5445	2.5609	2.5609	2.5640	2.5545	2.5445	2.5375	2.5302	
util living area													
	0.9500	0.9308	0.8988	0.8322	0.7315	0.5935	0.4665	0.5085	0.6998	0.8634	0.9307	0.9544	(86)
MIT	18.3225	18.6275	19.1164	19.7764	20.3380	20.7327	20.8961	20.8675	20.5654	19.8305	18.9783	18.2787	(87)
Th 2	19.7590	19.7617	19.7644	19.7772	19.7796	19.7907	19.7907	19.7928	19.7864	19.7796	19.7747	19.7697	(88)
util rest of house													
	0.9415	0.9192	0.8812	0.8019	0.6803	0.5117	0.3557	0.3976	0.6262	0.8319	0.9171	0.9466	(89)
MIT 2	16.6945	17.0785	17.6908	18.5058	19.1652	19.5953	19.7395	19.7224	19.4373	18.5931	17.5345	16.6454	(90)
Living area fraction									fLA = Living area / (4) =			0.6009	(91)
MIT	17.6728	18.0094	18.5475	19.2694	19.8700	20.2788	20.4345	20.4105	20.1152	19.3367	18.4021	17.6269	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.6728	18.0094	18.5475	19.2694	19.8700	20.2788	20.4345	20.4105	20.1152	19.3367	18.4021	17.6269	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9222	0.8977	0.8597	0.7872	0.6845	0.5466	0.4169	0.4569	0.6480	0.8182	0.8972	0.9282	(94)
Useful gains	338.4580	373.1545	392.5600	399.9775	368.2449	289.3204	210.7821	215.7640	281.2483	315.3643	320.9601	327.1082	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	819.6071	801.3986	734.6277	624.7876	491.1605	337.8145	228.1041	238.1049	359.2868	525.2309	682.5544	814.7255	(97)
Space heating kWh	357.9749	287.7800	254.4984	161.8632	91.4492	0.0000	0.0000	0.0000	0.0000	156.1407	260.3479	362.7873	(98a)
Space heating requirement - total per year (kWh/year)												1932.8417	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	357.9749	287.7800	254.4984	161.8632	91.4492	0.0000	0.0000	0.0000	0.0000	156.1407	260.3479	362.7873	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1932.8417	
Space heating per m2											(98c) / (4) =	44.3312	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	249.9000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	357.9749	287.7800	254.4984	161.8632	91.4492	0.0000	0.0000	0.0000	0.0000	156.1407	260.3479	362.7873	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	143.2473	115.1581	101.8401	64.7712	36.5943	0.0000	0.0000	0.0000	0.0000	62.4813	104.1808	145.1730	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	169.5667	149.2623	156.8653	133.9019	127.0580	111.5110	107.9126	113.8818	116.9898	134.0158	146.8491	167.1928	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	96.8399	85.2440	89.5861	76.4717	72.5631	63.6842	61.6291	65.0381	66.8131	76.5367	83.8659	95.4842	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	12.6636	10.1592	9.1472	6.7017	5.1766	4.2293	4.7222	6.1381	7.9728	10.4608	11.8154	13.0156	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.1991	-23.3029	-36.2123	-43.4075	-48.5678	-43.9579	-43.2820	-39.8019	-33.7386	-27.4609	-17.2587	-12.9383	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-3.5834	-8.0396	-17.1676	-28.1320	-39.8133	-42.9347	-42.4623	-35.1134	-24.9351	-12.6063	-5.0200	-2.7794	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	773.4461	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	175.1000	
Water heating fuel used	933.7562	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
Total electricity for the above, kWh/year	0.0000	(231)
Electricity for lighting (calculated in Appendix L)	102.2025	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	-647.7148	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	1161.6899	(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	773.4461	0.1543	119.3408	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	933.7562	0.1416	132.1995	(264)
Space and water heating			251.5403	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)
Energy for lighting	102.2025	0.1443	14.7510	(268)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-385.1278	0.1336	-51.4675	

PV Unit electricity exported	-262.5870	0.1229	-32.2759	
Total			-83.7434	(269)
Total CO2, kg/year			182.5479	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			4.1900	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	773.4461	1.5712	1215.2730	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	933.7562	1.5235	1422.6132	(278)
Space and water heating			2637.8862	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	102.2025	1.5338	156.7616	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-385.1278	1.4939	-575.3266	
PV Unit electricity exported	-262.5870	0.4510	-118.4214	
Total			-693.7480	(283)
Total Primary energy kWh/year			2100.8998	(286)
Dwelling Primary energy Rate (DPER)			48.1900	(287)

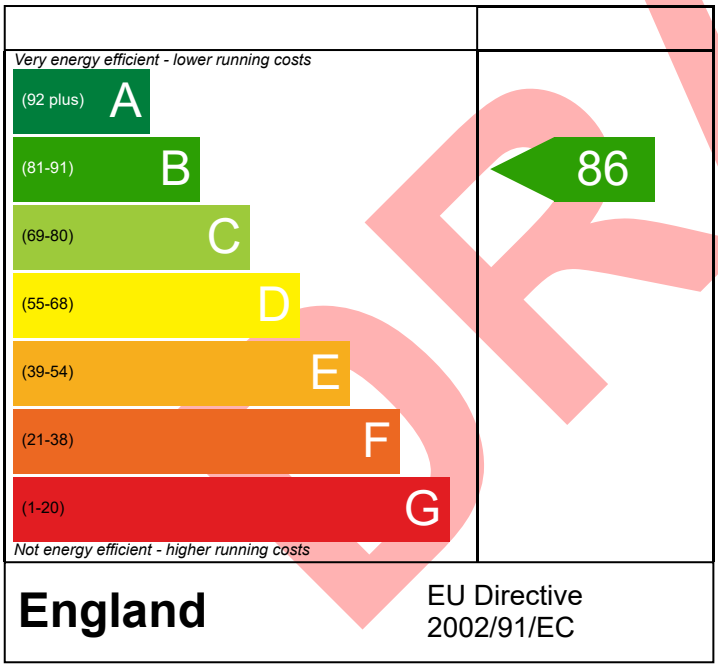
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	43.6 m²
DRRN:	

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

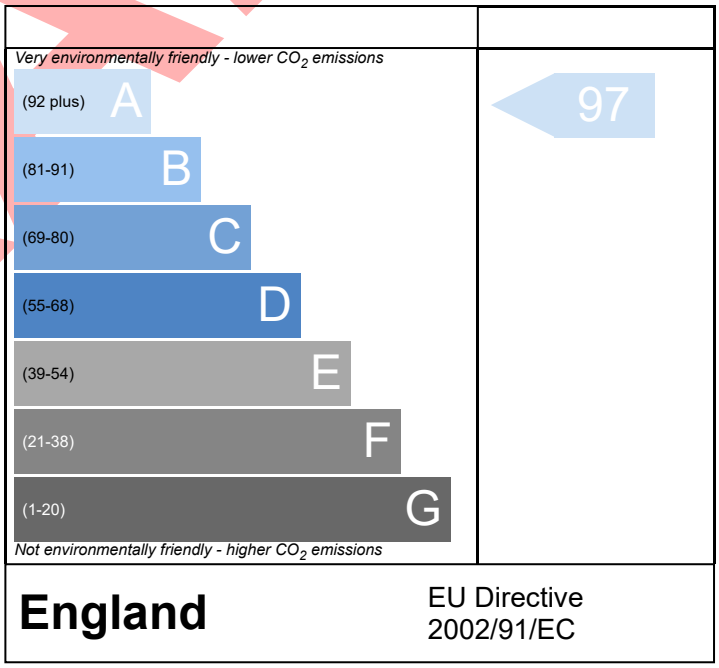
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

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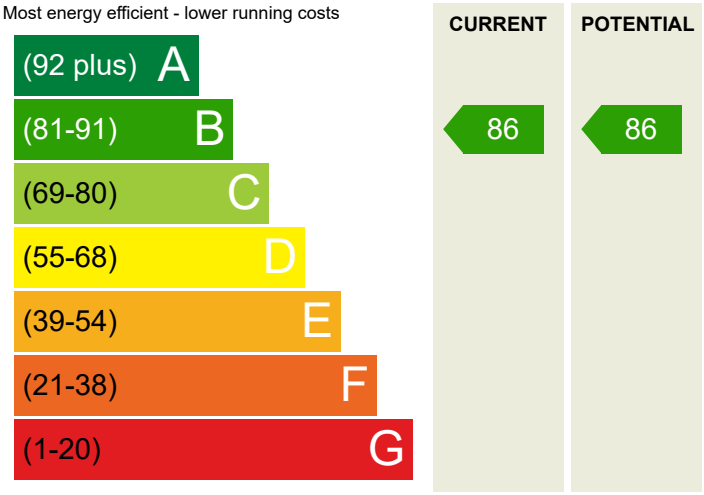
Energy Report

Dwelling Address	
Reference	Unit C-Unit C - BG
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	44

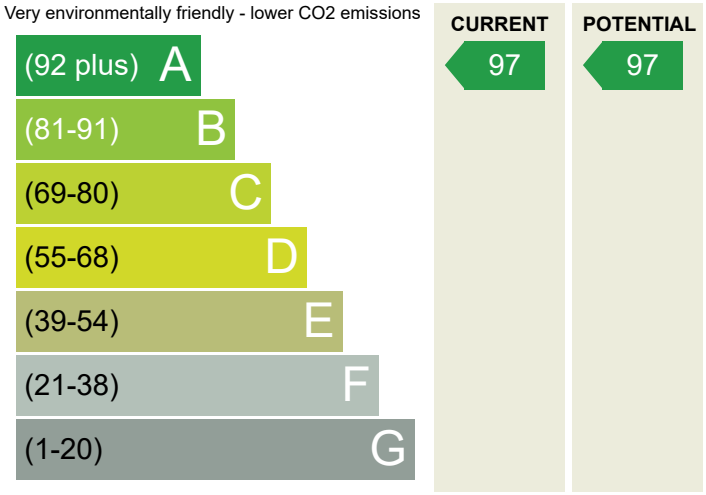
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

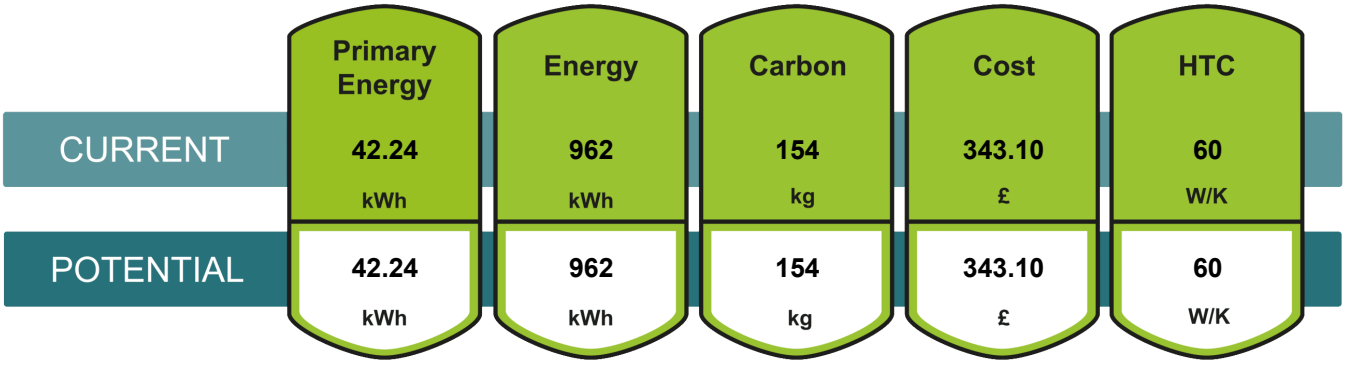


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Floor	Average thermal transmittance 0.15 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Air source heat pump, radiators, electric	Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Average
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£29	£29	
Heating	£184	£184	
Hot Water	£265	£265	
New Technologies e.g. Impact of PV	-(£136)	-(£136)	
TOTAL	£343	£343	

Estimated energy use and potential savings

Space Heating
649
kWh per year

Water Heating
934
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit D	**Issued on Date**	13/02/2026
Assessment Reference	Unit D - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	79 C	**DER**	26.56	**TER**	
Environmental	82 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.2	**DFEE**	70.53	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	145.53	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	14.80 m	49.60 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.30		41.44	33.04	0.00	None	8.40	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.25	None	0.00	75.00	49.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	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
E	Windows	EW	East	2.90	
S	Windows	EW	South	5.50	

14.0 Conservatory	None	

Summary for Input Data

elmhurst energy

15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	No	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	75.00	5.00	375.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Unknown	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

Summary for Input Data

27.0 Secondary Heating	None
28.0 Water Heating	
Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit D	Issued on Date	13/02/2026
Assessment Reference	Unit D - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	79 C	DER	26.56	TER	
Environmental	82 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.2	DFEE	70.53	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	145.53	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	49.6000	(1b)	x 2.8000	(2b) =	138.8800	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	49.6000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	138.8800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1440	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8940	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7599	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9689	0.9499	0.9309	0.8359	0.8169	0.7219	0.7219	0.7029	0.7599	0.8169	0.8549	0.8929	(22b)
Effective ac	0.9694	0.9511	0.9333	0.8494	0.8337	0.7606	0.7606	0.7470	0.7887	0.8337	0.8654	0.8986	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.4000	1.5038	12.6316			(27)
GF			49.6000	0.2500	12.4000			(28a)
EW	41.4400	8.4000	33.0400	0.3000	9.9120			(29a)
Total net area of external elements Aum(A, m2)			91.0400					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		34.9436			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							18.2080	(36)
Point Thermal bridges					(36a) =		0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		53.1516	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	44.4265	43.5912	42.7724	38.9267	38.2071	34.8576	34.8576	34.2374	36.1478	38.2071	39.6627	41.1845	(38)
Heat transfer coeff	97.5780	96.7427	95.9240	92.0782	91.3587	88.0092	88.0092	87.3889	89.2994	91.3587	92.8143	94.3361	(39)
Average = Sum(39)m / 12 =												92.0748	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.9673	1.9505	1.9340	1.8564	1.8419	1.7744	1.7744	1.7619	1.8004	1.8419	1.8713	1.9019	(40)
HLP (average)												1.8563	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6783	(42)
Hot water usage for mixer showers													
	58.9045	58.0193	56.7293	54.2613	52.4399	50.4087	49.2542	50.5344	51.9377	54.1186	56.6396	58.6788	(42a)
Hot water usage for baths													
	22.6396	22.3033	21.8298	20.9568	20.3031	19.5783	19.1867	19.6569	20.1688	20.9445	21.8355	22.5630	(42b)
Hot water usage for other uses													
	31.8178	30.6608	29.5038	28.3468	27.1897	26.0327	26.0327	27.1897	28.3468	29.5038	30.6608	31.8178	(42c)
Average daily hot water use (litres/day)												104.2237	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	113.3618	110.9834	108.0630	103.5649	99.9328	96.0197	94.4737	97.3810	100.4533	104.5668	109.1359	113.0596	(44)
Energy conte	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(45)
Energy content (annual)										Total = Sum(45)m =		1731.1454	
Distribution loss (46)m = 0.15 x (45)m													
	26.9306	23.7058	24.9133	21.2663	20.1793	17.7101	17.1387	18.0867	18.5803	21.2844	23.3226	26.5536	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9246	47.3522	48.1428	49.6243	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(64)
										Total per year (kWh/year) = Sum(64)m =		2324.9976	(64)
12Total per year (kWh/year)												2325	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
						Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =						0.0000	(64a)
Heat gains from water heating, kWh/month													
	72.4359	64.0548	67.9642	59.4690	57.4620	51.0955	50.0264	52.4983	53.5152	59.9202	64.0272	71.6002	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	76.1040	84.2580	76.1040	78.6408	76.1040	78.6408	76.1040	76.1040	78.6408	76.1040	78.6408	76.1040	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	146.1951	147.7121	143.8892	135.7507	125.4773	115.8217	109.3712	107.8541	111.6770	119.8156	130.0890	139.7446	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	(71)
Water heating gains (Table 5)													
	97.3601	95.3196	91.3498	82.5958	77.2338	70.9660	67.2398	70.5622	74.3267	80.5379	88.9267	96.2369	(72)
Total internal gains													
	370.8341	378.4647	362.5179	348.1623	329.9900	313.6034	300.8899	302.6953	312.8194	327.6324	348.8314	363.2604	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	2.9000	19.6403	0.6300	0.7000	0.7700	17.4067	(76)
South	5.5000	46.7521	0.6300	0.7000	0.7700	78.5842	(78)

Solar gains	95.9909	162.7519	220.0194	267.0757	293.3151	288.4214	279.2381	260.2233	236.4771	179.2205	114.8532	82.2184	(83)
Total gains	466.8251	541.2166	582.5373	615.2379	623.3051	602.0248	580.1280	562.9186	549.2966	506.8529	463.6847	445.4788	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, ni1,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	16.2377	16.3779	16.5177	17.2076	17.3431	18.0032	18.0032	18.1310	17.7431	17.3431	17.0711	16.7957	
alpha	2.0825	2.0919	2.1012	2.1472	2.1562	2.2002	2.2002	2.2087	2.1829	2.1562	2.1381	2.1197	
util living area													
	0.9460	0.9257	0.8999	0.8521	0.7810	0.6644	0.5418	0.5672	0.7242	0.8604	0.9251	0.9503	(86)
MIT	17.4440	17.8237	18.3836	19.1832	19.8784	20.4861	20.7706	20.7389	20.3176	19.4110	18.3581	17.4647	(87)
Th 2	19.3552	19.3666	19.3777	19.4308	19.4408	19.4880	19.4880	19.4968	19.4697	19.4408	19.4205	19.3995	(88)
util rest of house													
	0.9354	0.9112	0.8794	0.8192	0.7251	0.5668	0.3950	0.4260	0.6381	0.8229	0.9083	0.9406	(89)
MIT 2	15.4138	15.8900	16.5915	17.5968	18.4315	19.1294	19.3871	19.3722	18.9536	17.8962	16.5874	15.4534	(90)
Living area fraction										fLA = Living area / (4) =		0.5282	(91)
MIT	16.4862	16.9114	17.5382	18.4348	19.1958	19.8461	20.1179	20.0941	19.6741	18.6964	17.5228	16.5158	(92)
Temperature adjustment												-0.1500	
adjusted MIT	16.3362	16.7614	17.3882	18.2848	19.0458	19.6961	19.9679	19.9441	19.5241	18.5464	17.3728	16.3658	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9063	0.8784	0.8450	0.7885	0.7080	0.5821	0.4464	0.4727	0.6417	0.7949	0.8772	0.9132	(94)
Useful gains	423.1002	475.4051	492.2178	485.1242	441.3123	350.4257	258.9578	266.0721	352.5076	402.9087	406.7627	406.7912	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1174.4686	1147.5037	1044.4350	864.1334	671.1049	448.5004	296.4068	309.7161	484.3715	725.9708	953.4591	1147.6756	(97)
Space heating kWh	559.0181	451.6503	410.8496	272.8867	170.9657	0.0000	0.0000	0.0000	0.0000	240.3582	393.6214	551.2180	(98a)
Space heating requirement - total per year (kWh/year)												3050.5680	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	559.0181	451.6503	410.8496	272.8867	170.9657	0.0000	0.0000	0.0000	0.0000	240.3582	393.6214	551.2180	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3050.5680	
Space heating per m2											(98c) / (4) =	61.5034	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	559.0181	451.6503	410.8496	272.8867	170.9657	0.0000	0.0000	0.0000	0.0000	240.3582	393.6214	551.2180	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	624.6013	504.6372	459.0499	304.9013	191.0231	0.0000	0.0000	0.0000	0.0000	268.5566	439.8004	615.8860	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.8395	86.6695	86.3671	85.7921	84.8661	81.0000	81.0000	81.0000	81.0000	85.5055	86.3972	86.8339	(217)
Fuel for water heating, kWh/month	265.4279	235.4532	251.3083	222.7362	218.5246	204.2218	200.4944	210.1264	213.8074	225.5468	237.0437	262.5506	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	16.1792	12.9796	11.6867	8.5621	6.6136	5.4034	6.0332	7.8422	10.1862	13.3648	15.0956	16.6289	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3408.4558	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2747.2415	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	130.5755	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	6327.2728	(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	3408.4558	0.2100	715.7757	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2747.2415	0.2100	576.9207	(264)
Space and water heating			1292.6964	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	130.5755	0.1443	18.8461	(268)
Total CO2, kg/year			1317.2297	(272)

EPC Dwelling Carbon Dioxide Emission Rate (DER) 26.5600 (273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3408.4558	1.1300	3851.5551	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2747.2415	1.1300	3104.3829	(278)
Space and water heating			6955.9380	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	130.5755	1.5338	200.2810	(282)
Total Primary energy kWh/year			7218.2438	(286)
Dwelling Primary energy Rate (DPER)			145.5300	(287)

Full SAP Calculation Printout

Plot Reference	Unit D	**Issued on Date**	13/02/2026
Assessment Reference	Unit D - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	79 C	**DER**	26.56	**TER**	
Environmental	82 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.2	**DFEE**	70.53	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	145.53	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	49.6000 (1b)	x	2.8000 (2b)	=	138.8800	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	49.6000					(4)
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	138.8800	(5)

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2. Ventilation rate

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	m3 per hour		
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1440	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8940	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7599	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9689	0.9499	0.9309	0.8359	0.8169	0.7219	0.7219	0.7029	0.7599	0.8169	0.8549	0.8929	(22b)

If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)	0.0000 (23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =	0.0000 (23c)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Effective ac	0.9694	0.9511	0.9333	0.8494	0.8337	0.7606	0.7606	0.7470	0.7887	0.8337	0.8654	0.8986	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.4000	1.5038	12.6316			(27)
GF			49.6000	0.2500	12.4000			(28a)
EW	41.4400	8.4000	33.0400	0.3000	9.9120			(29a)
Total net area of external elements Aum(A, m2)			91.0400					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		34.9436			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000 (35)
Thermal bridges (Default value 0.200 * total exposed area)	18.2080 (36)
Point Thermal bridges (36a) =	0.0000
Total fabric heat loss (33) + (36) + (36a) =	53.1516 (37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	44.4265	43.5912	42.7724	38.9267	38.2071	34.8576	34.8576	34.2374	36.1478	38.2071	39.6627	41.1845	(38)
Heat transfer coeff	97.5780	96.7427	95.9240	92.0782	91.3587	88.0092	88.0092	87.3889	89.2994	91.3587	92.8143	94.3361	(39)

Average = Sum(39)m / 12 = 92.0748

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.9673	1.9505	1.9340	1.8564	1.8419	1.7744	1.7744	1.7619	1.8004	1.8419	1.8713	1.9019	(40)
HLP (average)												1.8563	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.6783 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

22.6396	22.3033	21.8298	20.9568	20.3031	19.5783	19.1867	19.6569	20.1688	20.9445	21.8355	22.5630	(42b)

Hot water usage for other uses

31.8178	30.6608	29.5038	28.3468	27.1897	26.0327	26.0327	27.1897	28.3468	29.5038	30.6608	31.8178	(42c)

Average daily hot water use (litres/day) 49.9157 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	54.4573	52.9641	51.3336	49.3036	47.4929	45.6110	45.2195	46.8467	48.5156	50.4482	52.4962	54.3808	(44)
Energy conte	86.2471	75.4202	78.8978	67.4941	63.9345	56.0841	54.6890	58.0059	59.8246	68.4578	74.7905	85.1472	(45)
Energy content (annual)										Total = Sum(45)m =		828.9929	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	73.3100	64.1071	67.0632	57.3700	54.3444	47.6714	46.4857	49.3051	50.8509	58.1891	63.5719	72.3751	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	73.3100	64.1071	67.0632	57.3700	54.3444	47.6714	46.4857	49.3051	50.8509	58.1891	63.5719	72.3751	(64)
									Total per year (kWh/year) = Sum(64)m =			704.6439	(64)
12Total per year (kWh/year)												705	(64)
Electric shower(s)													
	41.9313	37.3611	40.7969	38.9320	39.6625	37.8342	39.0954	39.6625	38.9320	40.7969	40.0298	41.9313	(64a)
									Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =			476.9659	(64a)
Heat gains from water heating, kWh/month													
	28.8103	25.3671	26.9650	24.0755	23.5017	21.3764	21.3953	22.2419	22.4457	24.7465	25.9004	28.5766	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	76.1040	84.2580	76.1040	78.6408	76.1040	78.6408	76.1040	76.1040	78.6408	76.1040	78.6408	76.1040	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	146.1951	147.7121	143.8892	135.7507	125.4773	115.8217	109.3712	107.8541	111.6770	119.8156	130.0890	139.7446	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	(71)
Water heating gains (Table 5)													
	38.7236	37.7486	36.2433	33.4382	31.5883	29.6895	28.7571	29.8950	31.1746	33.2614	35.9728	38.4094	(72)
Total internal gains													
	309.1976	317.8937	304.4115	296.0046	281.3445	272.3269	262.4072	262.0281	269.6674	277.3559	292.8775	302.4329	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	2.9000	19.6403	0.6300	0.7000	0.7700	17.4067	(76)
South	5.5000	46.7521	0.6300	0.7000	0.7700	78.5842	(78)

Solar gains	95.9909	162.7519	220.0194	267.0757	293.3151	288.4214	279.2381	260.2233	236.4771	179.2205	114.8532	82.2184	(83)
Total gains	405.1885	480.6456	524.4309	563.0803	574.6596	560.7483	541.6453	522.2514	506.1445	456.5764	407.7308	384.6514	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	16.2377	16.3779	16.5177	17.2076	17.3431	18.0032	18.0032	18.1310	17.7431	17.3431	17.0711	16.7957	
alpha	2.0825	2.0919	2.1012	2.1472	2.1562	2.2002	2.2002	2.2087	2.1829	2.1562	2.1381	2.1197	
util living area													
	0.9580	0.9393	0.9157	0.8706	0.8035	0.6891	0.5670	0.5947	0.7502	0.8813	0.9401	0.9619	(86)
MIT	17.2839	17.6748	18.2507	19.0786	19.8010	20.4434	20.7478	20.7115	20.2611	19.3067	18.2181	17.3023	(87)
Th 2	19.3552	19.3666	19.3777	19.4308	19.4408	19.4880	19.4880	19.4968	19.4697	19.4408	19.4205	19.3995	(88)
util rest of house													
	0.9495	0.9271	0.8977	0.8407	0.7507	0.5928	0.4175	0.4517	0.6671	0.8478	0.9262	0.9543	(89)
MIT 2	16.1093	16.4988	17.0698	17.9024	18.5883	19.1804	19.3998	19.3871	19.0264	18.1406	17.0709	16.1525	(90)
Living area fraction									fLA = Living area / (4) =			0.5282	(91)
MIT	16.7298	17.1200	17.6936	18.5237	19.2288	19.8476	20.1119	20.0867	19.6786	18.7566	17.6769	16.7599	(92)
Temperature adjustment												0.0000	

adjusted MIT	16.7298	17.1200	17.6936	18.5237	19.2288	19.8476	20.1119	20.0867	19.6786	18.7566	17.6769	16.7599	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9297	0.9037	0.8727	0.8188	0.7421	0.6187	0.4851	0.5137	0.6804	0.8288	0.9046	0.9359	(94)
Useful gains	376.7093	434.3757	457.6716	461.0570	426.4569	346.9357	262.7656	268.2670	344.3559	378.4322	368.8381	359.9851	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1212.8709	1182.1959	1073.7324	886.1309	687.8246	461.8330	309.0776	322.1753	498.1631	745.1723	981.6830	1184.8483	(97)
Space heating kWh	622.1042	502.5351	458.3493	306.0532	194.4576	0.0000	0.0000	0.0000	0.0000	272.8546	441.2484	613.6982	(98a)
Space heating requirement - total per year (kWh/year)												3411.3006	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	622.1042	502.5351	458.3493	306.0532	194.4576	0.0000	0.0000	0.0000	0.0000	272.8546	441.2484	613.6982	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3411.3006	
Space heating per m2											(98c) / (4) =	68.7762	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W	0.0000	0.0000	0.0000	0.0000	0.0000	827.2866	651.2681	664.1559	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.5882	0.6624	0.6435	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	486.5837	431.3731	427.3866	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	626.6474	605.8898	584.6958	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh	0.0000	0.0000	0.0000	0.0000	0.0000	100.8458	129.8405	117.0380	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh	0.0000	0.0000	0.0000	0.0000	0.0000	25.2115	32.4601	29.2595	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												86.9311	(107)
Energy for space heating												68.7762	(99)
Energy for space cooling												1.7526	(108)
Total												70.5289	(109)
Fabric Energy Efficiency (DFEE)												70.5	(109)

Full SAP Calculation Printout

Plot Reference	Unit D	Issued on Date	13/02/2026
Assessment Reference	Unit D - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	79 C	DER	26.56	TER	
Environmental	82 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.2	DFEE	70.53	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	145.53	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	49.6000	(1b)	x 2.8000	(2b) =	138.8800	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	49.6000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	138.8800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1440	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8940	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7599	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9689	0.9499	0.9309	0.8359	0.8169	0.7219	0.7219	0.7029	0.7599	0.8169	0.8549	0.8929	(22b)
Effective ac	0.9694	0.9511	0.9333	0.8494	0.8337	0.7606	0.7606	0.7470	0.7887	0.8337	0.8654	0.8986	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.4000	1.5038	12.6316			(27)
GF			49.6000	0.2500	12.4000			(28a)
EW	41.4400	8.4000	33.0400	0.3000	9.9120			(29a)
Total net area of external elements Aum(A, m2)			91.0400					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		34.9436			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							18.2080	(36)
Point Thermal bridges					(36a) =		0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		53.1516	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	44.4265	43.5912	42.7724	38.9267	38.2071	34.8576	34.8576	34.2374	36.1478	38.2071	39.6627	41.1845	(38)
Heat transfer coeff	97.5780	96.7427	95.9240	92.0782	91.3587	88.0092	88.0092	87.3889	89.2994	91.3587	92.8143	94.3361	(39)
Average = Sum(39)m / 12 =												92.0748	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.9673	1.9505	1.9340	1.8564	1.8419	1.7744	1.7744	1.7619	1.8004	1.8419	1.8713	1.9019	(40)
HLP (average)												1.8563	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6783	(42)
Hot water usage for mixer showers													
	58.9045	58.0193	56.7293	54.2613	52.4399	50.4087	49.2542	50.5344	51.9377	54.1186	56.6396	58.6788	(42a)
Hot water usage for baths													
	22.6396	22.3033	21.8298	20.9568	20.3031	19.5783	19.1867	19.6569	20.1688	20.9445	21.8355	22.5630	(42b)
Hot water usage for other uses													
	31.8178	30.6608	29.5038	28.3468	27.1897	26.0327	26.0327	27.1897	28.3468	29.5038	30.6608	31.8178	(42c)
Average daily hot water use (litres/day)												104.2237	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	113.3618	110.9834	108.0630	103.5649	99.9328	96.0197	94.4737	97.3810	100.4533	104.5668	109.1359	113.0596	(44)
Energy conte	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(45)
Energy content (annual)										Total = Sum(45)m =		1731.1454	
Distribution loss (46)m = 0.15 x (45)m													
	26.9306	23.7058	24.9133	21.2663	20.1793	17.7101	17.1387	18.0867	18.5803	21.2844	23.3226	26.5536	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9246	47.3522	48.1428	49.6243	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(64)
										Total per year (kWh/year) = Sum(64)m =		2324.9976	(64)
12Total per year (kWh/year)												2325	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
						Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =						0.0000	(64a)
Heat gains from water heating, kWh/month													
	72.4359	64.0548	67.9642	59.4690	57.4620	51.0955	50.0264	52.4983	53.5152	59.9202	64.0272	71.6002	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	76.1040	84.2580	76.1040	78.6408	76.1040	78.6408	76.1040	76.1040	78.6408	76.1040	78.6408	76.1040	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	146.1951	147.7121	143.8892	135.7507	125.4773	115.8217	109.3712	107.8541	111.6770	119.8156	130.0890	139.7446	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	(71)
Water heating gains (Table 5)													
	97.3601	95.3196	91.3498	82.5958	77.2338	70.9660	67.2398	70.5622	74.3267	80.5379	88.9267	96.2369	(72)
Total internal gains													
	370.8341	378.4647	362.5179	348.1623	329.9900	313.6034	300.8899	302.6953	312.8194	327.6324	348.8314	363.2604	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	2.9000	19.6403	0.6300	0.7000	0.7700	17.4067	(76)
South	5.5000	46.7521	0.6300	0.7000	0.7700	78.5842	(78)

Solar gains	95.9909	162.7519	220.0194	267.0757	293.3151	288.4214	279.2381	260.2233	236.4771	179.2205	114.8532	82.2184	(83)
Total gains	466.8251	541.2166	582.5373	615.2379	623.3051	602.0248	580.1280	562.9186	549.2966	506.8529	463.6847	445.4788	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, ni1,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	16.2377	16.3779	16.5177	17.2076	17.3431	18.0032	18.0032	18.1310	17.7431	17.3431	17.0711	16.7957	
alpha	2.0825	2.0919	2.1012	2.1472	2.1562	2.2002	2.2002	2.2087	2.1829	2.1562	2.1381	2.1197	
util living area													
	0.9460	0.9257	0.8999	0.8521	0.7810	0.6644	0.5418	0.5672	0.7242	0.8604	0.9251	0.9503	(86)
MIT	17.4440	17.8237	18.3836	19.1832	19.8784	20.4861	20.7706	20.7389	20.3176	19.4110	18.3581	17.4647	(87)
Th 2	19.3552	19.3666	19.3777	19.4308	19.4408	19.4880	19.4880	19.4968	19.4697	19.4408	19.4205	19.3995	(88)
util rest of house													
	0.9354	0.9112	0.8794	0.8192	0.7251	0.5668	0.3950	0.4260	0.6381	0.8229	0.9083	0.9406	(89)
MIT 2	15.4138	15.8900	16.5915	17.5968	18.4315	19.1294	19.3871	19.3722	18.9536	17.8962	16.5874	15.4534	(90)
Living area fraction										fLA = Living area / (4) =		0.5282	(91)
MIT	16.4862	16.9114	17.5382	18.4348	19.1958	19.8461	20.1179	20.0941	19.6741	18.6964	17.5228	16.5158	(92)
Temperature adjustment												-0.1500	
adjusted MIT	16.3362	16.7614	17.3882	18.2848	19.0458	19.6961	19.9679	19.9441	19.5241	18.5464	17.3728	16.3658	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9063	0.8784	0.8450	0.7885	0.7080	0.5821	0.4464	0.4727	0.6417	0.7949	0.8772	0.9132	(94)
Useful gains	423.1002	475.4051	492.2178	485.1242	441.3123	350.4257	258.9578	266.0721	352.5076	402.9087	406.7627	406.7912	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1174.4686	1147.5037	1044.4350	864.1334	671.1049	448.5004	296.4068	309.7161	484.3715	725.9708	953.4591	1147.6756	(97)
Space heating kWh	559.0181	451.6503	410.8496	272.8867	170.9657	0.0000	0.0000	0.0000	0.0000	240.3582	393.6214	551.2180	(98a)
Space heating requirement - total per year (kWh/year)												3050.5680	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	559.0181	451.6503	410.8496	272.8867	170.9657	0.0000	0.0000	0.0000	0.0000	240.3582	393.6214	551.2180	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3050.5680	
Space heating per m2											(98c) / (4) =	61.5034	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	559.0181	451.6503	410.8496	272.8867	170.9657	0.0000	0.0000	0.0000	0.0000	240.3582	393.6214	551.2180	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	624.6013	504.6372	459.0499	304.9013	191.0231	0.0000	0.0000	0.0000	0.0000	268.5566	439.8004	615.8860	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.8395	86.6695	86.3671	85.7921	84.8661	81.0000	81.0000	81.0000	81.0000	85.5055	86.3972	86.8339	(217)
Fuel for water heating, kWh/month	265.4279	235.4532	251.3083	222.7362	218.5246	204.2218	200.4944	210.1264	213.8074	225.5468	237.0437	262.5506	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	16.1792	12.9796	11.6867	8.5621	6.6136	5.4034	6.0332	7.8422	10.1862	13.3648	15.0956	16.6289	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3408.4558	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2747.2415	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	130.5755	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	6327.2728	(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	3408.4558	0.2100	715.7757	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2747.2415	0.2100	576.9207	(264)
Space and water heating			1292.6964	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	130.5755	0.1443	18.8461	(268)
Total CO2, kg/year			1317.2297	(272)

EPC Dwelling Carbon Dioxide Emission Rate (DER) 26.5600 (273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3408.4558	1.1300	3851.5551	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2747.2415	1.1300	3104.3829	(278)
Space and water heating			6955.9380	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	130.5755	1.5338	200.2810	(282)
Total Primary energy kWh/year			7218.2438	(286)
Dwelling Primary energy Rate (DPER)			145.5300	(287)

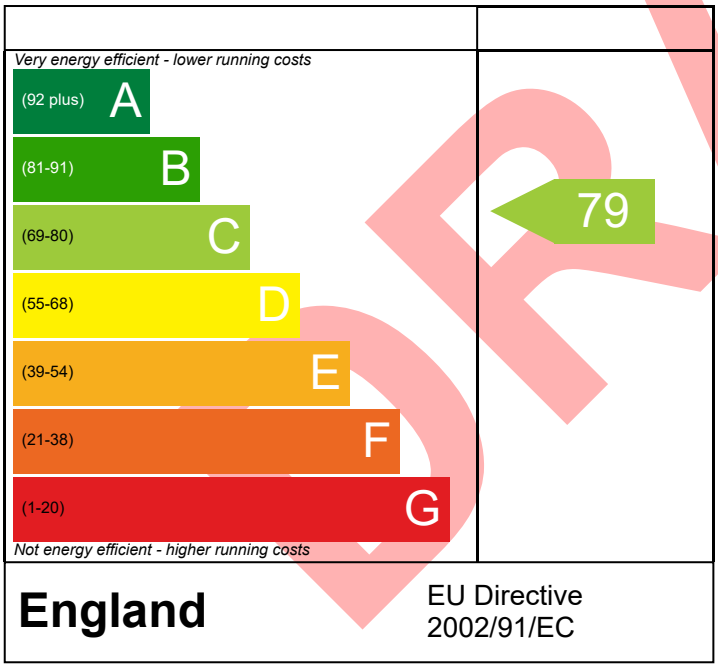
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	49.6 m²
DRRN:	

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

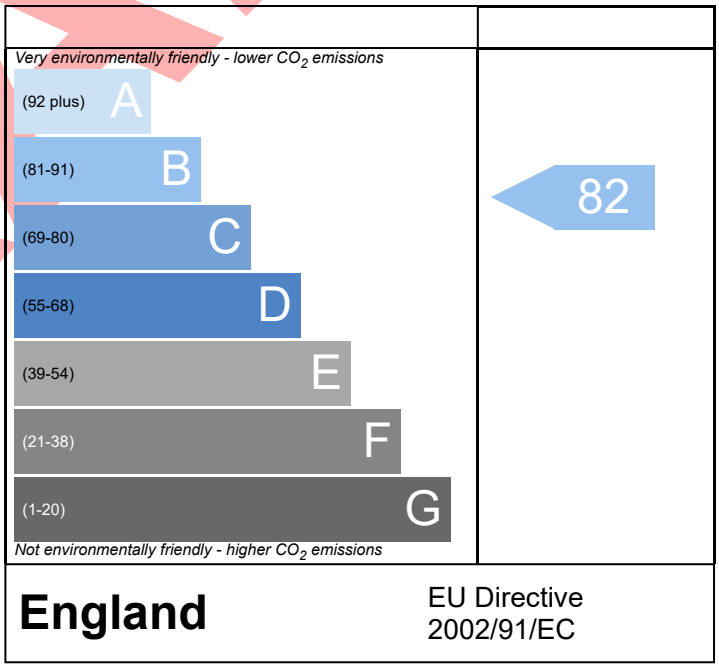
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

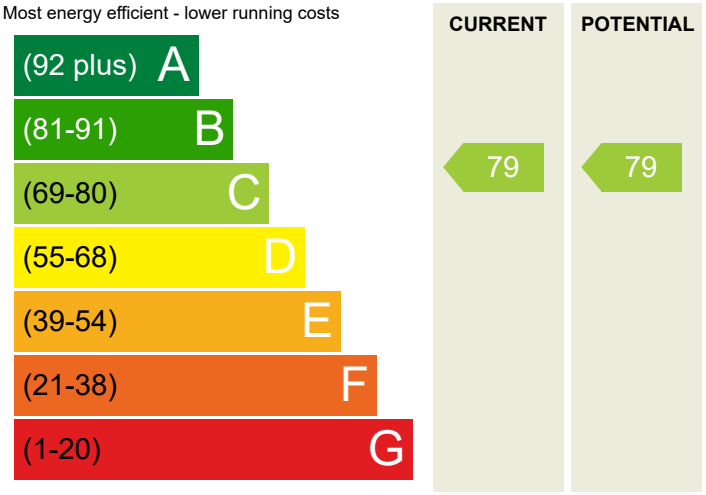
Energy Report

Dwelling Address	
Reference	Unit D-Unit D - BS
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	50

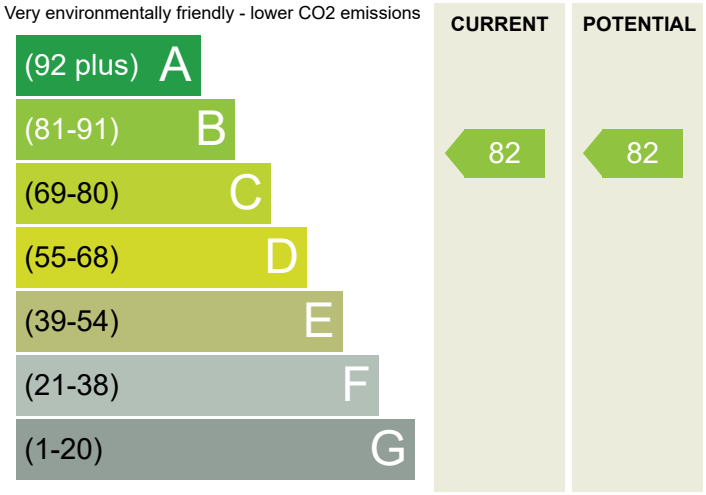
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

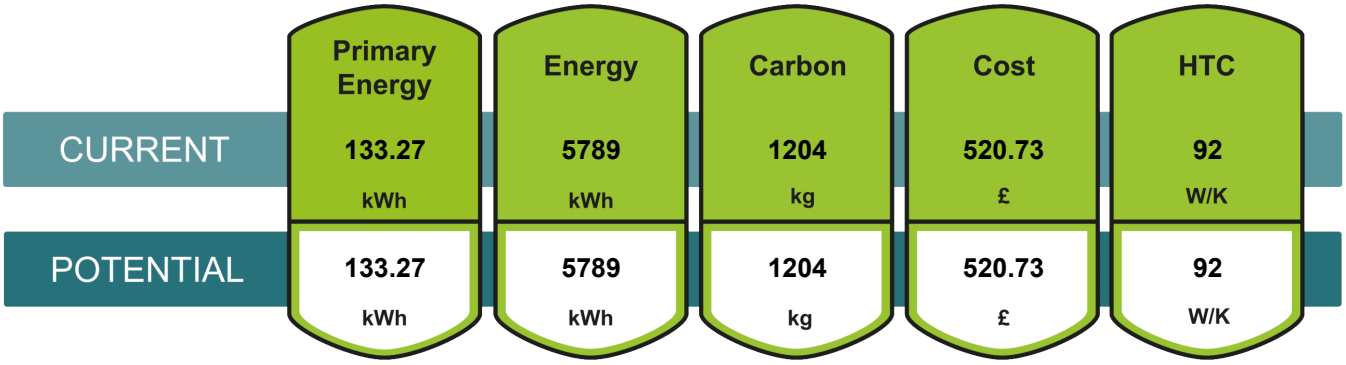


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.3 W/m²K	Good
Floor	Average thermal transmittance 0.25 W/m²K	Good
Windows	High performance glazing	Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Good lighting efficiency	Good
Air tightness	(not tested)	

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total

energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£37	£37	You could save £0
Heating	£303	£303	
Hot Water	£181	£181	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£521	£521	

Estimated energy use and potential savings

Space Heating
2862
kWh per year

Water Heating
2756
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit D	**Issued on Date**	13/02/2026
Assessment Reference	Unit D - BL	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	82 B	**DER**	21.27	**TER**	
Environmental	85 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.98	**DFEE**	46.28	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	116.78	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	14.80 m	49.60 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		41.44	33.04	0.00	None	8.40	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.15	None	0.00	75.00	49.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
E	Windows	EW	East	2.90	
S	Windows	EW	South	5.50	

14.0 Conservatory	None	

Summary for Input Data

elmhurst energy

15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Unknown	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	

Summary for Input Data

26.0 Heat Networks	None
27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit D	Issued on Date	13/02/2026
Assessment Reference	Unit D - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	82 B	DER	21.27	TER	
Environmental	85 B	% DER < TER			N/A
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Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	116.78	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

			Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling								
Ground floor			49.6000	(1b)	x 2.8000	(2b) =	138.8800	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)		49.6000						
Dwelling volume						(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	138.8800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys		0 * 80 =	0.0000 (6a)
Number of open flues		0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire		0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler		0 * 20 =	0.0000 (6d)
Number of flues attached to other heater		0 * 35 =	0.0000 (6e)
Number of blocked chimneys		0 * 20 =	0.0000 (6f)
Number of intermittent extract fans		2 * 10 =	20.0000 (7a)
Number of passive vents		0 * 10 =	0.0000 (7b)
Number of flueless gas fires		0 * 40 =	0.0000 (7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =		20.0000 / (5) =	0.1440 (8)
Pressure test			Yes
Pressure Test Method			Blower Door
Measured/design AP50			5.0000 (17)
Infiltration rate			0.3940 (18)
Number of sides sheltered			2 (19)
Shelter factor	(20) = 1 - [0.075 x (19)] =		0.8500 (20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =		0.3349 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4270	0.4186	0.4103	0.3684	0.3600	0.3182	0.3182	0.3098	0.3349	0.3600	0.3768	0.3935	(22b)
Effective ac	0.5912	0.5876	0.5842	0.5679	0.5648	0.5506	0.5506	0.5480	0.5561	0.5648	0.5710	0.5774	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.4000	1.1450	9.6183			(27)
GF			49.6000	0.1500	7.4400			(28a)
EW	41.4400	8.4000	33.0400	0.1800	5.9472			(29a)
Total net area of external elements Aum(A, m2)			91.0400					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		23.0055			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							18.2080	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		41.2135	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	27.0935	26.9312	26.7722	26.0252	25.8854	25.2348	25.2348	25.1144	25.4854	25.8854	26.1682	26.4637	(38)
Heat transfer coeff	68.3070	68.1447	67.9857	67.2387	67.0990	66.4484	66.4484	66.3279	66.6990	67.0990	67.3817	67.6773	(39)
Average = Sum(39)m / 12 =												67.2380	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3772	1.3739	1.3707	1.3556	1.3528	1.3397	1.3397	1.3373	1.3447	1.3528	1.3585	1.3645	(40)
HLP (average)												1.3556	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6783	(42)
Hot water usage for mixer showers													
	58.9045	58.0193	56.7293	54.2613	52.4399	50.4087	49.2542	50.5344	51.9377	54.1186	56.6396	58.6788	(42a)
Hot water usage for baths													
	22.6396	22.3033	21.8298	20.9568	20.3031	19.5783	19.1867	19.6569	20.1688	20.9445	21.8355	22.5630	(42b)
Hot water usage for other uses													
	31.8178	30.6608	29.5038	28.3467	27.1897	26.0327	26.0327	27.1897	28.3467	29.5038	30.6608	31.8178	(42c)
Average daily hot water use (litres/day)												104.2237	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	113.3618	110.9834	108.0630	103.5649	99.9328	96.0197	94.4737	97.3810	100.4533	104.5668	109.1359	113.0596	(44)
Energy conte	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(45)
Energy content (annual)										Total = Sum(45)m =		1731.1454	
Distribution loss (46)m = 0.15 x (45)m													
	26.9306	23.7058	24.9133	21.2663	20.1793	17.7101	17.1387	18.0867	18.5803	21.2844	23.3226	26.5536	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9246	47.3522	48.1428	49.6243	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(64)
										Total per year (kWh/year) = Sum(64)m =		2324.9975	(64)
12Total per year (kWh/year)												2325	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
						Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =						0.0000	(64a)
Heat gains from water heating, kWh/month													
	72.4359	64.0548	67.9642	59.4690	57.4620	51.0955	50.0264	52.4983	53.5152	59.9202	64.0272	71.6002	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	76.1040	84.2580	76.1040	78.6408	76.1040	78.6408	76.1040	76.1040	78.6408	76.1040	78.6408	76.1040	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	146.1951	147.7121	143.8892	135.7507	125.4773	115.8217	109.3712	107.8541	111.6770	119.8156	130.0890	139.7446	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	(71)
Water heating gains (Table 5)													
	97.3601	95.3196	91.3498	82.5958	77.2338	70.9660	67.2398	70.5622	74.3267	80.5379	88.9267	96.2369	(72)
Total internal gains													
	370.8341	378.4647	362.5179	348.1623	329.9900	313.6034	300.8899	302.6953	312.8194	327.6324	348.8314	363.2604	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	2.9000	19.6403	0.6300	0.7000	0.7700	17.4067	(76)
South	5.5000	46.7521	0.6300	0.7000	0.7700	78.5842	(78)

Solar gains	95.9909	162.7519	220.0194	267.0757	293.3151	288.4214	279.2381	260.2233	236.4771	179.2205	114.8532	82.2184	(83)
Total gains	466.8251	541.2166	582.5373	615.2379	623.3051	602.0248	580.1280	562.9186	549.2966	506.8529	463.6847	445.4788	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, ni1,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.1959	23.2512	23.3056	23.5645	23.6135	23.8447	23.8447	23.8881	23.7552	23.6135	23.5145	23.4118	
alpha	2.5464	2.5501	2.5537	2.5710	2.5742	2.5896	2.5896	2.5925	2.5837	2.5742	2.5676	2.5608	
util living area													
	0.9366	0.9090	0.8738	0.8117	0.7206	0.5881	0.4576	0.4850	0.6547	0.8236	0.9096	0.9428	(86)
MIT	18.5257	18.8695	19.3199	19.8879	20.3806	20.7467	20.9044	20.8857	20.6427	20.0066	19.1792	18.4687	(87)
Th 2	19.7809	19.7834	19.7859	19.7975	19.7997	19.8099	19.8099	19.8118	19.8060	19.7997	19.7953	19.7907	(88)
util rest of house													
	0.9263	0.8947	0.8533	0.7796	0.6693	0.5075	0.3497	0.3785	0.5801	0.7870	0.8929	0.9334	(89)
MIT 2	16.9600	17.3890	17.9492	18.6480	19.2255	19.6242	19.7624	19.7513	19.5238	18.8069	17.7921	16.8944	(90)
Living area fraction										fLA = Living area / (4) =		0.5282	(91)
MIT	17.7871	18.1710	18.6732	19.3029	19.8357	20.2171	20.3656	20.3505	20.1148	19.4406	18.5248	17.7260	(92)
Temperature adjustment												-0.1500	
adjusted MIT	17.6371	18.0210	18.5232	19.1529	19.6857	20.0671	20.2156	20.2005	19.9648	19.2906	18.3748	17.5760	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9020	0.8681	0.8272	0.7596	0.6639	0.5261	0.3883	0.4152	0.5910	0.7686	0.8676	0.9102	(94)
Useful gains	421.0774	469.8232	481.8535	467.3364	413.8032	316.7444	225.2651	233.7139	324.6176	389.5916	402.2806	405.4590	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	911.0148	894.1297	817.4074	689.3948	535.8293	363.2830	240.2531	252.0793	391.1766	583.1314	759.7144	905.2499	(97)
Space heating kWh													
	364.5135	285.1340	249.6521	159.8820	90.7874	0.0000	0.0000	0.0000	0.0000	143.9936	257.3523	371.8445	(98a)
Space heating requirement - total per year (kWh/year)												1923.1595	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	364.5135	285.1340	249.6521	159.8820	90.7874	0.0000	0.0000	0.0000	0.0000	143.9936	257.3523	371.8445	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1923.1595	
Space heating per m2											(98c) / (4) =	38.7734	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												89.5000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement													
	364.5135	285.1340	249.6521	159.8820	90.7874	0.0000	0.0000	0.0000	0.0000	143.9936	257.3523	371.8445	(98)
Space heating efficiency (main heating system 1)													
	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)													
	407.2776	318.5855	278.9409	178.6392	101.4385	0.0000	0.0000	0.0000	0.0000	160.8867	287.5445	415.4687	(211)
Space heating efficiency (main heating system 2)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement													
	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.0038	85.7465	85.3353	84.6628	83.6097	81.0000	81.0000	81.0000	81.0000	84.4276	85.5230	86.0672	(217)
Fuel for water heating, kWh/month													
	268.0071	237.9878	254.3467	225.7073	221.8084	204.2218	200.4944	210.1264	213.8074	228.4266	239.4668	264.8894	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	13.9814	11.2164	10.0991	7.3990	5.7152	4.6694	5.2136	6.7769	8.8025	11.5493	13.0450	14.3700	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	2148.7815	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2769.2904	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	112.8379	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	5071.9098	(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	2148.7815	0.2100	451.2441	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2769.2904	0.2100	581.5510	(264)
Space and water heating			1032.7951	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	112.8379	0.1443	16.2860	(268)
Total CO2, kg/year			1054.7683	(272)

EPC Dwelling Carbon Dioxide Emission Rate (DER) 21.2700 (273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	2148.7815	1.1300	2428.1232	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2769.2904	1.1300	3129.2981	(278)
Space and water heating			5557.4213	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	112.8379	1.5338	173.0745	(282)
Total Primary energy kWh/year			5792.5206	(286)
Dwelling Primary energy Rate (DPER)			116.7800	(287)

Full SAP Calculation Printout

Plot Reference	Unit D	**Issued on Date**	13/02/2026
Assessment Reference	Unit D - BL	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	82 B	**DER**	21.27	**TER**	
Environmental	85 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.98	**DFEE**	46.28	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	116.78	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	49.6000 (1b)	x	2.8000 (2b)	=	138.8800	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	49.6000					(4)
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	138.8800	(5)

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2. Ventilation rate

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	m3 per hour		
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1440	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3940	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3349	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4270	0.4186	0.4103	0.3684	0.3600	0.3182	0.3182	0.3098	0.3349	0.3600	0.3768	0.3935	(22b)

If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)	0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =	0.0000	(23c)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Effective ac	0.5912	0.5876	0.5842	0.5679	0.5648	0.5506	0.5506	0.5480	0.5561	0.5648	0.5710	0.5774	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.4000	1.1450	9.6183			(27)
GF			49.6000	0.1500	7.4400			(28a)
EW	41.4400	8.4000	33.0400	0.1800	5.9472			(29a)
Total net area of external elements Aum(A, m2)			91.0400					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		23.0055			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	18.2080	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	41.2135	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	27.0935	26.9312	26.7722	26.0252	25.8854	25.2348	25.2348	25.1144	25.4854	25.8854	26.1682	26.4637	(38)
Heat transfer coeff	68.3070	68.1447	67.9857	67.2387	67.0990	66.4484	66.4484	66.3279	66.6990	67.0990	67.3817	67.6773	(39)

Average = Sum(39)m / 12 = 67.2380

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3772	1.3739	1.3707	1.3556	1.3528	1.3397	1.3397	1.3373	1.3447	1.3528	1.3585	1.3645	(40)
HLP (average)												1.3556	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.6783 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

22.6396	22.3033	21.8298	20.9568	20.3031	19.5783	19.1867	19.6569	20.1688	20.9445	21.8355	22.5630	(42b)

Hot water usage for other uses

31.8178	30.6608	29.5038	28.3467	27.1897	26.0327	26.0327	27.1897	28.3467	29.5038	30.6608	31.8178	(42c)

Average daily hot water use (litres/day) 49.9157 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	54.4573	52.9641	51.3336	49.3036	47.4929	45.6110	45.2195	46.8467	48.5156	50.4482	52.4962	54.3808	(44)
Energy conte	86.2471	75.4202	78.8978	67.4941	63.9345	56.0841	54.6890	58.0059	59.8246	68.4578	74.7905	85.1472	(45)
Energy content (annual)										Total = Sum(45)m =		828.9928	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	73.3100	64.1071	67.0632	57.3700	54.3443	47.6714	46.4857	49.3051	50.8509	58.1891	63.5719	72.3751	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	73.3100	64.1071	67.0632	57.3700	54.3443	47.6714	46.4857	49.3051	50.8509	58.1891	63.5719	72.3751	(64)
									Total per year (kWh/year) = Sum(64)m =			704.6439	(64)
12Total per year (kWh/year)												705	(64)
Electric shower(s)													
	41.9313	37.3611	40.7969	38.9320	39.6625	37.8342	39.0954	39.6625	38.9320	40.7969	40.0298	41.9313	(64a)

Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m = 476.9659 (64a)

Heat gains from water heating, kWh/month

28.8103	25.3671	26.9650	24.0755	23.5017	21.3764	21.3953	22.2419	22.4457	24.7465	25.9004	28.5766	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	76.1040	84.2580	76.1040	78.6408	76.1040	78.6408	76.1040	76.1040	78.6408	76.1040	78.6408	76.1040	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	146.1951	147.7121	143.8892	135.7507	125.4773	115.8217	109.3712	107.8541	111.6770	119.8156	130.0890	139.7446	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	(71)
Water heating gains (Table 5)													
	38.7236	37.7486	36.2433	33.4382	31.5883	29.6895	28.7571	29.8950	31.1746	33.2614	35.9728	38.4094	(72)
Total internal gains													
	309.1976	317.8937	304.4115	296.0046	281.3445	272.3269	262.4072	262.0281	269.6674	277.3559	292.8775	302.4329	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	2.9000	19.6403	0.6300	0.7000	0.7700	17.4067	(76)
South	5.5000	46.7521	0.6300	0.7000	0.7700	78.5842	(78)

Solar gains	95.9909	162.7519	220.0194	267.0757	293.3151	288.4214	279.2381	260.2233	236.4771	179.2205	114.8532	82.2184	(83)
Total gains	405.1885	480.6456	524.4309	563.0803	574.6596	560.7483	541.6453	522.2514	506.1445	456.5764	407.7308	384.6513	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.1959	23.2512	23.3056	23.5645	23.6135	23.8447	23.8447	23.8881	23.7552	23.6135	23.5145	23.4118	
alpha	2.5464	2.5501	2.5537	2.5710	2.5742	2.5896	2.5896	2.5925	2.5837	2.5742	2.5676	2.5608	
util living area													
	0.9526	0.9276	0.8955	0.8366	0.7492	0.6162	0.4833	0.5137	0.6859	0.8514	0.9296	0.9579	(86)
MIT	18.3454	18.7072	19.1811	19.7875	20.3146	20.7163	20.8912	20.8689	20.5985	19.9049	19.0281	18.2867	(87)
Th 2	19.7809	19.7834	19.7859	19.7975	19.7997	19.8099	19.8099	19.8118	19.8060	19.7997	19.7953	19.7907	(88)
util rest of house													
	0.9445	0.9157	0.8777	0.8070	0.6999	0.5350	0.3716	0.4038	0.6124	0.8184	0.9159	0.9507	(89)
MIT 2	17.4077	17.7623	18.2249	18.8123	19.2991	19.6457	19.7672	19.7568	19.5552	18.9366	18.0907	17.3566	(90)
Living area fraction										fLA = Living area / (4) =		0.5282	(91)
MIT	17.9030	18.2614	18.7300	19.3274	19.8355	20.2112	20.3609	20.3443	20.1063	19.4481	18.5858	17.8479	(92)
Temperature adjustment												0.0000	

adjusted MIT	17.9030	18.2614	18.7300	19.3274	19.8355	20.2112	20.3609	20.3443	20.1063	19.4481	18.5858	17.8479	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9281	0.8967	0.8587	0.7936	0.7015	0.5642	0.4256	0.4555	0.6325	0.8071	0.8984	0.9352	(94)
Useful gains	376.0440	431.0109	450.3379	446.8805	403.1129	316.3805	230.5419	237.8823	320.1550	368.4815	366.3036	359.7314	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	929.1828	910.5086	831.4633	701.1265	545.8829	372.8564	249.9065	261.6146	400.6120	593.6981	773.9352	923.6550	(97)
Space heating kWh	411.5353	322.2225	283.5573	183.0571	106.2209	0.0000	0.0000	0.0000	0.0000	167.5612	293.4947	419.5591	(98a)
Space heating requirement - total per year (kWh/year)												2187.2080	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	411.5353	322.2225	283.5573	183.0571	106.2209	0.0000	0.0000	0.0000	0.0000	167.5612	293.4947	419.5591	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2187.2080	
Space heating per m2											(98c) / (4) =	44.0969	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W	0.0000	0.0000	0.0000	0.0000	0.0000	624.6146	491.7179	504.0919	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7226	0.7919	0.7728	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	451.3417	389.4067	389.5738	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	626.6473	605.8898	584.6958	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh	0.0000	0.0000	0.0000	0.0000	0.0000	126.2201	161.0634	145.1707	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh	0.0000	0.0000	0.0000	0.0000	0.0000	31.5550	40.2659	36.2927	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												108.1136	(107)
Energy for space heating												44.0969	(99)
Energy for space cooling												2.1797	(108)
Total												46.2766	(109)
Fabric Energy Efficiency (DFEE)												46.3	(109)

Full SAP Calculation Printout

Plot Reference	Unit D	Issued on Date	13/02/2026
Assessment Reference	Unit D - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	82 B	DER	21.27	TER	
Environmental	85 B	% DER < TER			N/A
CO_2 Emissions (t/year)	0.98	DFEE	46.28	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	116.78	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

			Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling								
Ground floor			49.6000	(1b)	x 2.8000	(2b) =	138.8800	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)		49.6000						
Dwelling volume						(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	138.8800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys		0 * 80 =	0.0000 (6a)
Number of open flues		0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire		0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler		0 * 20 =	0.0000 (6d)
Number of flues attached to other heater		0 * 35 =	0.0000 (6e)
Number of blocked chimneys		0 * 20 =	0.0000 (6f)
Number of intermittent extract fans		2 * 10 =	20.0000 (7a)
Number of passive vents		0 * 10 =	0.0000 (7b)
Number of flueless gas fires		0 * 40 =	0.0000 (7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =		20.0000 / (5) =	0.1440 (8)
Pressure test			Yes
Pressure Test Method			Blower Door
Measured/design AP50			5.0000 (17)
Infiltration rate			0.3940 (18)
Number of sides sheltered			2 (19)
Shelter factor	(20) = 1 - [0.075 x (19)] =		0.8500 (20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =		0.3349 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4270	0.4186	0.4103	0.3684	0.3600	0.3182	0.3182	0.3098	0.3349	0.3600	0.3768	0.3935	(22b)
Effective ac	0.5912	0.5876	0.5842	0.5679	0.5648	0.5506	0.5506	0.5480	0.5561	0.5648	0.5710	0.5774	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.4000	1.1450	9.6183			(27)
GF			49.6000	0.1500	7.4400			(28a)
EW	41.4400	8.4000	33.0400	0.1800	5.9472			(29a)
Total net area of external elements Aum(A, m2)			91.0400					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		23.0055			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)
Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K							115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)							18.2080	(36)
Point Thermal bridges						(36a) =	0.0000	
Total fabric heat loss					(33) + (36) + (36a) =		41.2135	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	27.0935	26.9312	26.7722	26.0252	25.8854	25.2348	25.2348	25.1144	25.4854	25.8854	26.1682	26.4637	(38)
Heat transfer coeff	68.3070	68.1447	67.9857	67.2387	67.0990	66.4484	66.4484	66.3279	66.6990	67.0990	67.3817	67.6773	(39)
Average = Sum(39)m / 12 =												67.2380	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3772	1.3739	1.3707	1.3556	1.3528	1.3397	1.3397	1.3373	1.3447	1.3528	1.3585	1.3645	(40)
HLP (average)												1.3556	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6783	(42)
Hot water usage for mixer showers													
	58.9045	58.0193	56.7293	54.2613	52.4399	50.4087	49.2542	50.5344	51.9377	54.1186	56.6396	58.6788	(42a)
Hot water usage for baths													
	22.6396	22.3033	21.8298	20.9568	20.3031	19.5783	19.1867	19.6569	20.1688	20.9445	21.8355	22.5630	(42b)
Hot water usage for other uses													
	31.8178	30.6608	29.5038	28.3467	27.1897	26.0327	26.0327	27.1897	28.3467	29.5038	30.6608	31.8178	(42c)
Average daily hot water use (litres/day)												104.2237	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	113.3618	110.9834	108.0630	103.5649	99.9328	96.0197	94.4737	97.3810	100.4533	104.5668	109.1359	113.0596	(44)
Energy conte	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(45)
Energy content (annual)										Total = Sum(45)m =		1731.1454	
Distribution loss (46)m = 0.15 x (45)m													
	26.9306	23.7058	24.9133	21.2663	20.1793	17.7101	17.1387	18.0867	18.5803	21.2844	23.3226	26.5536	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9246	47.3522	48.1428	49.6243	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(64)
										Total per year (kWh/year) = Sum(64)m =		2324.9975	(64)
12Total per year (kWh/year)												2325	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
						Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =						0.0000	(64a)
Heat gains from water heating, kWh/month													
	72.4359	64.0548	67.9642	59.4690	57.4620	51.0955	50.0264	52.4983	53.5152	59.9202	64.0272	71.6002	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	76.1040	84.2580	76.1040	78.6408	76.1040	78.6408	76.1040	76.1040	78.6408	76.1040	78.6408	76.1040	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	146.1951	147.7121	143.8892	135.7507	125.4773	115.8217	109.3712	107.8541	111.6770	119.8156	130.0890	139.7446	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	(71)
Water heating gains (Table 5)													
	97.3601	95.3196	91.3498	82.5958	77.2338	70.9660	67.2398	70.5622	74.3267	80.5379	88.9267	96.2369	(72)
Total internal gains													
	370.8341	378.4647	362.5179	348.1623	329.9900	313.6034	300.8899	302.6953	312.8194	327.6324	348.8314	363.2604	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	2.9000	19.6403	0.6300	0.7000	0.7700	17.4067	(76)
South	5.5000	46.7521	0.6300	0.7000	0.7700	78.5842	(78)

Solar gains	95.9909	162.7519	220.0194	267.0757	293.3151	288.4214	279.2381	260.2233	236.4771	179.2205	114.8532	82.2184	(83)
Total gains	466.8251	541.2166	582.5373	615.2379	623.3051	602.0248	580.1280	562.9186	549.2966	506.8529	463.6847	445.4788	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, ni1,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.1959	23.2512	23.3056	23.5645	23.6135	23.8447	23.8447	23.8881	23.7552	23.6135	23.5145	23.4118	
alpha	2.5464	2.5501	2.5537	2.5710	2.5742	2.5896	2.5896	2.5925	2.5837	2.5742	2.5676	2.5608	
util living area													
	0.9366	0.9090	0.8738	0.8117	0.7206	0.5881	0.4576	0.4850	0.6547	0.8236	0.9096	0.9428	(86)
MIT	18.5257	18.8695	19.3199	19.8879	20.3806	20.7467	20.9044	20.8857	20.6427	20.0066	19.1792	18.4687	(87)
Th 2	19.7809	19.7834	19.7859	19.7975	19.7997	19.8099	19.8099	19.8118	19.8060	19.7997	19.7953	19.7907	(88)
util rest of house													
	0.9263	0.8947	0.8533	0.7796	0.6693	0.5075	0.3497	0.3785	0.5801	0.7870	0.8929	0.9334	(89)
MIT 2	16.9600	17.3890	17.9492	18.6480	19.2255	19.6242	19.7624	19.7513	19.5238	18.8069	17.7921	16.8944	(90)
Living area fraction										fLA = Living area / (4) =		0.5282	(91)
MIT	17.7871	18.1710	18.6732	19.3029	19.8357	20.2171	20.3656	20.3505	20.1148	19.4406	18.5248	17.7260	(92)
Temperature adjustment												-0.1500	
adjusted MIT	17.6371	18.0210	18.5232	19.1529	19.6857	20.0671	20.2156	20.2005	19.9648	19.2906	18.3748	17.5760	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9020	0.8681	0.8272	0.7596	0.6639	0.5261	0.3883	0.4152	0.5910	0.7686	0.8676	0.9102	(94)
Useful gains	421.0774	469.8232	481.8535	467.3364	413.8032	316.7444	225.2651	233.7139	324.6176	389.5916	402.2806	405.4590	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	911.0148	894.1297	817.4074	689.3948	535.8293	363.2830	240.2531	252.0793	391.1766	583.1314	759.7144	905.2499	(97)
Space heating kWh													
	364.5135	285.1340	249.6521	159.8820	90.7874	0.0000	0.0000	0.0000	0.0000	143.9936	257.3523	371.8445	(98a)
Space heating requirement - total per year (kWh/year)												1923.1595	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	364.5135	285.1340	249.6521	159.8820	90.7874	0.0000	0.0000	0.0000	0.0000	143.9936	257.3523	371.8445	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												1923.1595	
Space heating per m2											(98c) / (4) =	38.7734	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												89.5000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement													
	364.5135	285.1340	249.6521	159.8820	90.7874	0.0000	0.0000	0.0000	0.0000	143.9936	257.3523	371.8445	(98)
Space heating efficiency (main heating system 1)													
	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)													
	407.2776	318.5855	278.9409	178.6392	101.4385	0.0000	0.0000	0.0000	0.0000	160.8867	287.5445	415.4687	(211)
Space heating efficiency (main heating system 2)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement													
	230.4964	204.0663	217.0476	191.0902	185.4534	165.4197	162.4005	170.2024	173.1840	192.8551	204.7991	227.9829	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.0038	85.7465	85.3353	84.6628	83.6097	81.0000	81.0000	81.0000	81.0000	84.4276	85.5230	86.0672	(217)
Fuel for water heating, kWh/month													
	268.0071	237.9878	254.3467	225.7073	221.8084	204.2218	200.4944	210.1264	213.8074	228.4266	239.4668	264.8894	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	13.9814	11.2164	10.0991	7.3990	5.7152	4.6694	5.2136	6.7769	8.8025	11.5493	13.0450	14.3700	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	2148.7815	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	2769.2904	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	112.8379	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	5071.9098	(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	2148.7815	0.2100	451.2441	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	2769.2904	0.2100	581.5510	(264)
Space and water heating			1032.7951	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	112.8379	0.1443	16.2860	(268)
Total CO2, kg/year			1054.7683	(272)

EPC Dwelling Carbon Dioxide Emission Rate (DER) 21.2700 (273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	2148.7815	1.1300	2428.1232	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	2769.2904	1.1300	3129.2981	(278)
Space and water heating			5557.4213	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	112.8379	1.5338	173.0745	(282)
Total Primary energy kWh/year			5792.5206	(286)
Dwelling Primary energy Rate (DPER)			116.7800	(287)

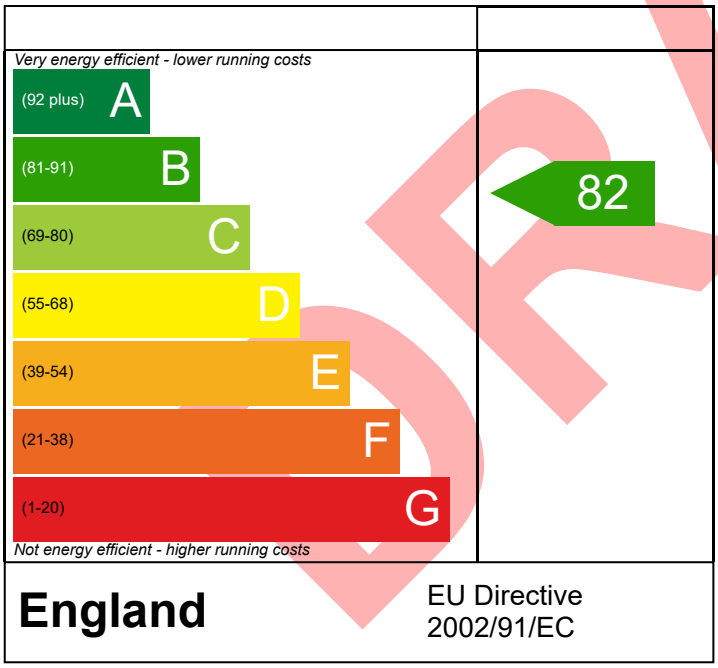
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	49.6 m²
DRRN:	

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

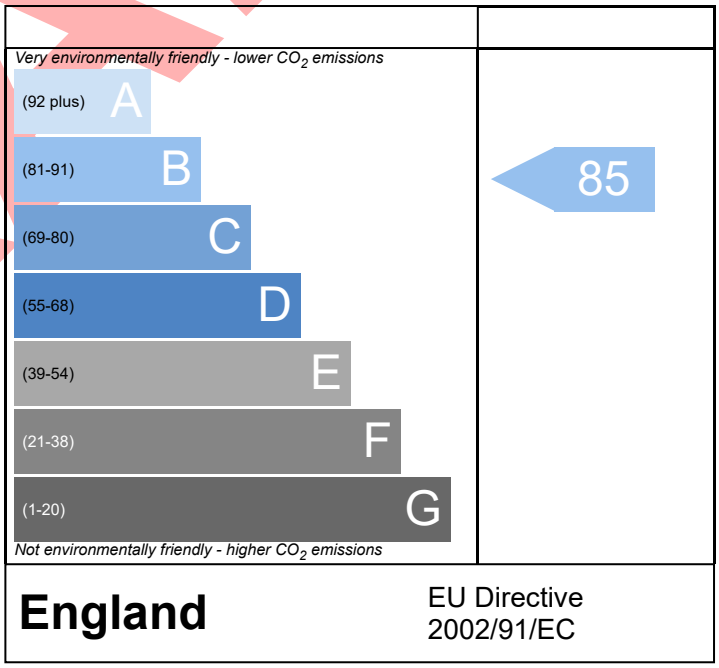
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

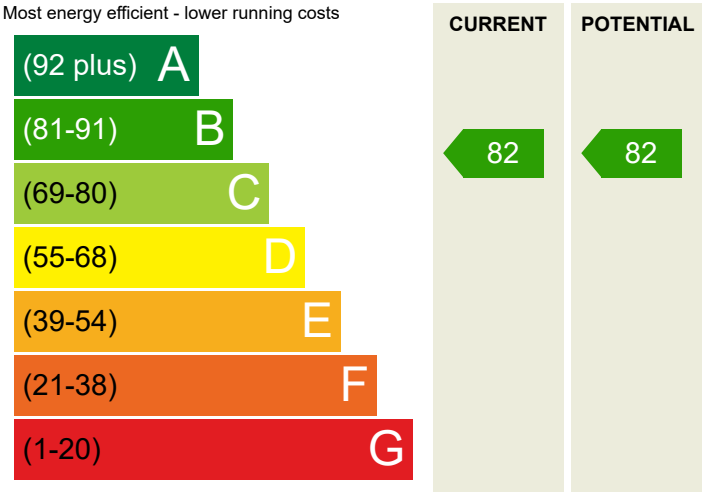
Energy Report

Dwelling Address	
Reference	Unit D-Unit D - BL
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	50

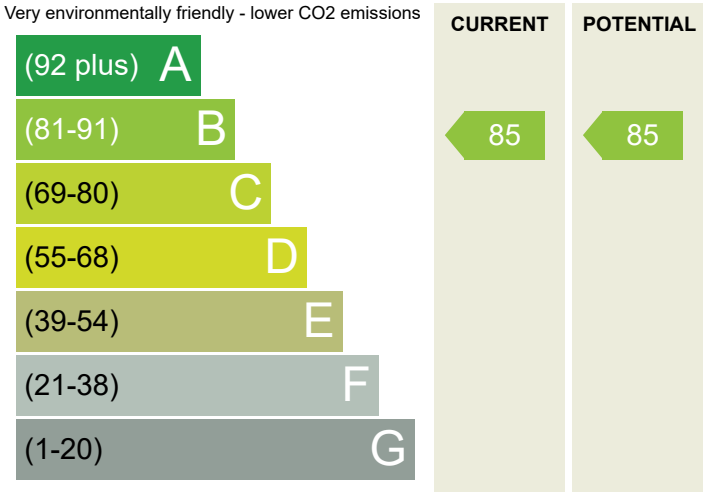
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

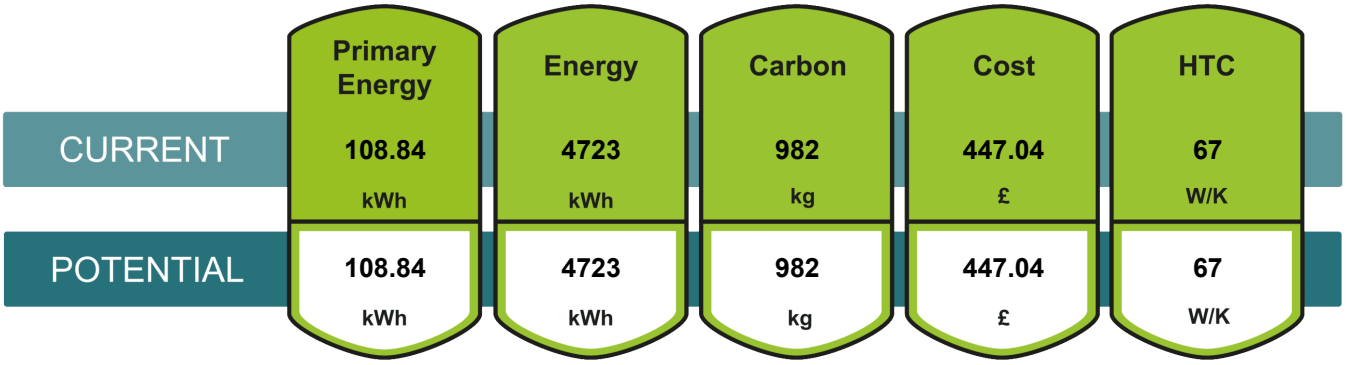


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Floor	Average thermal transmittance 0.15 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£32	£32	
Heating	£233	£233	
Hot Water	£182	£182	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£447	£447	

Estimated energy use and potential savings

Space Heating
1791
kWh per year

Water Heating
2779
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit D	Issued on Date	13/02/2026
Assessment Reference	Unit D - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	86 B	DER	3.97	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.17	DFEE	46.28	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	45.22	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	14.80 m	49.60 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		41.44	33.04	0.00	None	8.40	Calculate Wall Area

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
GF	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.15	None	0.00	75.00	49.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
E	Windows	EW	East	2.90	
S	Windows	EW	South	5.50	

14.0 Conservatory	None	

Summary for Input Data

elmhurst energy

15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	SAP table	
Percentage of Heat	100.00	%
Fuel Type	Electricity	
SAP Code	214	
In Winter	249.90	
In Summer	175.10	
Controls SAP Code	2207	
Controls description	Time and temperature zone control by arrangement	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	35.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	

Summary for Input Data

elmhurst energy

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	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

32.0 Photovoltaic Unit One Dwelling

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.75	South	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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit D	Issued on Date	13/02/2026
Assessment Reference	Unit D - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	86 B	DER	3.97	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.17	DFEE	46.28	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	45.22	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

		Area		Storey height		Volume	
Main dwelling		(m2)		(m)		(m3)	
Ground floor		49.6000	(1b)	x 2.8000	(2b) =	138.8800	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	49.6000						(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	138.8800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1440	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3940	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3349	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4270	0.4186	0.4103	0.3684	0.3600	0.3182	0.3182	0.3098	0.3349	0.3600	0.3768	0.3935	(22b)
Effective ac	0.5912	0.5876	0.5842	0.5679	0.5648	0.5506	0.5506	0.5480	0.5561	0.5648	0.5710	0.5774	(25)

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3. Heat losses and heat loss parameter

Element	Gross	Openings	NetArea	U-value	A x U	K-value	A x K	
Main dwelling	m2	m2	m2	W/m2K	W/K	kJ/m2K	kJ/K	
Windows			8.4000	1.1450	9.6183			(27)
GF			49.6000	0.1500	7.4400			(28a)
EW	41.4400	8.4000	33.0400	0.1800	5.9472			(29a)
Total net area of external elements Aum(A, m2)			91.0400					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		23.0055			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	18.2080	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	41.2135	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	27.0935	26.9312	26.7722	26.0252	25.8854	25.2348	25.2348	25.1144	25.4854	25.8854	26.1682	26.4637	(38)
Heat transfer coeff	68.3070	68.1447	67.9857	67.2387	67.0990	66.4484	66.4484	66.3279	66.6990	67.0990	67.3817	67.6773	(39)
Average = Sum(39)m / 12 =												67.2380	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3772	1.3739	1.3707	1.3556	1.3528	1.3397	1.3397	1.3373	1.3447	1.3528	1.3585	1.3645	(40)
HLP (average)												1.3556	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6783	(42)
Hot water usage for mixer showers													
	58.9045	58.0193	56.7293	54.2613	52.4399	50.4087	49.2542	50.5344	51.9377	54.1186	56.6396	58.6788	(42a)
Hot water usage for baths													
	22.6396	22.3033	21.8298	20.9568	20.3031	19.5783	19.1867	19.6569	20.1688	20.9445	21.8355	22.5630	(42b)
Hot water usage for other uses													
	31.8178	30.6608	29.5038	28.3467	27.1897	26.0327	26.0327	27.1897	28.3467	29.5038	30.6608	31.8178	(42c)
Average daily hot water use (litres/day)												104.2237	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	113.3618	110.9834	108.0630	103.5649	99.9328	96.0197	94.4737	97.3810	100.4533	104.5668	109.1359	113.0596	(44)
Energy conte	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(45)
Energy content (annual)										Total = Sum(45)m =		1731.1454	
Distribution loss (46)m = 0.15 x (45)m													
	26.9306	23.7058	24.9133	21.2663	20.1793	17.7101	17.1387	18.0867	18.5803	21.2844	23.3226	26.5536	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(64)
										Total per year (kWh/year) = Sum(64)m =		1731.1454	(64)
12Total per year (kWh/year)												1731	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	59.6962	52.5479	55.2245	47.1402	44.7308	39.2574	37.9907	40.0922	41.1864	47.1805	51.6984	58.8605	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	76.1040	84.2580	76.1040	78.6408	76.1040	78.6408	76.1040	76.1040	78.6408	76.1040	78.6408	76.1040	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	146.1951	147.7121	143.8892	135.7507	125.4773	115.8217	109.3712	107.8541	111.6770	119.8156	130.0890	139.7446	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	(71)
Water heating gains (Table 5)													
	80.2368	78.1963	74.2265	65.4725	60.1220	54.5242	51.0628	53.8874	57.2034	63.4146	71.8034	79.1136	(72)
Total internal gains													
	353.7108	361.3414	345.3946	331.0390	312.8782	297.1616	284.7129	286.0204	295.6962	310.5091	331.7081	346.1371	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	2.9000	19.6403	0.6300	0.7000	0.7700	17.4067	(76)
South	5.5000	46.7521	0.6300	0.7000	0.7700	78.5842	(78)

Solar gains	95.9909	162.7519	220.0194	267.0757	293.3151	288.4214	279.2381	260.2233	236.4771	179.2205	114.8532	82.2184	(83)
Total gains	449.7018	524.0933	565.4140	598.1146	606.1933	585.5831	563.9510	546.2438	532.1733	489.7296	446.5614	428.3555	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, ni1,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.1959	23.2512	23.3056	23.5645	23.6135	23.8447	23.8447	23.8881	23.7552	23.6135	23.5145	23.4118	
alpha	2.5464	2.5501	2.5537	2.5710	2.5742	2.5896	2.5896	2.5925	2.5837	2.5742	2.5676	2.5608	
util living area													
	0.9412	0.9144	0.8803	0.8199	0.7306	0.5991	0.4681	0.4964	0.6668	0.8331	0.9159	0.9472	(86)
MIT	18.4766	18.8246	19.2801	19.8560	20.3582	20.7351	20.8991	20.8792	20.6259	19.9731	19.1340	18.4184	(87)
Th 2	19.7809	19.7834	19.7859	19.7975	19.7997	19.8099	19.8099	19.8118	19.8060	19.7997	19.7953	19.7907	(88)
util rest of house													
	0.9316	0.9007	0.8605	0.7886	0.6799	0.5182	0.3587	0.3885	0.5926	0.7977	0.9001	0.9385	(89)
MIT 2	16.8991	17.3342	17.9017	18.6117	19.2026	19.6147	19.7595	19.7474	19.5089	18.7694	17.7373	16.8318	(90)
Living area fraction										fLA = Living area / (4) =		0.5282	(91)
MIT	17.7324	18.1215	18.6298	19.2689	19.8130	20.2066	20.3615	20.3452	20.0989	19.4052	18.4751	17.6699	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.7324	18.1215	18.6298	19.2689	19.8130	20.2066	20.3615	20.3452	20.0989	19.4052	18.4751	17.6699	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9099	0.8770	0.8376	0.7727	0.6805	0.5468	0.4115	0.4392	0.6124	0.7840	0.8780	0.9178	(94)
Useful gains	409.1622	459.6095	473.6011	462.1448	412.5111	320.2075	232.0621	239.9040	325.8898	383.9507	392.0716	393.1366	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	917.5246	900.9745	824.6509	697.1937	544.3764	372.5463	249.9441	261.6795	400.1198	590.8218	766.4728	911.6056	(97)
Space heating kWh	378.2216	296.5973	261.1811	169.2352	98.1078	0.0000	0.0000	0.0000	0.0000	153.9121	269.5689	385.7410	(98a)
Space heating requirement - total per year (kWh/year)												2012.5650	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	378.2216	296.5973	261.1811	169.2352	98.1078	0.0000	0.0000	0.0000	0.0000	153.9121	269.5689	385.7410	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2012.5650	
Space heating per m2											(98c) / (4) =	40.5759	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	249.9000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	378.2216	296.5973	261.1811	169.2352	98.1078	0.0000	0.0000	0.0000	0.0000	153.9121	269.5689	385.7410	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	151.3492	118.6864	104.5142	67.7212	39.2588	0.0000	0.0000	0.0000	0.0000	61.5895	107.8707	154.3581	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	102.5342	90.2563	94.8536	80.9681	76.8297	67.4286	65.2529	68.8624	70.7418	81.0372	88.7973	101.0988	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	13.9814	11.2164	10.0991	7.3990	5.7152	4.6694	5.2136	6.7769	8.8025	11.5493	13.0450	14.3700	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.3226	-23.5452	-36.7140	-44.2715	-49.8257	-45.2912	-44.5969	-40.9112	-34.5601	-27.8049	-17.4170	-13.0370	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-3.4599	-7.7973	-16.6658	-27.2680	-38.5553	-41.6014	-41.1474	-34.0040	-24.1135	-12.2623	-4.8617	-2.6807	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	805.3481	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	175.1000	
Water heating fuel used	988.6610	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
Total electricity for the above, kWh/year	0.0000	(231)
Electricity for lighting (calculated in Appendix L)	112.8379	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	-647.7148	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	1259.1322	(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	805.3481	0.1544	124.3417	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	988.6610	0.1416	139.9728	(264)
Space and water heating			264.3145	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)
Energy for lighting	112.8379	0.1443	16.2860	(268)

Energy saving/generation technologies

PV Unit electricity used in dwelling	-393.2974	0.1335	-52.5099	
PV Unit electricity exported	-254.4174	0.1229	-31.2739	
Total			-83.7838	(269)
Total CO2, kg/year			196.8167	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			3.9700	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	805.3481	1.5716	1265.6820	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	988.6610	1.5235	1506.2629	(278)
Space and water heating			2771.9449	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	112.8379	1.5338	173.0745	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-393.2974	1.4934	-587.3452	
PV Unit electricity exported	-254.4174	0.4510	-114.7454	
Total			-702.0906	(283)
Total Primary energy kWh/year			2242.9287	(286)
Dwelling Primary energy Rate (DPER)			45.2200	(287)

Full SAP Calculation Printout

Plot Reference	Unit D	Issued on Date	13/02/2026
Assessment Reference	Unit D - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	86 B	DER	3.97	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.17	DFEE	46.28	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	45.22	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	49.6000	(1b)	x 2.8000	(2b) =	138.8800	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	49.6000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	138.8800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1440	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3940	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3349	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4270	0.4186	0.4103	0.3684	0.3600	0.3182	0.3182	0.3098	0.3349	0.3600	0.3768	0.3935	(22b)

If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)	0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =	0.0000	(23c)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Effective ac	0.5912	0.5876	0.5842	0.5679	0.5648	0.5506	0.5506	0.5480	0.5561	0.5648	0.5710	0.5774	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			8.4000	1.1450	9.6183			(27)
GF			49.6000	0.1500	7.4400			(28a)
EW	41.4400	8.4000	33.0400	0.1800	5.9472			(29a)
Total net area of external elements Aum(A, m2)			91.0400					(31)
Fabric heat loss, W/K = Sum (A x U)				(26)...(30) + (32) =	23.0055			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	18.2080	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	41.2135	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	27.0935	26.9312	26.7722	26.0252	25.8854	25.2348	25.2348	25.1144	25.4854	25.8854	26.1682	26.4637	(38)
Heat transfer coeff	68.3070	68.1447	67.9857	67.2387	67.0990	66.4484	66.4484	66.3279	66.6990	67.0990	67.3817	67.6773	(39)

Average = Sum(39)m / 12 = 67.2380

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3772	1.3739	1.3707	1.3556	1.3528	1.3397	1.3397	1.3373	1.3447	1.3528	1.3585	1.3645	(40)
HLP (average)												1.3556	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 1.6783 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

22.6396	22.3033	21.8298	20.9568	20.3031	19.5783	19.1867	19.6569	20.1688	20.9445	21.8355	22.5630	(42b)

Hot water usage for other uses

31.8178	30.6608	29.5038	28.3467	27.1897	26.0327	26.0327	27.1897	28.3467	29.5038	30.6608	31.8178	(42c)

Average daily hot water use (litres/day) 49.9157 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	54.4573	52.9641	51.3336	49.3036	47.4929	45.6110	45.2195	46.8467	48.5156	50.4482	52.4962	54.3808	(44)
Energy conte	86.2471	75.4202	78.8978	67.4941	63.9345	56.0841	54.6890	58.0059	59.8246	68.4578	74.7905	85.1472	(45)
Energy content (annual)										Total = Sum(45)m =		828.9928	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	73.3100	64.1071	67.0632	57.3700	54.3443	47.6714	46.4857	49.3051	50.8509	58.1891	63.5719	72.3751	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	73.3100	64.1071	67.0632	57.3700	54.3443	47.6714	46.4857	49.3051	50.8509	58.1891	63.5719	72.3751	(64)
									Total per year (kWh/year) = Sum(64)m =			704.6439	(64)
12Total per year (kWh/year)												705	(64)
Electric shower(s)													
	41.9313	37.3611	40.7969	38.9320	39.6625	37.8342	39.0954	39.6625	38.9320	40.7969	40.0298	41.9313	(64a)

Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m = 476.9659 (64a)

Heat gains from water heating, kWh/month

28.8103	25.3671	26.9650	24.0755	23.5017	21.3764	21.3953	22.2419	22.4457	24.7465	25.9004	28.5766	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	76.1040	84.2580	76.1040	78.6408	76.1040	78.6408	76.1040	76.1040	78.6408	76.1040	78.6408	76.1040	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	146.1951	147.7121	143.8892	135.7507	125.4773	115.8217	109.3712	107.8541	111.6770	119.8156	130.0890	139.7446	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	(71)
Water heating gains (Table 5)													
	38.7236	37.7486	36.2433	33.4382	31.5883	29.6895	28.7571	29.8950	31.1746	33.2614	35.9728	38.4094	(72)
Total internal gains													
	309.1976	317.8937	304.4115	296.0046	281.3445	272.3269	262.4072	262.0281	269.6674	277.3559	292.8775	302.4329	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	2.9000	19.6403	0.6300	0.7000	0.7700	17.4067	(76)
South	5.5000	46.7521	0.6300	0.7000	0.7700	78.5842	(78)

Solar gains	95.9909	162.7519	220.0194	267.0757	293.3151	288.4214	279.2381	260.2233	236.4771	179.2205	114.8532	82.2184	(83)
Total gains	405.1885	480.6456	524.4309	563.0803	574.6596	560.7483	541.6453	522.2514	506.1445	456.5764	407.7308	384.6513	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.1959	23.2512	23.3056	23.5645	23.6135	23.8447	23.8447	23.8881	23.7552	23.6135	23.5145	23.4118	
alpha	2.5464	2.5501	2.5537	2.5710	2.5742	2.5896	2.5896	2.5925	2.5837	2.5742	2.5676	2.5608	
util living area													
	0.9526	0.9276	0.8955	0.8366	0.7492	0.6162	0.4833	0.5137	0.6859	0.8514	0.9296	0.9579	(86)
MIT	18.3454	18.7072	19.1811	19.7875	20.3146	20.7163	20.8912	20.8689	20.5985	19.9049	19.0281	18.2867	(87)
Th 2	19.7809	19.7834	19.7859	19.7975	19.7997	19.8099	19.8099	19.8118	19.8060	19.7997	19.7953	19.7907	(88)
util rest of house													
	0.9445	0.9157	0.8777	0.8070	0.6999	0.5350	0.3716	0.4038	0.6124	0.8184	0.9159	0.9507	(89)
MIT 2	17.4077	17.7623	18.2249	18.8123	19.2991	19.6457	19.7672	19.7568	19.5552	18.9366	18.0907	17.3566	(90)
Living area fraction										fLA = Living area / (4) =		0.5282	(91)
MIT	17.9030	18.2614	18.7300	19.3274	19.8355	20.2112	20.3609	20.3443	20.1063	19.4481	18.5858	17.8479	(92)
Temperature adjustment												0.0000	

adjusted MIT	17.9030	18.2614	18.7300	19.3274	19.8355	20.2112	20.3609	20.3443	20.1063	19.4481	18.5858	17.8479	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9281	0.8967	0.8587	0.7936	0.7015	0.5642	0.4256	0.4555	0.6325	0.8071	0.8984	0.9352	(94)
Useful gains	376.0440	431.0109	450.3379	446.8805	403.1129	316.3805	230.5419	237.8823	320.1550	368.4815	366.3036	359.7314	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	929.1828	910.5086	831.4633	701.1265	545.8829	372.8564	249.9065	261.6146	400.6120	593.6981	773.9352	923.6550	(97)
Space heating kWh	411.5353	322.2225	283.5573	183.0571	106.2209	0.0000	0.0000	0.0000	0.0000	167.5612	293.4947	419.5591	(98a)
Space heating requirement - total per year (kWh/year)												2187.2080	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	411.5353	322.2225	283.5573	183.0571	106.2209	0.0000	0.0000	0.0000	0.0000	167.5612	293.4947	419.5591	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2187.2080	
Space heating per m2											(98c) / (4) =	44.0969	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W	0.0000	0.0000	0.0000	0.0000	0.0000	624.6146	491.7179	504.0919	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7226	0.7919	0.7728	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	451.3417	389.4067	389.5738	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	626.6473	605.8898	584.6958	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh	0.0000	0.0000	0.0000	0.0000	0.0000	126.2201	161.0634	145.1707	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh	0.0000	0.0000	0.0000	0.0000	0.0000	31.5550	40.2659	36.2927	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												108.1136	(107)
Energy for space heating												44.0969	(99)
Energy for space cooling												2.1797	(108)
Total												46.2766	(109)
Fabric Energy Efficiency (DFEE)												46.3	(109)

Full SAP Calculation Printout

Plot Reference	Unit D	Issued on Date	13/02/2026
Assessment Reference	Unit D - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	86 B	DER	3.97	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.17	DFEE	46.28	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	45.22	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

		Area		Storey height		Volume	
Main dwelling		(m2)		(m)		(m3)	
Ground floor		49.6000	(1b)	x 2.8000	(2b) =	138.8800	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	49.6000						(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	138.8800	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1440	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3940	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3349	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4270	0.4186	0.4103	0.3684	0.3600	0.3182	0.3182	0.3098	0.3349	0.3600	0.3768	0.3935	(22b)
Effective ac	0.5912	0.5876	0.5842	0.5679	0.5648	0.5506	0.5506	0.5480	0.5561	0.5648	0.5710	0.5774	(25)

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3. Heat losses and heat loss parameter

Element	Gross	Openings	NetArea	U-value	A x U	K-value	A x K	
Main dwelling	m2	m2	m2	W/m2K	W/K	kJ/m2K	kJ/K	
Windows			8.4000	1.1450	9.6183			(27)
GF			49.6000	0.1500	7.4400			(28a)
EW	41.4400	8.4000	33.0400	0.1800	5.9472			(29a)
Total net area of external elements Aum(A, m2)			91.0400					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		23.0055			(33)
Main dwelling								
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	18.2080	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	41.2135	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	27.0935	26.9312	26.7722	26.0252	25.8854	25.2348	25.2348	25.1144	25.4854	25.8854	26.1682	26.4637	(38)
Heat transfer coeff	68.3070	68.1447	67.9857	67.2387	67.0990	66.4484	66.4484	66.3279	66.6990	67.0990	67.3817	67.6773	(39)
Average = Sum(39)m / 12 =												67.2380	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3772	1.3739	1.3707	1.3556	1.3528	1.3397	1.3397	1.3373	1.3447	1.3528	1.3585	1.3645	(40)
HLP (average)												1.3556	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy												1.6783	(42)
Hot water usage for mixer showers													
	58.9045	58.0193	56.7293	54.2613	52.4399	50.4087	49.2542	50.5344	51.9377	54.1186	56.6396	58.6788	(42a)
Hot water usage for baths													
	22.6396	22.3033	21.8298	20.9568	20.3031	19.5783	19.1867	19.6569	20.1688	20.9445	21.8355	22.5630	(42b)
Hot water usage for other uses													
	31.8178	30.6608	29.5038	28.3467	27.1897	26.0327	26.0327	27.1897	28.3467	29.5038	30.6608	31.8178	(42c)
Average daily hot water use (litres/day)												104.2237	(43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	113.3618	110.9834	108.0630	103.5649	99.9328	96.0197	94.4737	97.3810	100.4533	104.5668	109.1359	113.0596	(44)
Energy conte	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(45)
Energy content (annual)										Total = Sum(45)m =		1731.1454	
Distribution loss (46)m = 0.15 x (45)m													
	26.9306	23.7058	24.9133	21.2663	20.1793	17.7101	17.1387	18.0867	18.5803	21.2844	23.3226	26.5536	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(64)
										Total per year (kWh/year) = Sum(64)m =		1731.1454	(64)
12Total per year (kWh/year)												1731	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	59.6962	52.5479	55.2245	47.1402	44.7308	39.2574	37.9907	40.0922	41.1864	47.1805	51.6984	58.8605	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	83.9165	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	76.1040	84.2580	76.1040	78.6408	76.1040	78.6408	76.1040	76.1040	78.6408	76.1040	78.6408	76.1040	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	146.1951	147.7121	143.8892	135.7507	125.4773	115.8217	109.3712	107.8541	111.6770	119.8156	130.0890	139.7446	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	31.3917	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	-67.1332	(71)
Water heating gains (Table 5)													
	80.2368	78.1963	74.2265	65.4725	60.1220	54.5242	51.0628	53.8874	57.2034	63.4146	71.8034	79.1136	(72)
Total internal gains													
	353.7108	361.3414	345.3946	331.0390	312.8782	297.1616	284.7129	286.0204	295.6962	310.5091	331.7081	346.1371	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
East	2.9000	19.6403	0.6300	0.7000	0.7700	17.4067	(76)
South	5.5000	46.7521	0.6300	0.7000	0.7700	78.5842	(78)

Solar gains	95.9909	162.7519	220.0194	267.0757	293.3151	288.4214	279.2381	260.2233	236.4771	179.2205	114.8532	82.2184	(83)
Total gains	449.7018	524.0933	565.4140	598.1146	606.1933	585.5831	563.9510	546.2438	532.1733	489.7296	446.5614	428.3555	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C)												21.0000	(85)
Utilisation factor for gains for living area, ni1,m (see Table 9a)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.1959	23.2512	23.3056	23.5645	23.6135	23.8447	23.8447	23.8881	23.7552	23.6135	23.5145	23.4118	
alpha	2.5464	2.5501	2.5537	2.5710	2.5742	2.5896	2.5896	2.5925	2.5837	2.5742	2.5676	2.5608	
util living area													
	0.9412	0.9144	0.8803	0.8199	0.7306	0.5991	0.4681	0.4964	0.6668	0.8331	0.9159	0.9472	(86)
MIT	18.4766	18.8246	19.2801	19.8560	20.3582	20.7351	20.8991	20.8792	20.6259	19.9731	19.1340	18.4184	(87)
Th 2	19.7809	19.7834	19.7859	19.7975	19.7997	19.8099	19.8099	19.8118	19.8060	19.7997	19.7953	19.7907	(88)
util rest of house													
	0.9316	0.9007	0.8605	0.7886	0.6799	0.5182	0.3587	0.3885	0.5926	0.7977	0.9001	0.9385	(89)
MIT 2	16.8991	17.3342	17.9017	18.6117	19.2026	19.6147	19.7595	19.7474	19.5089	18.7694	17.7373	16.8318	(90)
Living area fraction										fLA = Living area / (4) =		0.5282	(91)
MIT	17.7324	18.1215	18.6298	19.2689	19.8130	20.2066	20.3615	20.3452	20.0989	19.4052	18.4751	17.6699	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.7324	18.1215	18.6298	19.2689	19.8130	20.2066	20.3615	20.3452	20.0989	19.4052	18.4751	17.6699	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9099	0.8770	0.8376	0.7727	0.6805	0.5468	0.4115	0.4392	0.6124	0.7840	0.8780	0.9178	(94)
Useful gains	409.1622	459.6095	473.6011	462.1448	412.5111	320.2075	232.0621	239.9040	325.8898	383.9507	392.0716	393.1366	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	917.5246	900.9745	824.6509	697.1937	544.3764	372.5463	249.9441	261.6795	400.1198	590.8218	766.4728	911.6056	(97)
Space heating kWh	378.2216	296.5973	261.1811	169.2352	98.1078	0.0000	0.0000	0.0000	0.0000	153.9121	269.5689	385.7410	(98a)
Space heating requirement - total per year (kWh/year)												2012.5650	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	378.2216	296.5973	261.1811	169.2352	98.1078	0.0000	0.0000	0.0000	0.0000	153.9121	269.5689	385.7410	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2012.5650	
Space heating per m2											(98c) / (4) =	40.5759	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	249.9000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	378.2216	296.5973	261.1811	169.2352	98.1078	0.0000	0.0000	0.0000	0.0000	153.9121	269.5689	385.7410	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	151.3492	118.6864	104.5142	67.7212	39.2588	0.0000	0.0000	0.0000	0.0000	61.5895	107.8707	154.3581	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	179.5375	158.0389	166.0887	141.7751	134.5287	118.0675	114.2577	120.5781	123.8690	141.8961	155.4841	177.0240	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	102.5342	90.2563	94.8536	80.9681	76.8297	67.4286	65.2529	68.8624	70.7418	81.0372	88.7973	101.0988	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	13.9814	11.2164	10.0991	7.3990	5.7152	4.6694	5.2136	6.7769	8.8025	11.5493	13.0450	14.3700	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.3226	-23.5452	-36.7140	-44.2715	-49.8257	-45.2912	-44.5969	-40.9112	-34.5601	-27.8049	-17.4170	-13.0370	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-3.4599	-7.7973	-16.6658	-27.2680	-38.5553	-41.6014	-41.1474	-34.0040	-24.1135	-12.2623	-4.8617	-2.6807	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	805.3481	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	175.1000	
Water heating fuel used	988.6610	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
Total electricity for the above, kWh/year	0.0000	(231)
Electricity for lighting (calculated in Appendix L)	112.8379	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	-647.7148	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	1259.1322	(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	805.3481	0.1544	124.3417	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	988.6610	0.1416	139.9728	(264)
Space and water heating			264.3145	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)
Energy for lighting	112.8379	0.1443	16.2860	(268)

Energy saving/generation technologies

PV Unit electricity used in dwelling	-393.2974	0.1335	-52.5099	
PV Unit electricity exported	-254.4174	0.1229	-31.2739	
Total			-83.7838	(269)
Total CO2, kg/year			196.8167	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			3.9700	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	805.3481	1.5716	1265.6820	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	988.6610	1.5235	1506.2629	(278)
Space and water heating			2771.9449	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	112.8379	1.5338	173.0745	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-393.2974	1.4934	-587.3452	
PV Unit electricity exported	-254.4174	0.4510	-114.7454	
Total			-702.0906	(283)
Total Primary energy kWh/year			2242.9287	(286)
Dwelling Primary energy Rate (DPER)			45.2200	(287)

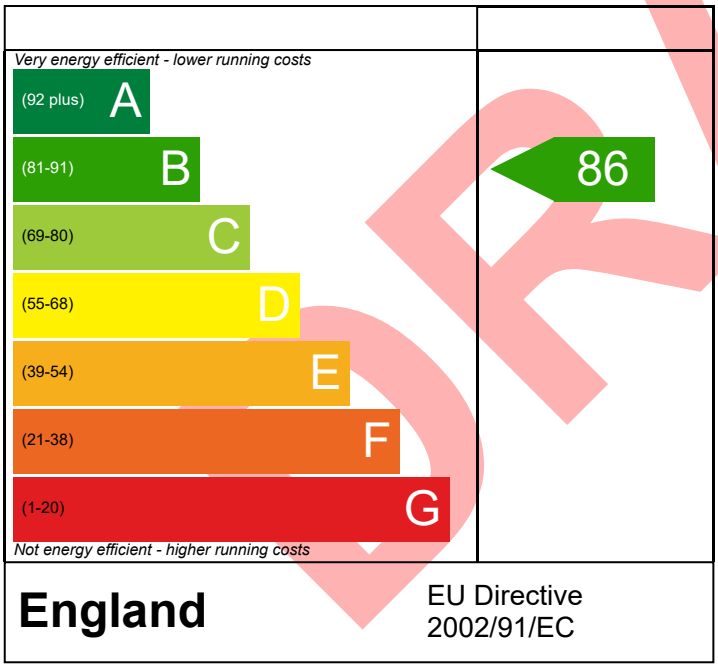
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	49.6 m²
DRRN:	

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

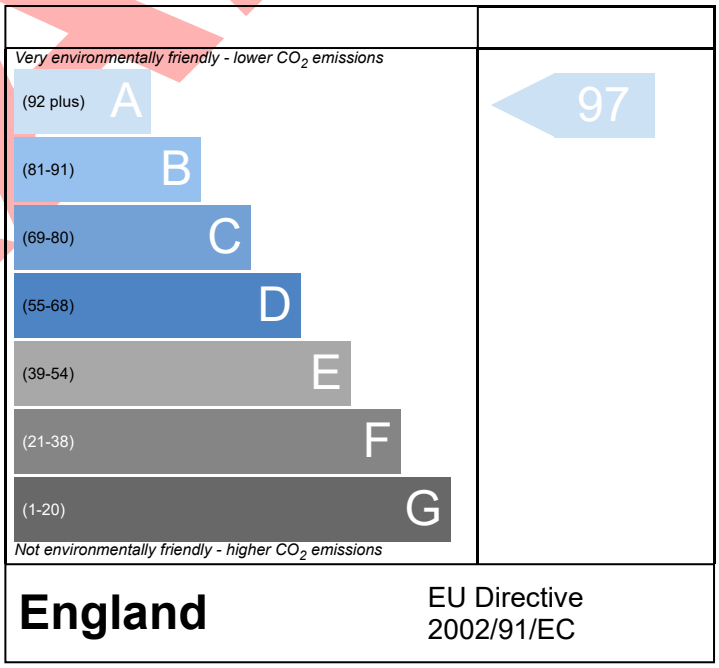
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

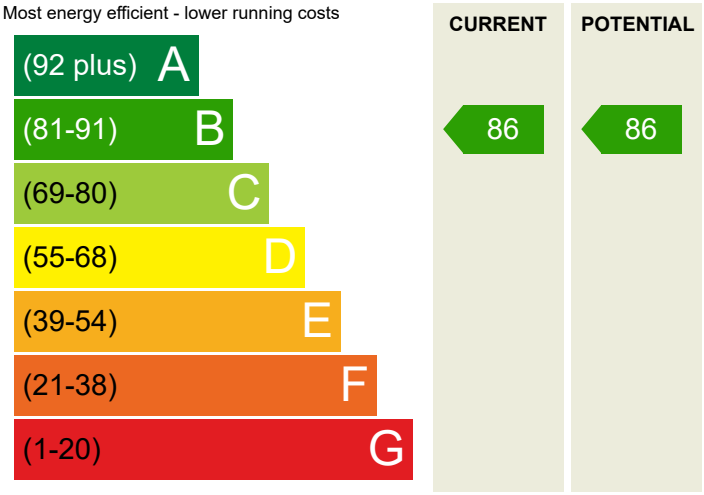
Energy Report

Dwelling Address	
Reference	Unit D-Unit D - BG
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	50

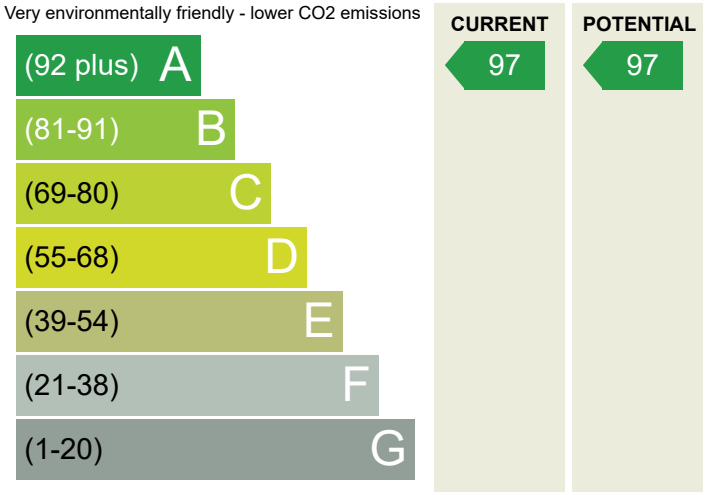
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

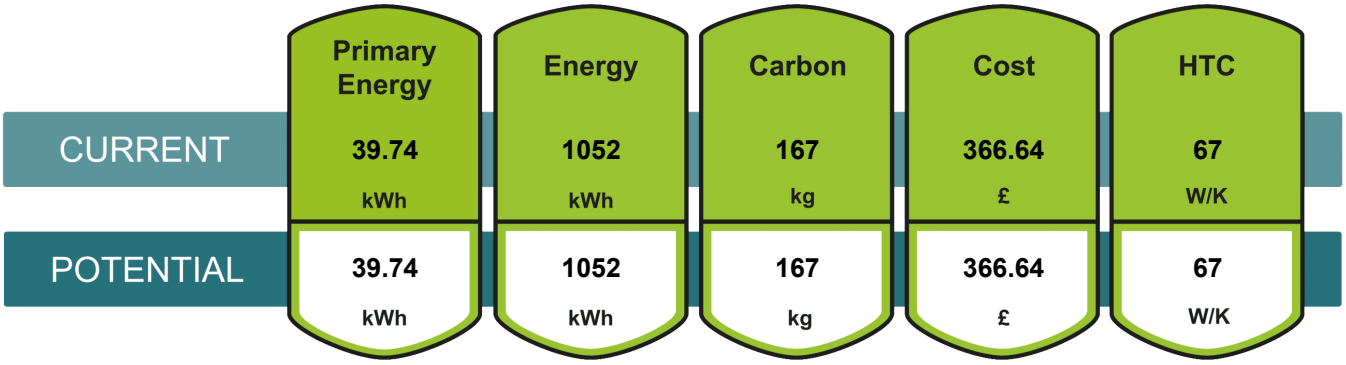


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Floor	Average thermal transmittance 0.15 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Air source heat pump, radiators, electric	Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Average
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£32	£32	
Heating	£191	£191	
Hot Water	£281	£281	
New Technologies e.g. Impact of PV	-(£138)	-(£138)	
TOTAL	£367	£367	

Estimated energy use and potential savings

Space Heating
674
kWh per year

Water Heating
989
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit E	**Issued on Date**	13/02/2026
Assessment Reference	Unit E - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	80 C	**DER**	22.25	**TER**	
Environmental	81 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.74	**DFEE**	69.43	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	121.91	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Top-floor flat	
Which Floor	1	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	28.40 m	86.30 m²	2.80 m

8.0 Living Area 26.20 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.30		79.52	63.02	0.00	None	16.50	Calculate Wall Area

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Sloping Ceiling	External Slope Roof	Plasterboard, insulated slope	0.15	9.00	46.80	46.80	None	0.00	Enter Gross Area	0.00
Plan Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.15	9.00	48.80	48.80	None	0.00	Enter Gross Area	0.00

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Timber I-joists, carpeted	30.00	86.40

12.0 Opening Types

Summary for Input Data

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	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
W	Windows	EW	West	8.20	
S	Windows	EW	South	8.30	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	No	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	75.00	5.00	375.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Unknown	

Summary for Input Data

Boiler Interlock	Yes
Combi boiler type	Standard Combi
Combi keep hot type	None

25.0 Main Heating 2 — None

26.0 Heat Networks — None

27.0 Secondary Heating — None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder — None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit E	Issued on Date	13/02/2026
Assessment Reference	Unit E - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	80 C	DER	22.25	TER	
Environmental	81 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.74	DFEE	69.43	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	121.91	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	86.3000	(1b)	x 2.8000	(2b) =	241.6400	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	86.3000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	241.6400	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.0828	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8328	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7079	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9025	0.8848	0.8671	0.7786	0.7609	0.6725	0.6725	0.6548	0.7079	0.7609	0.7963	0.8317	(22b)
Effective ac	0.9073	0.8914	0.8759	0.8031	0.7895	0.7261	0.7261	0.7144	0.7505	0.7895	0.8171	0.8459	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			16.5000	1.5038	24.8120			(27)
EW	79.5200	16.5000	63.0200	0.3000	18.9060			(29a)
Sloping Ceiling	46.8000		46.8000	0.1500	7.0200			(30)
Plan Roof	48.8000		48.8000	0.1500	7.3200			(30)
Total net area of external elements Aum(A, m2)			175.1200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		58.0580			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	35.0240	(36)
Point Thermal bridges	(36a) = 0.0000	
Total fabric heat loss	(33) + (36) + (36a) = 93.0820	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	72.3463	71.0852	69.8491	64.0432	62.9570	57.9002	57.9002	56.9637	59.8480	62.9570	65.1545	67.4519	(38)
Heat transfer coeff	165.4284	164.1673	162.9312	157.1253	156.0390	150.9822	150.9822	150.0458	152.9300	156.0390	158.2365	160.5339	(39)

Average = Sum(39)m / 12 = 157.1201

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.9169	1.9023	1.8880	1.8207	1.8081	1.7495	1.7495	1.7387	1.7721	1.8081	1.8336	1.8602	(40)
HLP (average)												1.8206	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.5716 (42)

Hot water usage for mixer showers

75.7544	74.6160	72.9571	69.7830	67.4406	64.8284	63.3436	64.9900	66.7947	69.5995	72.8417	75.4642	(42a)

Hot water usage for baths

29.0805	28.6486	28.0404	26.9190	26.0793	25.1482	24.6453	25.2493	25.9068	26.9031	28.0476	28.9821	(42b)

Hot water usage for other uses

40.9659	39.4762	37.9866	36.4969	35.0072	33.5176	33.5176	35.0072	36.4969	37.9866	39.4762	40.9659	(42c)

Average daily hot water use (litres/day) 134.0470 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use	145.8008	142.7408	138.9840	133.1989	128.5272	123.4942	121.5065	125.2465	129.1985	134.4891	140.3655	145.4122	(44)
Energy conte	230.9128	203.2610	213.6133	182.3426	173.0223	151.8505	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(45)
Energy content (annual)										Total = Sum(45)m =		2226.5075	
Distribution loss (46)m = 0.15 x (45)m	34.6369	30.4892	32.0420	27.3514	25.9533	22.7776	22.0427	23.2622	23.8972	27.3751	29.9965	34.1521	(46)
Water storage loss (or HIU loss):													
Total storage loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9589	49.3151	50.9589	50.9589	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(64)
										Total per year (kWh/year) = Sum(64)m =		2826.5075	(64)
12Total per year (kWh/year)												2827	(64)
Electric shower(s)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month	89.5182	79.0911	83.7661	72.9577	70.2696	62.8191	61.6011	64.3043	65.3009	73.4211	78.8209	88.4435	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5	118.5223	131.2211	118.5223	122.4730	118.5223	122.4730	118.5223	118.5223	122.4730	118.5223	122.4730	118.5223	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5	232.1037	234.5122	228.4428	215.5219	199.2115	183.8820	173.6410	171.2325	177.3018	190.2228	206.5332	221.8627	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	(71)
Water heating gains (Table 5)	120.3202	117.6951	112.5889	101.3301	94.4484	87.2487	82.7972	86.4305	90.6957	98.6843	109.4735	118.8756	(72)
Total internal gains	535.5204	548.0027	524.1282	503.8992	476.7564	455.1780	436.5347	437.7594	452.0447	472.0036	503.0540	523.8348	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	8.3000	46.7521	0.6300	0.7000	0.7700	118.5907	(78)
West	8.2000	19.6403	0.6300	0.7000	0.7700	49.2190	(80)

Solar gains	167.8097	290.5039	405.9673	510.8756	574.7939	570.5381	550.1916	503.3344	442.8585	323.7333	201.9408	142.9486	(83)
Total gains	703.3302	838.5066	930.0955	1014.7749	1051.5503	1025.7161	986.7263	941.0938	894.9032	795.7370	704.9947	666.7834	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	16.6646	16.7927	16.9201	17.5453	17.6674	18.2591	18.2591	18.3731	18.0266	17.6674	17.4221	17.1727	
alpha	2.1110	2.1195	2.1280	2.1697	2.1778	2.2173	2.2173	2.2249	2.2018	2.1778	2.1615	2.1448	
util living area	0.9579	0.9384	0.9118	0.8617	0.7869	0.6684	0.5462	0.5782	0.7422	0.8795	0.9403	0.9619	(86)
MIT	17.3597	17.7531	18.3412	19.1656	19.8820	20.4889	20.7717	20.7334	20.2924	19.3457	18.2640	17.3652	(87)
Th 2	19.3893	19.3993	19.4091	19.4556	19.4643	19.5056	19.5056	19.5133	19.4896	19.4643	19.4466	19.4282	(88)
util rest of house	0.9495	0.9262	0.8934	0.8306	0.7323	0.5719	0.4004	0.4376	0.6590	0.8460	0.9265	0.9544	(89)
MIT 2	15.3203	15.8157	16.5545	17.5905	18.4513	19.1462	19.4039	19.3839	18.9459	17.8352	16.4837	15.3393	(90)
Living area fraction										fLA = Living area / (4) =		0.3036	(91)
MIT	15.9395	16.4039	17.0970	18.0687	18.8857	19.5539	19.8191	19.7936	19.3547	18.2938	17.0242	15.9544	(92)
Temperature adjustment												-0.1500	

adjusted MIT	15.7895	16.2539	16.9470	17.9187	18.7357	19.4039	19.6691	19.6436	19.2047	18.1438	16.8742	15.8044	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9191	0.8897	0.8524	0.7893	0.7000	0.5642	0.4185	0.4518	0.6396	0.8060	0.8913	0.9262	(94)
Useful gains	646.4156	745.9979	792.7738	800.9985	736.0337	578.7194	412.9579	425.1599	572.3772	641.3628	628.3890	617.5752	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1900.6866	1863.9378	1702.1378	1417.0650	1097.8388	725.2974	463.3826	486.6818	780.6632	1177.1199	1546.6301	1862.8967	(97)
Space heating kWh	933.1776	751.2556	676.5669	443.5679	269.1830	0.0000	0.0000	0.0000	0.0000	398.6033	661.1336	926.5192	(98a)
Space heating requirement - total per year (kWh/year)												5060.0070	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	933.1776	751.2556	676.5669	443.5679	269.1830	0.0000	0.0000	0.0000	0.0000	398.6033	661.1336	926.5192	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												5060.0070	
Space heating per m2											(98c) / (4) =	58.6328	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												89.5000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	933.1776	751.2556	676.5669	443.5679	269.1830	0.0000	0.0000	0.0000	0.0000	398.6033	661.1336	926.5192	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	1042.6566	839.3918	755.9406	495.6066	300.7632	0.0000	0.0000	0.0000	0.0000	445.3668	738.6967	1035.2170	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(64)
Efficiency of water heater												81.0000	(216)
(217)m	87.3730	87.2196	86.9354	86.3898	85.4285	81.0000	81.0000	81.0000	81.0000	86.1604	87.0001	87.3800	(217)
Fuel for water heating, kWh/month	322.6074	285.8170	304.3319	268.1541	262.1856	248.3526	244.3340	254.3707	257.5675	270.9590	286.5415	318.8824	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	25.3302	20.3208	18.2967	13.4049	10.3543	8.4596	9.4456	12.2777	15.9476	20.9240	23.6337	26.0342	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	5653.6392	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	3324.1038	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	204.4294	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	9223.1723	(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	5653.6392	0.2100	1187.2642	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	3324.1038	0.2100	698.0618	(264)
Space and water heating			1885.3260	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)

Energy for lighting	204.4294	0.1443	29.5055	(268)
Total CO2, kg/year			1920.5187	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			22.2500	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	5653.6392	1.1300	6388.6123	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	3324.1038	1.1300	3756.2373	(278)
Space and water heating			10144.8495	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	204.4294	1.5338	313.5606	(282)
Total Primary energy kWh/year			10520.4349	(286)
Dwelling Primary energy Rate (DPER)			121.9100	(287)

Full SAP Calculation Printout

Plot Reference	Unit E	Issued on Date	13/02/2026
Assessment Reference	Unit E - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	80 C	DER	22.25	TER	
Environmental	81 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.74	DFEE	69.43	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	121.91	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	86.3000 (1b)	x	2.8000 (2b)	=	241.6400	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	86.3000					(4)
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	241.6400	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	3 * 10 =	30.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	30.0000 / (5) =	0.1242	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8742	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7430	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9474	0.9288	0.9102	0.8173	0.7988	0.7059	0.7059	0.6873	0.7430	0.7988	0.8359	0.8731	(22b)
If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)												0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =												0.0000	(23c)
Effective ac	0.9487	0.9313	0.9142	0.8340	0.8190	0.7491	0.7491	0.7362	0.7760	0.8190	0.8494	0.8811	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			16.5000	1.5038	24.8120			(27)
EW	79.5200	16.5000	63.0200	0.3000	18.9060			(29a)
Sloping Ceiling	46.8000		46.8000	0.1500	7.0200			(30)
Plan Roof	48.8000		48.8000	0.1500	7.3200			(30)
Total net area of external elements Aum(A, m2)			175.1200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		58.0580			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	35.0240	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	93.0820	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	75.6542	74.2647	72.9027	66.5054	65.3085	59.7366	59.7366	58.7048	61.8828	65.3085	67.7298	70.2612	(38)

Heat transfer coeff

	168.7363	167.3467	165.9847	159.5874	158.3905	152.8187	152.8187	151.7868	154.9649	158.3905	160.8119	163.3433 (39)
Average = Sum(39)m / 12 =												159.5817

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.9552	1.9391	1.9233	1.8492	1.8353	1.7708	1.7708	1.7588	1.7957	1.8353	1.8634	1.8927	(40)
HLP (average)												1.8492	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.5716 (42)

Hot water usage for mixer showers

	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000 (42a)

Hot water usage for baths

	29.0805	28.6486	28.0404	26.9190	26.0793	25.1482	24.6453	25.2493	25.9068	26.9031	28.0476	28.9821 (42b)

Hot water usage for other uses

	40.9659	39.4762	37.9866	36.4969	35.0072	33.5176	33.5176	35.0072	36.4969	37.9866	39.4762	40.9659 (42c)

Average daily hot water use (litres/day) 64.2039 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	70.0464	68.1248	66.0270	63.4159	61.0866	58.6658	58.1629	60.2565	62.4037	64.8897	67.5238	69.9481	(44)
Energy conte	110.9363	97.0088	101.4810	86.8132	82.2342	72.1365	70.3430	74.6101	76.9500	88.0547	96.2001	109.5218	(45)
Energy content (annual)										Total = Sum(45)m =		1066.2897	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	94.2959	82.4575	86.2588	73.7912	69.8991	61.3160	59.7915	63.4186	65.4075	74.8465	81.7701	93.0935	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	94.2959	82.4575	86.2588	73.7912	69.8991	61.3160	59.7915	63.4186	65.4075	74.8465	81.7701	93.0935	(64)
										Total per year (kWh/year) = Sum(64)m =		906.3463	(64)
12Total per year (kWh/year)												906	(64)
Electric shower(s)													
	53.9259	48.0485	52.4671	50.0687	51.0082	48.6569	50.2788	51.0082	50.0687	52.4671	51.4805	53.9259	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		613.4044	(64a)
Heat gains from water heating, kWh/month													
	37.0555	32.6265	34.6815	30.9650	30.2268	27.4932	27.5176	28.6067	28.8691	31.8284	33.3126	36.7549	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	118.5223	131.2211	118.5223	122.4730	118.5223	122.4730	118.5223	118.5223	122.4730	118.5223	122.4730	118.5223	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	232.1037	234.5122	228.4428	215.5219	199.2115	183.8820	173.6410	171.2325	177.3018	190.2228	206.5332	221.8627	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	(71)
Water heating gains (Table 5)													
	49.8057	48.5513	46.6149	43.0069	40.6275	38.1850	36.9860	38.4499	40.0959	42.7801	46.2676	49.4017	(72)
Total internal gains													
	462.0059	475.8589	455.1542	442.5760	419.9354	406.1143	390.7235	389.7788	401.4450	413.0994	436.8480	451.3609	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	8.3000	46.7521	0.6300	0.7000	0.7700	118.5907	(78)
West	8.2000	19.6403	0.6300	0.7000	0.7700	49.2190	(80)

Solar gains	167.8097	290.5039	405.9673	510.8756	574.7939	570.5381	550.1916	503.3344	442.8585	323.7333	201.9408	142.9486	(83)
Total gains	629.8157	766.3627	861.1215	953.4517	994.7294	976.6524	940.9150	893.1132	844.3035	736.8327	638.7888	594.3095	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, nil,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	16.3380	16.4736	16.6088	17.2746	17.4051	18.0397	18.0397	18.1623	17.7899	17.4051	17.1430	16.8774	
alpha	2.0892	2.0982	2.1073	2.1516	2.1603	2.2026	2.2026	2.2108	2.1860	2.1603	2.1429	2.1252	
util living area													
	0.9657	0.9478	0.9232	0.8757	0.8044	0.6882	0.5670	0.6006	0.7626	0.8945	0.9503	0.9694	(86)
MIT	17.1867	17.5899	18.1959	19.0562	19.8025	20.4463	20.7486	20.7061	20.2350	19.2413	18.1232	17.1984	(87)
Th 2	19.3633	19.3742	19.3849	19.4357	19.4454	19.4905	19.4905	19.4990	19.4730	19.4454	19.4260	19.4058	(88)
util rest of house													
	0.9587	0.9371	0.9066	0.8466	0.7518	0.5921	0.4178	0.4574	0.6813	0.8638	0.9384	0.9632	(89)
MIT 2	16.0189	16.4214	17.0223	17.8855	18.5930	19.1844	19.4025	19.3867	19.0102	18.0847	16.9829	16.0543	(90)
Living area fraction										fLA = Living area / (4) =		0.3036	(91)

MIT	16.3735	16.7762	17.3786	18.2410	18.9602	19.5675	19.8111	19.7872	19.3820	18.4359	17.3291	16.4016	(92)
Temperature adjustment												0.0000	
adjusted MIT	16.3735	16.7762	17.3786	18.2410	18.9602	19.5675	19.8111	19.7872	19.3820	18.4359	17.3291	16.4016	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9389	0.9122	0.8779	0.8176	0.7316	0.5978	0.4536	0.4889	0.6754	0.8369	0.9151	0.9451	(94)
Useful gains	591.3405	699.0969	755.9610	779.5758	727.7124	583.8535	426.8053	436.6222	570.2655	616.6418	584.5397	561.6914	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	2037.2304	1987.4407	1805.6836	1490.6989	1149.9418	759.1306	490.7234	514.1382	818.5303	1241.1266	1644.9611	1993.0561	(97)
Space heating kWh													
	1075.7420	865.7670	780.9937	512.0086	314.1387	0.0000	0.0000	0.0000	0.0000	464.6166	763.5034	1064.9353	(98a)
Space heating requirement - total per year (kWh/year)												5841.7055	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	1075.7420	865.7670	780.9937	512.0086	314.1387	0.0000	0.0000	0.0000	0.0000	464.6166	763.5034	1064.9353	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												5841.7055	
Space heating per m2											(98c) / (4) =	67.6907	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	1436.4955	1130.8582	1153.5801	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.5904	0.6635	0.6386	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	848.1682	750.3551	736.6992	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	1094.3024	1054.8717	1001.3325	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	177.2166	226.5604	196.8872	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	44.3042	56.6401	49.2218	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												150.1660	(107)
Energy for space heating												67.6907	(99)
Energy for space cooling												1.7400	(108)
Total												69.4307	(109)
Fabric Energy Efficiency (DFEE)												69.4	(109)

Full SAP Calculation Printout

Plot Reference	Unit E	Issued on Date	13/02/2026
Assessment Reference	Unit E - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	80 C	DER	22.25	TER	
Environmental	81 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.74	DFEE	69.43	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	121.91	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	86.3000	(1b)	x 2.8000	(2b) =	241.6400	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	86.3000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	241.6400	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.0828	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8328	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7079	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9025	0.8848	0.8671	0.7786	0.7609	0.6725	0.6725	0.6548	0.7079	0.7609	0.7963	0.8317	(22b)
Effective ac	0.9073	0.8914	0.8759	0.8031	0.7895	0.7261	0.7261	0.7144	0.7505	0.7895	0.8171	0.8459	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			16.5000	1.5038	24.8120			(27)
EW	79.5200	16.5000	63.0200	0.3000	18.9060			(29a)
Sloping Ceiling	46.8000		46.8000	0.1500	7.0200			(30)
Plan Roof	48.8000		48.8000	0.1500	7.3200			(30)
Total net area of external elements Aum(A, m2)			175.1200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		58.0580			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	35.0240	(36)
Point Thermal bridges	(36a) = 0.0000	
Total fabric heat loss	(33) + (36) + (36a) = 93.0820	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	72.3463	71.0852	69.8491	64.0432	62.9570	57.9002	57.9002	56.9637	59.8480	62.9570	65.1545	67.4519	(38)
Heat transfer coeff	165.4284	164.1673	162.9312	157.1253	156.0390	150.9822	150.9822	150.0458	152.9300	156.0390	158.2365	160.5339	(39)

Average = Sum(39)m / 12 = 157.1201

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.9169	1.9023	1.8880	1.8207	1.8081	1.7495	1.7495	1.7387	1.7721	1.8081	1.8336	1.8602	(40)
HLP (average)												1.8206	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.5716 (42)

Hot water usage for mixer showers

75.7544	74.6160	72.9571	69.7830	67.4406	64.8284	63.3436	64.9900	66.7947	69.5995	72.8417	75.4642	(42a)

Hot water usage for baths

29.0805	28.6486	28.0404	26.9190	26.0793	25.1482	24.6453	25.2493	25.9068	26.9031	28.0476	28.9821	(42b)

Hot water usage for other uses

40.9659	39.4762	37.9866	36.4969	35.0072	33.5176	33.5176	35.0072	36.4969	37.9866	39.4762	40.9659	(42c)

Average daily hot water use (litres/day) 134.0470 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use	145.8008	142.7408	138.9840	133.1989	128.5272	123.4942	121.5065	125.2465	129.1985	134.4891	140.3655	145.4122	(44)
Energy conte	230.9128	203.2610	213.6133	182.3426	173.0223	151.8505	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(45)
Energy content (annual)										Total = Sum(45)m =		2226.5075	
Distribution loss (46)m = 0.15 x (45)m	34.6369	30.4892	32.0420	27.3514	25.9533	22.7776	22.0427	23.2622	23.8972	27.3751	29.9965	34.1521	(46)
Water storage loss (or HIU loss):													
Total storage loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9589	49.3151	50.9589	50.9589	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(64)
										Total per year (kWh/year) = Sum(64)m =		2826.5075	(64)
12Total per year (kWh/year)												2827	(64)
Electric shower(s)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month	89.5182	79.0911	83.7661	72.9577	70.2696	62.8191	61.6011	64.3043	65.3009	73.4211	78.8209	88.4435	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5	118.5223	131.2211	118.5223	122.4730	118.5223	122.4730	118.5223	118.5223	122.4730	118.5223	122.4730	118.5223	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5	232.1037	234.5122	228.4428	215.5219	199.2115	183.8820	173.6410	171.2325	177.3018	190.2228	206.5332	221.8627	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	(71)
Water heating gains (Table 5)	120.3202	117.6951	112.5889	101.3301	94.4484	87.2487	82.7972	86.4305	90.6957	98.6843	109.4735	118.8756	(72)
Total internal gains	535.5204	548.0027	524.1282	503.8992	476.7564	455.1780	436.5347	437.7594	452.0447	472.0036	503.0540	523.8348	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	8.3000	46.7521	0.6300	0.7000	0.7700	118.5907	(78)
West	8.2000	19.6403	0.6300	0.7000	0.7700	49.2190	(80)

Solar gains	167.8097	290.5039	405.9673	510.8756	574.7939	570.5381	550.1916	503.3344	442.8585	323.7333	201.9408	142.9486	(83)
Total gains	703.3302	838.5066	930.0955	1014.7749	1051.5503	1025.7161	986.7263	941.0938	894.9032	795.7370	704.9947	666.7834	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	16.6646	16.7927	16.9201	17.5453	17.6674	18.2591	18.2591	18.3731	18.0266	17.6674	17.4221	17.1727	
alpha	2.1110	2.1195	2.1280	2.1697	2.1778	2.2173	2.2173	2.2249	2.2018	2.1778	2.1615	2.1448	
util living area	0.9579	0.9384	0.9118	0.8617	0.7869	0.6684	0.5462	0.5782	0.7422	0.8795	0.9403	0.9619	(86)
MIT	17.3597	17.7531	18.3412	19.1656	19.8820	20.4889	20.7717	20.7334	20.2924	19.3457	18.2640	17.3652	(87)
Th 2	19.3893	19.3993	19.4091	19.4556	19.4643	19.5056	19.5056	19.5133	19.4896	19.4643	19.4466	19.4282	(88)
util rest of house	0.9495	0.9262	0.8934	0.8306	0.7323	0.5719	0.4004	0.4376	0.6590	0.8460	0.9265	0.9544	(89)
MIT 2	15.3203	15.8157	16.5545	17.5905	18.4513	19.1462	19.4039	19.3839	18.9459	17.8352	16.4837	15.3393	(90)
Living area fraction										fLA = Living area / (4) =		0.3036	(91)
MIT	15.9395	16.4039	17.0970	18.0687	18.8857	19.5539	19.8191	19.7936	19.3547	18.2938	17.0242	15.9544	(92)
Temperature adjustment												-0.1500	

adjusted MIT	15.7895	16.2539	16.9470	17.9187	18.7357	19.4039	19.6691	19.6436	19.2047	18.1438	16.8742	15.8044	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9191	0.8897	0.8524	0.7893	0.7000	0.5642	0.4185	0.4518	0.6396	0.8060	0.8913	0.9262	(94)
Useful gains	646.4156	745.9979	792.7738	800.9985	736.0337	578.7194	412.9579	425.1599	572.3772	641.3628	628.3890	617.5752	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1900.6866	1863.9378	1702.1378	1417.0650	1097.8388	725.2974	463.3826	486.6818	780.6632	1177.1199	1546.6301	1862.8967	(97)
Space heating kWh	933.1776	751.2556	676.5669	443.5679	269.1830	0.0000	0.0000	0.0000	0.0000	398.6033	661.1336	926.5192	(98a)
Space heating requirement - total per year (kWh/year)												5060.0070	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	933.1776	751.2556	676.5669	443.5679	269.1830	0.0000	0.0000	0.0000	0.0000	398.6033	661.1336	926.5192	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												5060.0070	
Space heating per m2											(98c) / (4) =	58.6328	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												89.5000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	933.1776	751.2556	676.5669	443.5679	269.1830	0.0000	0.0000	0.0000	0.0000	398.6033	661.1336	926.5192	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	1042.6566	839.3918	755.9406	495.6066	300.7632	0.0000	0.0000	0.0000	0.0000	445.3668	738.6967	1035.2170	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(64)
Efficiency of water heater												81.0000	(216)
(217)m	87.3730	87.2196	86.9354	86.3898	85.4285	81.0000	81.0000	81.0000	81.0000	86.1604	87.0001	87.3800	(217)
Fuel for water heating, kWh/month	322.6074	285.8170	304.3319	268.1541	262.1856	248.3526	244.3340	254.3707	257.5675	270.9590	286.5415	318.8824	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	25.3302	20.3208	18.2967	13.4049	10.3543	8.4596	9.4456	12.2777	15.9476	20.9240	23.6337	26.0342	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	5653.6392	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	3324.1038	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	204.4294	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	9223.1723	(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	5653.6392	0.2100	1187.2642	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	3324.1038	0.2100	698.0618	(264)
Space and water heating			1885.3260	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)

Energy for lighting	204.4294	0.1443	29.5055	(268)
Total CO2, kg/year			1920.5187	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			22.2500	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	5653.6392	1.1300	6388.6123	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	3324.1038	1.1300	3756.2373	(278)
Space and water heating			10144.8495	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	204.4294	1.5338	313.5606	(282)
Total Primary energy kWh/year			10520.4349	(286)
Dwelling Primary energy Rate (DPER)			121.9100	(287)

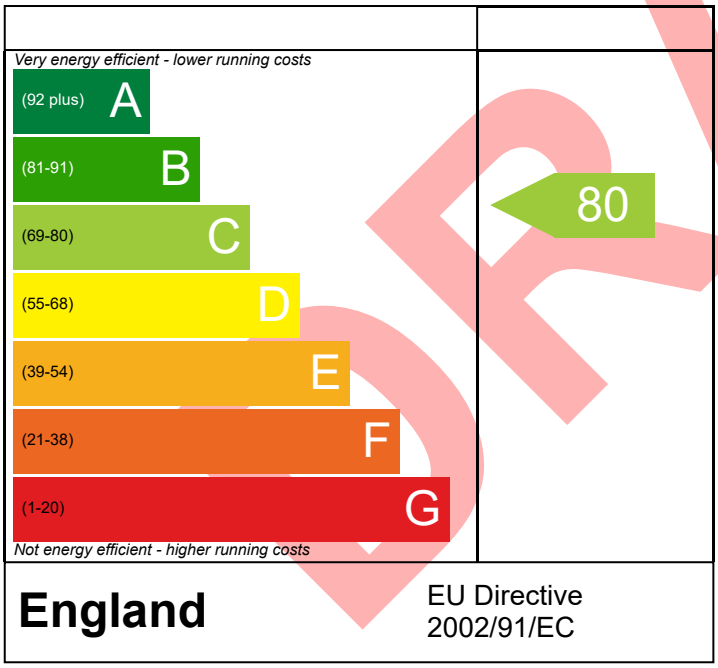
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	86.3 m²
DRRN:	

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

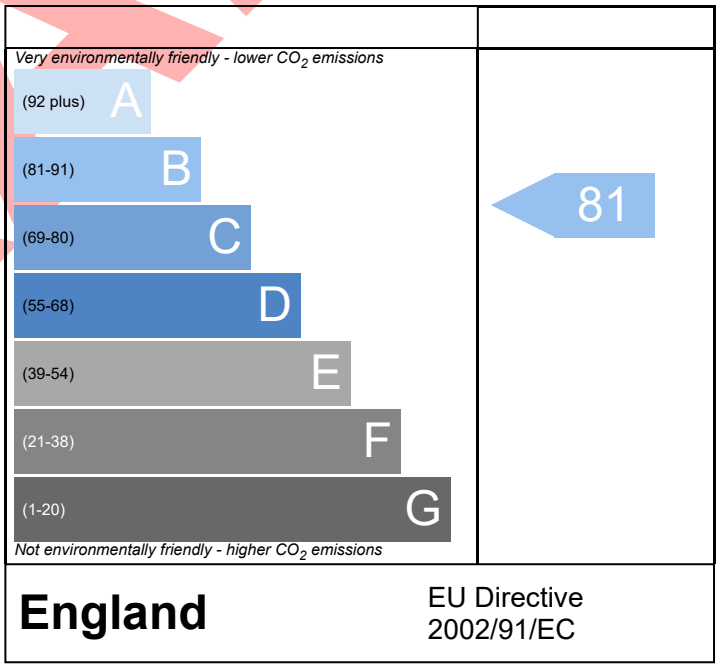
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

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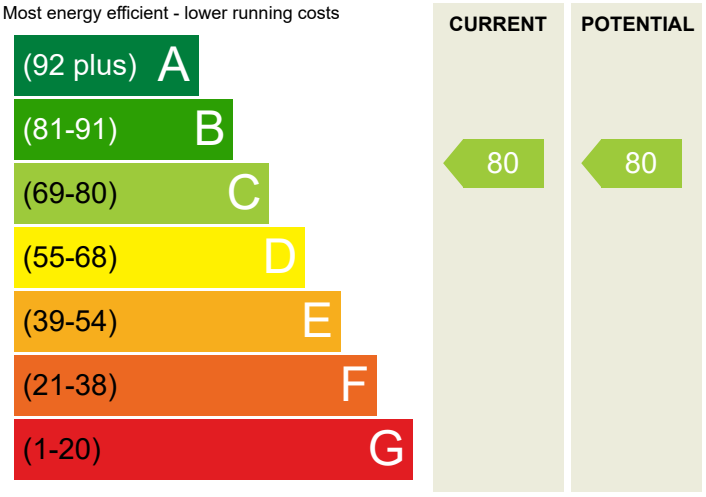
Energy Report

Dwelling Address	
Reference	Unit E-Unit E - BS
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	86

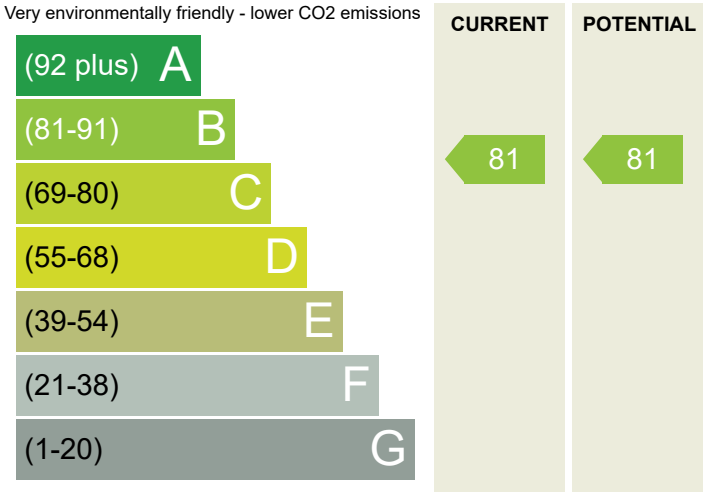
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

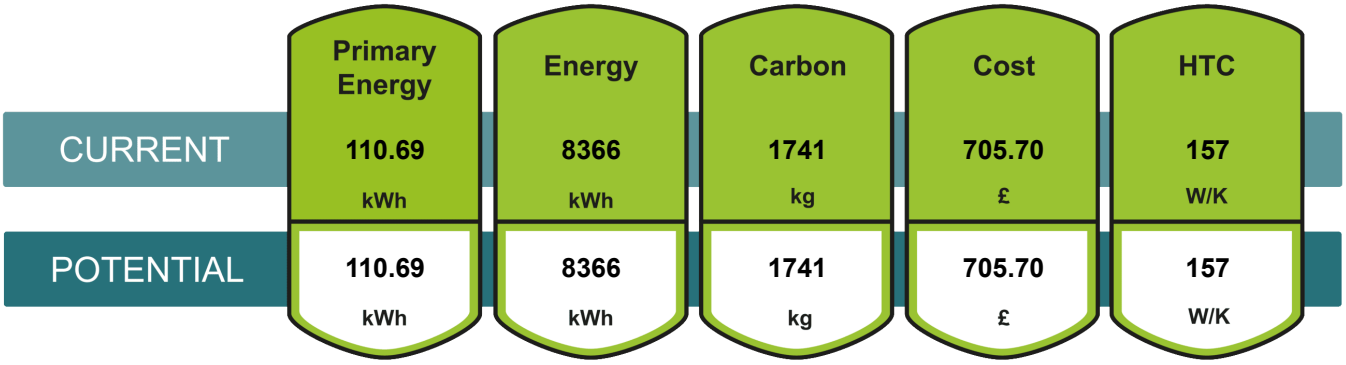


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.3 W/m²K	Good
Roof	Average thermal transmittance 0.15 W/m²K	Very Good
Windows	High performance glazing	Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Good lighting efficiency	Good
Air tightness	(not tested)	

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total

energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£58	£58	
Heating	£429	£429	
Hot Water	£218	£218	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£706	£706	

Estimated energy use and potential savings

Space Heating
4787
kWh per year

Water Heating
3334
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit E	**Issued on Date**	13/02/2026
Assessment Reference	Unit E - BL	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	83 B	**DER**	18.20	**TER**	
Environmental	84 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.45	**DFEE**	49.55	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	99.82	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Top-floor flat	
Which Floor	1	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	28.40 m	86.30 m²	2.80 m

8.0 Living Area 26.20 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		79.52	63.02	0.00	None	16.50	Calculate Wall Area

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Sloping Ceiling	External Slope Roof	Plasterboard, insulated slope	0.13	9.00	46.80	46.80	None	0.00	Enter Gross Area	0.00
Plan Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.13	9.00	48.80	48.80	None	0.00	Enter Gross Area	0.00

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Timber I-joists, carpeted	30.00	86.40

12.0 Opening Types

Summary for Input Data

elmhurst energy

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
W	Windows	EW	West	8.20	
S	Windows	EW	South	8.30	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	

Summary for Input Data

Heat Emitter	Radiators
Flow Temperature	Unknown
Boiler Interlock	Yes
Combi boiler type	Standard Combi
Combi keep hot type	None

25.0 Main Heating 2 — None

26.0 Heat Networks — None

27.0 Secondary Heating — None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder — None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit E	Issued on Date	13/02/2026
Assessment Reference	Unit E - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	83 B	DER	18.20	TER	
Environmental	84 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.45	DFEE	49.55	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	99.82	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	86.3000	(1b)	x 2.8000	(2b) =	241.6400	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	86.3000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	241.6400	(5)

2. Ventilation rate

	m3 per hour	
Number of open chimneys	0 * 80 =	0.0000 (6a)
Number of open flues	0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000 (6d)
Number of flues attached to other heater	0 * 35 =	0.0000 (6e)
Number of blocked chimneys	0 * 20 =	0.0000 (6f)
Number of intermittent extract fans	2 * 10 =	20.0000 (7a)
Number of passive vents	0 * 10 =	0.0000 (7b)
Number of flueless gas fires	0 * 40 =	0.0000 (7c)
	Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.0828 (8)
Pressure test		Yes
Pressure Test Method		Blower Door
Measured/design AP50		5.0000 (17)
Infiltration rate		0.3328 (18)
Number of sides sheltered		2 (19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500 (20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.2829 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.3606	0.3536	0.3465	0.3111	0.3041	0.2687	0.2687	0.2616	0.2829	0.3041	0.3182	0.3324	(22b)
Effective ac	0.5650	0.5625	0.5600	0.5484	0.5462	0.5361	0.5361	0.5342	0.5400	0.5462	0.5506	0.5552	(25)

3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			16.5000	1.1450	18.8931			(27)
EW	79.5200	16.5000	63.0200	0.1800	11.3436			(29a)
Sloping Ceiling	46.8000		46.8000	0.1300	6.0840			(30)
Plan Roof	48.8000		48.8000	0.1300	6.3440			(30)
Total net area of external elements Aum(A, m2)			175.1200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		42.6647			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K		115.0000 (35)
Thermal bridges (Default value 0.200 * total exposed area)		35.0240 (36)
Point Thermal bridges	(36a) =	0.0000
Total fabric heat loss	(33) + (36) + (36a) =	77.6887 (37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	45.0561	44.8548	44.6574	43.7303	43.5569	42.7495	42.7495	42.5999	43.0605	43.5569	43.9078	44.2746	(38)
Heat transfer coeff	122.7449	122.5435	122.3461	121.4191	121.2456	120.4382	120.4382	120.2887	120.7492	121.2456	121.5965	121.9633	(39)

Average = Sum(39)m / 12 = 121.4182

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4223	1.4200	1.4177	1.4069	1.4049	1.3956	1.3956	1.3938	1.3992	1.4049	1.4090	1.4132	(40)
HLP (average)												1.4069	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.5716 (42)

Hot water usage for mixer showers

75.7544	74.6160	72.9571	69.7830	67.4406	64.8284	63.3436	64.9900	66.7947	69.5995	72.8417	75.4642	(42a)

Hot water usage for baths

29.0805	28.6486	28.0404	26.9190	26.0793	25.1482	24.6453	25.2493	25.9068	26.9031	28.0476	28.9821	(42b)

Hot water usage for other uses

40.9659	39.4762	37.9866	36.4969	35.0072	33.5176	33.5176	35.0072	36.4969	37.9866	39.4762	40.9659	(42c)

Average daily hot water use (litres/day) 134.0470 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	145.8008	142.7408	138.9840	133.1989	128.5272	123.4942	121.5065	125.2465	129.1985	134.4891	140.3655	145.4122	(44)
Energy conte	230.9128	203.2610	213.6133	182.3426	173.0223	151.8506	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(45)
Energy content (annual)										Total = Sum(45)m =		2226.5075	
Distribution loss (46)m = 0.15 x (45)m													
	34.6369	30.4892	32.0420	27.3514	25.9533	22.7776	22.0427	23.2622	23.8972	27.3751	29.9965	34.1521	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9589	49.3151	50.9589	50.9589	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(64)
										Total per year (kWh/year) = Sum(64)m =		2826.5075	(64)
12Total per year (kWh/year)												2827	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	89.5182	79.0911	83.7661	72.9577	70.2696	62.8191	61.6011	64.3043	65.3009	73.4211	78.8209	88.4435	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	118.5223	131.2211	118.5223	122.4730	118.5223	122.4730	118.5223	118.5223	122.4730	118.5223	122.4730	118.5223	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	232.1037	234.5122	228.4429	215.5219	199.2115	183.8820	173.6410	171.2325	177.3018	190.2228	206.5332	221.8627	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	(71)
Water heating gains (Table 5)													
	120.3202	117.6951	112.5889	101.3301	94.4484	87.2487	82.7972	86.4305	90.6957	98.6843	109.4735	118.8756	(72)
Total internal gains													
	535.5204	548.0027	524.1282	503.8993	476.7564	455.1780	436.5347	437.7594	452.0448	472.0036	503.0540	523.8348	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	8.3000	46.7521	0.6300	0.7000	0.7700	118.5907	(78)
West	8.2000	19.6403	0.6300	0.7000	0.7700	49.2190	(80)

Solar gains	167.8097	290.5039	405.9673	510.8756	574.7939	570.5381	550.1916	503.3344	442.8585	323.7333	201.9408	142.9486	(83)
Total gains	703.3302	838.5066	930.0955	1014.7749	1051.5503	1025.7161	986.7263	941.0938	894.9032	795.7370	704.9948	666.7834	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.4596	22.4965	22.5328	22.7049	22.7374	22.8898	22.8898	22.9183	22.8308	22.7374	22.6717	22.6036	
alpha	2.4973	2.4998	2.5022	2.5137	2.5158	2.5260	2.5260	2.5279	2.5221	2.5158	2.5114	2.5069	
util living area													
	0.9535	0.9287	0.8945	0.8323	0.7401	0.6085	0.4788	0.5132	0.6900	0.8555	0.9320	0.9588	(86)
MIT	18.2488	18.6162	19.1182	19.7485	20.2996	20.7052	20.8845	20.8585	20.5669	19.8367	18.9311	18.1805	(87)
Th 2	19.7463	19.7481	19.7498	19.7580	19.7596	19.7667	19.7667	19.7681	19.7640	19.7596	19.7564	19.7532	(88)
util rest of house													
	0.9454	0.9167	0.8761	0.8017	0.6889	0.5252	0.3643	0.3998	0.6148	0.8225	0.9185	0.9516	(89)
MIT 2	16.5954	17.0564	17.6835	18.4599	19.1092	19.5510	19.7100	19.6935	19.4194	18.5862	17.4657	16.5133	(90)
Living area fraction										fLA = Living area / (4) =		0.3036	(91)
MIT	17.0973	17.5300	18.1191	18.8511	19.4706	19.9014	20.0666	20.0472	19.7678	18.9658	17.9106	17.0195	(92)
Temperature adjustment												-0.1500	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
adjusted MIT	16.9473	17.3800	17.9691	18.7011	19.3206	19.7514	19.9166	19.8972	19.6178	18.8158	17.7606	16.8695	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9192	0.8855	0.8421	0.7698	0.6679	0.5240	0.3792	0.4127	0.6046	0.7906	0.8880	0.9270	(94)
Useful gains	646.5036	742.4609	783.2351	781.1867	702.3822	537.4859	374.1913	388.4005	541.1001	629.1188	626.0351	618.1330	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1552.3943	1529.3370	1403.1982	1190.0405	923.9609	620.4283	399.4458	420.6722	666.2662	996.1319	1296.2887	1545.2097	(97)
Space heating kWh	673.9826	528.7808	461.2525	294.3747	164.8546	0.0000	0.0000	0.0000	0.0000	273.0577	482.5825	689.7450	(98a)
Space heating requirement - total per year (kWh/year)												3568.6305	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	673.9826	528.7808	461.2525	294.3747	164.8546	0.0000	0.0000	0.0000	0.0000	273.0577	482.5825	689.7450	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3568.6305	
Space heating per m2											(98c) / (4) =	41.3515	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	673.9826	528.7808	461.2525	294.3747	164.8546	0.0000	0.0000	0.0000	0.0000	273.0577	482.5825	689.7450	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	753.0532	590.8165	515.3660	328.9103	184.1950	0.0000	0.0000	0.0000	0.0000	305.0925	539.1984	770.6648	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.8135	86.5888	86.2026	85.5466	84.3983	81.0000	81.0000	81.0000	81.0000	85.3708	86.4113	86.8768	(217)
Fuel for water heating, kWh/month	324.6864	287.8993	306.9189	270.7971	265.3858	248.3526	244.3340	254.3707	257.5675	273.4650	288.4941	320.7293	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	21.7742	17.4681	15.7281	11.5231	8.9008	7.2720	8.1196	10.5541	13.7088	17.9866	20.3159	22.3794	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3987.2966	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	3343.0007	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	175.7306	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	7547.0279	(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	3987.2966	0.2100	837.3323	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	3343.0007	0.2100	702.0301	(264)
Space and water heating			1539.3624	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)

Energy for lighting	175.7306	0.1443	25.3634	(268)
Total CO2, kg/year			1570.4130	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			18.2000	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3987.2966	1.1300	4505.6452	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	3343.0007	1.1300	3777.5908	(278)
Space and water heating			8283.2360	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	175.7306	1.5338	269.5415	(282)
Total Primary energy kWh/year			8614.8022	(286)
Dwelling Primary energy Rate (DPER)			99.8200	(287)

Full SAP Calculation Printout

Plot Reference	Unit E	Issued on Date	13/02/2026
Assessment Reference	Unit E - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	83 B	DER	18.20	TER	
Environmental	84 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.45	DFEE	49.55	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	99.82	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	86.3000 (1b)	x	2.8000 (2b)	=	241.6400	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	86.3000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	241.6400	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	3 * 10 =	30.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	30.0000 / (5) =	0.1242	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3742	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3180	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4055	0.3975	0.3896	0.3498	0.3419	0.3021	0.3021	0.2942	0.3180	0.3419	0.3578	0.3737	(22b)
If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)												0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =												0.0000	(23c)
Effective ac	0.5822	0.5790	0.5759	0.5612	0.5584	0.5456	0.5456	0.5433	0.5506	0.5584	0.5640	0.5698	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			16.5000	1.1450	18.8931			(27)
EW	79.5200	16.5000	63.0200	0.1800	11.3436			(29a)
Sloping Ceiling	46.8000		46.8000	0.1300	6.0840			(30)
Plan Roof	48.8000		48.8000	0.1300	6.3440			(30)
Total net area of external elements Aum(A, m2)			175.1200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		42.6647			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	35.0240	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	77.6887	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	46.4261	46.1715	45.9220	44.7501	44.5308	43.5100	43.5100	43.3210	43.9032	44.5308	44.9744	45.4381	(38)

Heat transfer coeff

	124.1148	123.8603	123.6108	122.4388	122.2195	121.1988	121.1988	121.0097	121.5919	122.2195	122.6631	123.1268 (39)
Average = Sum(39)m / 12 =												122.4377

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4382	1.4352	1.4323	1.4188	1.4162	1.4044	1.4044	1.4022	1.4089	1.4162	1.4214	1.4267	(40)
HLP (average)												1.4187	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.5716 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

29.0805	28.6486	28.0404	26.9190	26.0793	25.1482	24.6453	25.2493	25.9068	26.9031	28.0476	28.9821	(42b)

Hot water usage for other uses

40.9659	39.4762	37.9866	36.4969	35.0072	33.5176	33.5176	35.0072	36.4969	37.9866	39.4762	40.9659	(42c)

Average daily hot water use (litres/day) 64.2039 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	70.0464	68.1248	66.0270	63.4159	61.0866	58.6658	58.1629	60.2565	62.4037	64.8897	67.5238	69.9481	(44)
Energy conte	110.9363	97.0088	101.4810	86.8132	82.2342	72.1365	70.3430	74.6101	76.9500	88.0547	96.2001	109.5218	(45)
Energy content (annual)										Total = Sum(45)m =		1066.2897	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	94.2959	82.4575	86.2588	73.7912	69.8991	61.3160	59.7915	63.4186	65.4075	74.8465	81.7701	93.0935	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	94.2959	82.4575	86.2588	73.7912	69.8991	61.3160	59.7915	63.4186	65.4075	74.8465	81.7701	93.0935	(64)
										Total per year (kWh/year) = Sum(64)m =		906.3463	(64)
12Total per year (kWh/year)												906	(64)
Electric shower(s)													
	53.9259	48.0485	52.4671	50.0687	51.0082	48.6569	50.2788	51.0082	50.0687	52.4671	51.4805	53.9259	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		613.4044	(64a)
Heat gains from water heating, kWh/month													
	37.0555	32.6265	34.6815	30.9650	30.2268	27.4932	27.5176	28.6067	28.8691	31.8284	33.3126	36.7549	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	118.5223	131.2211	118.5223	122.4730	118.5223	122.4730	118.5223	118.5223	122.4730	118.5223	122.4730	118.5223	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	232.1037	234.5122	228.4429	215.5219	199.2115	183.8820	173.6410	171.2325	177.3018	190.2228	206.5332	221.8627	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	(71)
Water heating gains (Table 5)													
	49.8057	48.5513	46.6149	43.0069	40.6275	38.1850	36.9860	38.4499	40.0959	42.7801	46.2676	49.4017	(72)
Total internal gains													
	462.0059	475.8589	455.1542	442.5760	419.9354	406.1143	390.7235	389.7788	401.4450	413.0994	436.8480	451.3609	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	8.3000	46.7521	0.6300	0.7000	0.7700	118.5907	(78)
West	8.2000	19.6403	0.6300	0.7000	0.7700	49.2190	(80)

Solar gains	167.8097	290.5039	405.9673	510.8756	574.7939	570.5381	550.1916	503.3344	442.8585	323.7333	201.9408	142.9486	(83)
Total gains	629.8157	766.3628	861.1215	953.4517	994.7294	976.6524	940.9150	893.1132	844.3035	736.8327	638.7888	594.3095	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, nil,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.2117	22.2574	22.3023	22.5158	22.5562	22.7462	22.7462	22.7817	22.6726	22.5562	22.4746	22.3900	
alpha	2.4808	2.4838	2.4868	2.5011	2.5037	2.5164	2.5164	2.5188	2.5115	2.5037	2.4983	2.4927	
util living area													
	0.9632	0.9406	0.9090	0.8494	0.7605	0.6294	0.4987	0.5352	0.7130	0.8740	0.9444	0.9678	(86)
MIT	18.0890	18.4697	18.9920	19.6589	20.2403	20.6772	20.8716	20.8422	20.5253	19.7469	18.8017	18.0249	(87)
Th 2	19.7342	19.7364	19.7386	19.7490	19.7509	19.7600	19.7600	19.7616	19.7565	19.7509	19.7470	19.7429	(88)
util rest of house													
	0.9566	0.9303	0.8926	0.8207	0.7107	0.5455	0.3808	0.4190	0.6388	0.8438	0.9329	0.9620	(89)
MIT 2	17.1269	17.5014	18.0126	18.6590	19.1973	19.5743	19.7104	19.6962	19.4592	18.7584	17.8407	17.0693	(90)
Living area fraction										fLA = Living area / (4) =		0.3036	(91)

MIT	17.4190	17.7953	18.3099	18.9626	19.5140	19.9091	20.0629	20.0441	19.7829	19.0585	18.1324	17.3595	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.4190	17.7953	18.3099	18.9626	19.5140	19.9091	20.0629	20.0441	19.7829	19.0585	18.1324	17.3595	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9397	0.9090	0.8688	0.7990	0.6999	0.5566	0.4116	0.4476	0.6406	0.8229	0.9128	0.9464	(94)
Useful gains	591.8245	696.6312	748.1494	761.7668	696.2032	543.6281	387.3222	399.7991	540.8508	606.3294	583.0621	562.4613	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	1628.2627	1597.2193	1459.8357	1232.0521	955.0201	643.4622	419.7051	440.9751	690.9923	1033.7937	1353.2726	1620.2821	(97)
Space heating kWh													
	771.1100	605.1952	529.4947	338.6054	192.5598	0.0000	0.0000	0.0000	0.0000	318.0335	554.5515	787.0186	(98a)
Space heating requirement - total per year (kWh/year)												4096.5686	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	771.1100	605.1952	529.4947	338.6054	192.5598	0.0000	0.0000	0.0000	0.0000	318.0335	554.5515	787.0186	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												4096.5686	
Space heating per m2											(98c) / (4) =	47.4689	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	1139.2683	896.8708	919.6739	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7011	0.7710	0.7456	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	798.7054	691.4871	685.6689	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	1094.3024	1054.8717	1001.3325	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	212.8299	270.3581	234.8537	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	53.2075	67.5895	58.7134	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												179.5104	(107)
Energy for space heating												47.4689	(99)
Energy for space cooling												2.0801	(108)
Total												49.5490	(109)
Fabric Energy Efficiency (DFEE)												49.5	(109)

Full SAP Calculation Printout

Plot Reference	Unit E	Issued on Date	13/02/2026
Assessment Reference	Unit E - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	83 B	DER	18.20	TER	
Environmental	84 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.45	DFEE	49.55	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	99.82	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	86.3000	(1b)	x 2.8000	(2b) =	241.6400	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	86.3000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	241.6400	(5)

2. Ventilation rate

	m3 per hour	
Number of open chimneys	0 * 80 =	0.0000 (6a)
Number of open flues	0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000 (6d)
Number of flues attached to other heater	0 * 35 =	0.0000 (6e)
Number of blocked chimneys	0 * 20 =	0.0000 (6f)
Number of intermittent extract fans	2 * 10 =	20.0000 (7a)
Number of passive vents	0 * 10 =	0.0000 (7b)
Number of flueless gas fires	0 * 40 =	0.0000 (7c)
	Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.0828 (8)
Pressure test		Yes
Pressure Test Method		Blower Door
Measured/design AP50		5.0000 (17)
Infiltration rate		0.3328 (18)
Number of sides sheltered		2 (19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500 (20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.2829 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.3606	0.3536	0.3465	0.3111	0.3041	0.2687	0.2687	0.2616	0.2829	0.3041	0.3182	0.3324	(22b)
Effective ac	0.5650	0.5625	0.5600	0.5484	0.5462	0.5361	0.5361	0.5342	0.5400	0.5462	0.5506	0.5552	(25)

3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			16.5000	1.1450	18.8931			(27)
EW	79.5200	16.5000	63.0200	0.1800	11.3436			(29a)
Sloping Ceiling	46.8000		46.8000	0.1300	6.0840			(30)
Plan Roof	48.8000		48.8000	0.1300	6.3440			(30)
Total net area of external elements Aum(A, m2)			175.1200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		42.6647			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K		115.0000 (35)
Thermal bridges (Default value 0.200 * total exposed area)		35.0240 (36)
Point Thermal bridges	(36a) =	0.0000
Total fabric heat loss	(33) + (36) + (36a) =	77.6887 (37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	45.0561	44.8548	44.6574	43.7303	43.5569	42.7495	42.7495	42.5999	43.0605	43.5569	43.9078	44.2746	(38)
Heat transfer coeff	122.7449	122.5435	122.3461	121.4191	121.2456	120.4382	120.4382	120.2887	120.7492	121.2456	121.5965	121.9633	(39)

Average = Sum(39)m / 12 = 121.4182

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4223	1.4200	1.4177	1.4069	1.4049	1.3956	1.3956	1.3938	1.3992	1.4049	1.4090	1.4132	(40)
HLP (average)												1.4069	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.5716 (42)

Hot water usage for mixer showers

75.7544	74.6160	72.9571	69.7830	67.4406	64.8284	63.3436	64.9900	66.7947	69.5995	72.8417	75.4642	(42a)

Hot water usage for baths

29.0805	28.6486	28.0404	26.9190	26.0793	25.1482	24.6453	25.2493	25.9068	26.9031	28.0476	28.9821	(42b)

Hot water usage for other uses

40.9659	39.4762	37.9866	36.4969	35.0072	33.5176	33.5176	35.0072	36.4969	37.9866	39.4762	40.9659	(42c)

Average daily hot water use (litres/day) 134.0470 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	145.8008	142.7408	138.9840	133.1989	128.5272	123.4942	121.5065	125.2465	129.1985	134.4891	140.3655	145.4122	(44)
Energy conte	230.9128	203.2610	213.6133	182.3426	173.0223	151.8506	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(45)
Energy content (annual)										Total = Sum(45)m =		2226.5075	
Distribution loss (46)m = 0.15 x (45)m													
	34.6369	30.4892	32.0420	27.3514	25.9533	22.7776	22.0427	23.2622	23.8972	27.3751	29.9965	34.1521	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9589	49.3151	50.9589	50.9589	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month													
	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(64)
										Total per year (kWh/year) = Sum(64)m =		2826.5075	(64)
12Total per year (kWh/year)												2827	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	89.5182	79.0911	83.7661	72.9577	70.2696	62.8191	61.6011	64.3043	65.3009	73.4211	78.8209	88.4435	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	118.5223	131.2211	118.5223	122.4730	118.5223	122.4730	118.5223	118.5223	122.4730	118.5223	122.4730	118.5223	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	232.1037	234.5122	228.4429	215.5219	199.2115	183.8820	173.6410	171.2325	177.3018	190.2228	206.5332	221.8627	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	(71)
Water heating gains (Table 5)													
	120.3202	117.6951	112.5889	101.3301	94.4484	87.2487	82.7972	86.4305	90.6957	98.6843	109.4735	118.8756	(72)
Total internal gains													
	535.5204	548.0027	524.1282	503.8993	476.7564	455.1780	436.5347	437.7594	452.0448	472.0036	503.0540	523.8348	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	8.3000	46.7521	0.6300	0.7000	0.7700	118.5907	(78)
West	8.2000	19.6403	0.6300	0.7000	0.7700	49.2190	(80)

Solar gains	167.8097	290.5039	405.9673	510.8756	574.7939	570.5381	550.1916	503.3344	442.8585	323.7333	201.9408	142.9486	(83)
Total gains	703.3302	838.5066	930.0955	1014.7749	1051.5503	1025.7161	986.7263	941.0938	894.9032	795.7370	704.9948	666.7834	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.4596	22.4965	22.5328	22.7049	22.7374	22.8898	22.8898	22.9183	22.8308	22.7374	22.6717	22.6036	
alpha	2.4973	2.4998	2.5022	2.5137	2.5158	2.5260	2.5260	2.5279	2.5221	2.5158	2.5114	2.5069	
util living area													
	0.9535	0.9287	0.8945	0.8323	0.7401	0.6085	0.4788	0.5132	0.6900	0.8555	0.9320	0.9588	(86)
MIT	18.2488	18.6162	19.1182	19.7485	20.2996	20.7052	20.8845	20.8585	20.5669	19.8367	18.9311	18.1805	(87)
Th 2	19.7463	19.7481	19.7498	19.7580	19.7596	19.7667	19.7667	19.7681	19.7640	19.7596	19.7564	19.7532	(88)
util rest of house													
	0.9454	0.9167	0.8761	0.8017	0.6889	0.5252	0.3643	0.3998	0.6148	0.8225	0.9185	0.9516	(89)
MIT 2	16.5954	17.0564	17.6835	18.4599	19.1092	19.5510	19.7100	19.6935	19.4194	18.5862	17.4657	16.5133	(90)
Living area fraction										fLA = Living area / (4) =		0.3036	(91)
MIT	17.0973	17.5300	18.1191	18.8511	19.4706	19.9014	20.0666	20.0472	19.7678	18.9658	17.9106	17.0195	(92)
Temperature adjustment												-0.1500	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
adjusted MIT	16.9473	17.3800	17.9691	18.7011	19.3206	19.7514	19.9166	19.8972	19.6178	18.8158	17.7606	16.8695	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9192	0.8855	0.8421	0.7698	0.6679	0.5240	0.3792	0.4127	0.6046	0.7906	0.8880	0.9270	(94)
Useful gains	646.5036	742.4609	783.2351	781.1867	702.3822	537.4859	374.1913	388.4005	541.1001	629.1188	626.0351	618.1330	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1552.3943	1529.3370	1403.1982	1190.0405	923.9609	620.4283	399.4458	420.6722	666.2662	996.1319	1296.2887	1545.2097	(97)
Space heating kWh	673.9826	528.7808	461.2525	294.3747	164.8546	0.0000	0.0000	0.0000	0.0000	273.0577	482.5825	689.7450	(98a)
Space heating requirement - total per year (kWh/year)												3568.6305	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	673.9826	528.7808	461.2525	294.3747	164.8546	0.0000	0.0000	0.0000	0.0000	273.0577	482.5825	689.7450	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3568.6305	
Space heating per m2											(98c) / (4) =	41.3515	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)	0.0000	(201)
Fraction of space heat from main system(s)	1.0000	(202)
Efficiency of main space heating system 1 (in %)	89.5000	(206)
Efficiency of main space heating system 2 (in %)	0.0000	(207)
Efficiency of secondary/supplementary heating system, %	0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	673.9826	528.7808	461.2525	294.3747	164.8546	0.0000	0.0000	0.0000	0.0000	273.0577	482.5825	689.7450	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	753.0532	590.8165	515.3660	328.9103	184.1950	0.0000	0.0000	0.0000	0.0000	305.0925	539.1984	770.6648	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	281.8717	249.2884	264.5722	231.6577	223.9812	201.1656	197.9105	206.0402	208.6297	233.4594	249.2915	278.6393	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.8135	86.5888	86.2026	85.5466	84.3983	81.0000	81.0000	81.0000	81.0000	85.3708	86.4113	86.8768	(217)
Fuel for water heating, kWh/month	324.6864	287.8993	306.9189	270.7971	265.3858	248.3526	244.3340	254.3707	257.5675	273.4650	288.4941	320.7293	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	21.7742	17.4681	15.7281	11.5231	8.9008	7.2720	8.1196	10.5541	13.7088	17.9866	20.3159	22.3794	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3987.2966	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	3343.0007	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	175.7306	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	7547.0279	(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	3987.2966	0.2100	837.3323	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	3343.0007	0.2100	702.0301	(264)
Space and water heating			1539.3624	(265)
Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)

Energy for lighting	175.7306	0.1443	25.3634	(268)
Total CO2, kg/year			1570.4130	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			18.2000	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3987.2966	1.1300	4505.6452	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	3343.0007	1.1300	3777.5908	(278)
Space and water heating			8283.2360	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	175.7306	1.5338	269.5415	(282)
Total Primary energy kWh/year			8614.8022	(286)
Dwelling Primary energy Rate (DPER)			99.8200	(287)

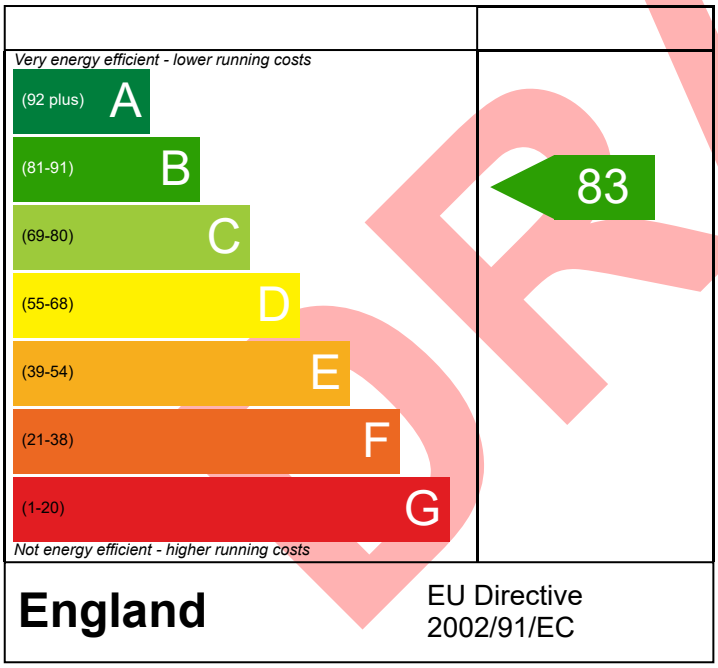
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	86.3 m²
DRRN:	

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

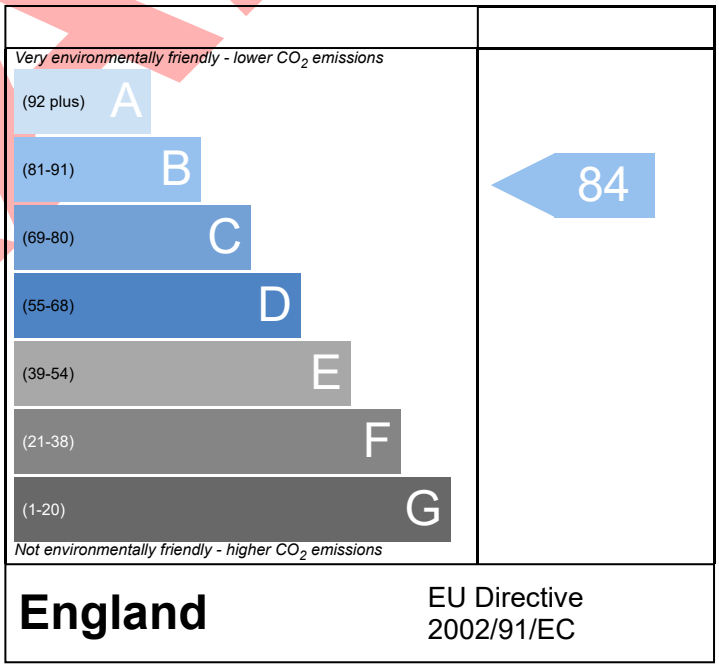
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

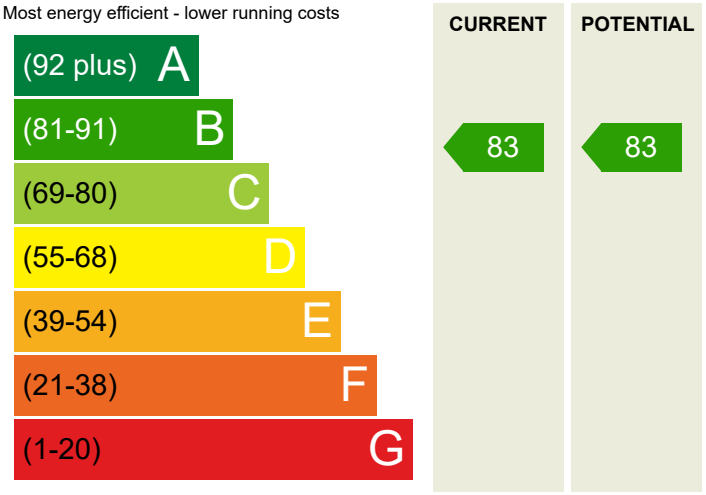
Energy Report

Dwelling Address	
Reference	Unit E-Unit E - BL
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	86

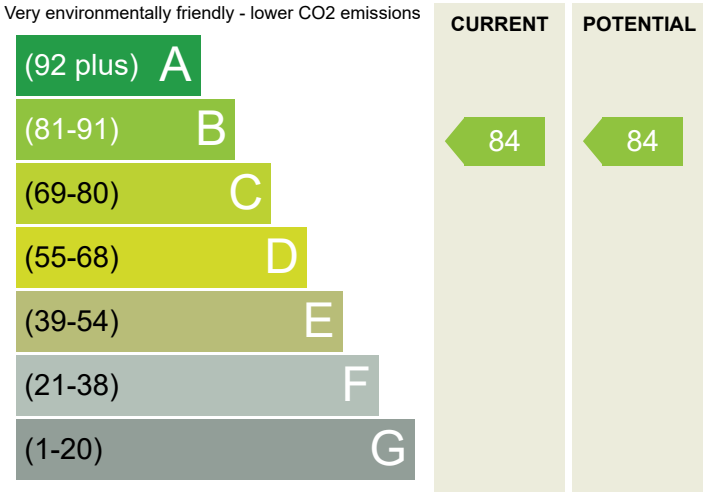
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

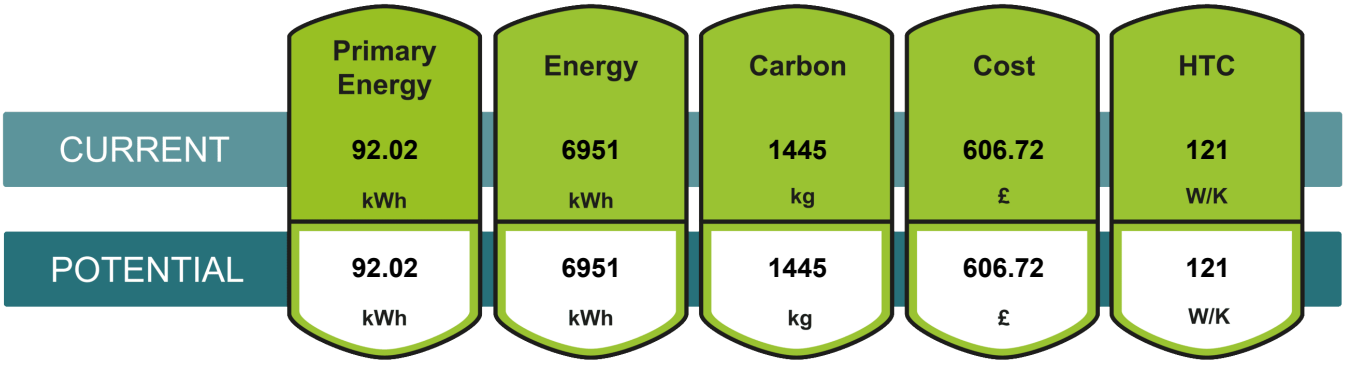


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Roof	Average thermal transmittance 0.13 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£50	£50	
Heating	£337	£337	
Hot Water	£220	£220	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£607	£607	

Estimated energy use and potential savings

Space Heating
3381
kWh per year

Water Heating
3353
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

elmhurst energy

Plot Reference	Unit E	**Issued on Date**	13/02/2026
Assessment Reference	Unit E - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	83 B	**DER**	4.06	**TER**	
Environmental	97 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.31	**DFEE**	49.55	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	43.95	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Top-floor flat	
Which Floor	1	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	28.40 m	86.30 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		79.52	63.02	0.00	None	16.50	Calculate Wall Area

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Sloping Ceiling	External Slope Roof	Plasterboard, insulated slope	0.13	9.00	46.80	46.80	None	0.00	Enter Gross Area	0.00
Plan Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.13	9.00	48.80	48.80	None	0.00	Enter Gross Area	0.00

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Timber I-joists, carpeted	30.00	86.40

12.0 Opening Types

Summary for Input Data

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
W	Windows	EW	West	8.20	
S	Windows	EW	South	8.30	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	SAP table	
Percentage of Heat	100.00	%
Fuel Type	Electricity	
SAP Code	214	
In Winter	249.90	
In Summer	175.10	
Controls SAP Code	2207	
Controls description	Time and temperature zone control by arrangement	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	35.00	
25.0 Main Heating 2	None	

Summary for Input Data

elmhurst energy

26.0 Heat Networks	None
27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None
32.0 Photovoltaic Unit	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.75	South	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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit E	Issued on Date	13/02/2026
Assessment Reference	Unit E - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	83 B	DER	4.06	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.31	DFEE	49.55	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	43.95	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	86.3000	(1b)	x 2.8000	(2b) =	241.6400	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	86.3000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	241.6400	(5)

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2. Ventilation rate

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	m3 per hour	
Number of open chimneys	0 * 80 =	0.0000 (6a)
Number of open flues	0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000 (6d)
Number of flues attached to other heater	0 * 35 =	0.0000 (6e)
Number of blocked chimneys	0 * 20 =	0.0000 (6f)
Number of intermittent extract fans	2 * 10 =	20.0000 (7a)
Number of passive vents	0 * 10 =	0.0000 (7b)
Number of flueless gas fires	0 * 40 =	0.0000 (7c)

	Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.0828 (8)
Pressure test		Yes
Pressure Test Method		Blower Door
Measured/design AP50		5.0000 (17)
Infiltration rate		0.3328 (18)
Number of sides sheltered		2 (19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500 (20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.2829 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.3606	0.3536	0.3465	0.3111	0.3041	0.2687	0.2687	0.2616	0.2829	0.3041	0.3182	0.3324	(22b)
Effective ac	0.5650	0.5625	0.5600	0.5484	0.5462	0.5361	0.5361	0.5342	0.5400	0.5462	0.5506	0.5552	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			16.5000	1.1450	18.8931			(27)
EW	79.5200	16.5000	63.0200	0.1800	11.3436			(29a)
Sloping Ceiling	46.8000		46.8000	0.1300	6.0840			(30)
Plan Roof	48.8000		48.8000	0.1300	6.3440			(30)
Total net area of external elements Aum(A, m2)			175.1200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		42.6647			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K		115.0000 (35)
Thermal bridges (Default value 0.200 * total exposed area)		35.0240 (36)
Point Thermal bridges	(36a) =	0.0000
Total fabric heat loss	(33) + (36) + (36a) =	77.6887 (37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	45.0561	44.8548	44.6574	43.7303	43.5569	42.7495	42.7495	42.5999	43.0605	43.5569	43.9078	44.2746	(38)
Heat transfer coeff	122.7449	122.5435	122.3461	121.4191	121.2456	120.4382	120.4382	120.2887	120.7492	121.2456	121.5965	121.9633	(39)

Average = Sum(39)m / 12 = 121.4182

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4223	1.4200	1.4177	1.4069	1.4049	1.3956	1.3956	1.3938	1.3992	1.4049	1.4090	1.4132	(40)
HLP (average)												1.4069	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.5716 (42)

Hot water usage for mixer showers

75.7544	74.6160	72.9571	69.7830	67.4406	64.8284	63.3436	64.9900	66.7947	69.5995	72.8417	75.4642	(42a)

Hot water usage for baths

29.0805	28.6486	28.0404	26.9190	26.0793	25.1482	24.6453	25.2493	25.9068	26.9031	28.0476	28.9821	(42b)

Hot water usage for other uses

40.9659	39.4762	37.9866	36.4969	35.0072	33.5176	33.5176	35.0072	36.4969	37.9866	39.4762	40.9659	(42c)

Average daily hot water use (litres/day) 134.0470 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	145.8008	142.7408	138.9840	133.1989	128.5272	123.4942	121.5065	125.2465	129.1985	134.4891	140.3655	145.4122	(44)
Energy conte	230.9128	203.2610	213.6133	182.3426	173.0223	151.8506	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(45)
Energy content (annual)										Total = Sum(45)m =		2226.5075	
Distribution loss (46)m = 0.15 x (45)m													
	34.6369	30.4892	32.0420	27.3514	25.9533	22.7776	22.0427	23.2622	23.8972	27.3751	29.9965	34.1521	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	230.9128	203.2610	213.6133	182.3426	173.0223	151.8506	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	230.9128	203.2610	213.6133	182.3426	173.0223	151.8506	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(64)
										Total per year (kWh/year) = Sum(64)m =		2226.5075	(64)
12Total per year (kWh/year)												2227	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	76.7785	67.5843	71.0264	60.6289	57.5299	50.4903	48.8614	51.5645	52.9721	60.6814	66.4922	75.7037	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	118.5223	131.2211	118.5223	122.4730	118.5223	122.4730	118.5223	118.5223	122.4730	118.5223	122.4730	118.5223	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	232.1037	234.5122	228.4429	215.5219	199.2115	183.8820	173.6410	171.2325	177.3018	190.2228	206.5332	221.8627	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	(71)
Water heating gains (Table 5)													
	103.1969	100.5719	95.4656	84.2068	77.3251	70.1254	65.6739	69.3072	73.5724	81.5610	92.3502	101.7523	(72)
Total internal gains													
	518.3971	530.8794	507.0050	486.7760	459.6331	438.0547	419.4114	420.6362	434.9215	454.8803	485.9307	506.7115	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	8.3000	46.7521	0.6300	0.7000	0.7700	118.5907	(78)
West	8.2000	19.6403	0.6300	0.7000	0.7700	49.2190	(80)

Solar gains	167.8097	290.5039	405.9673	510.8756	574.7939	570.5381	550.1916	503.3344	442.8585	323.7333	201.9408	142.9486	(83)
Total gains	686.2069	821.3833	912.9723	997.6516	1034.4270	1008.5928	969.6030	923.9705	877.7799	778.6137	687.8715	649.6602	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.4596	22.4965	22.5328	22.7049	22.7374	22.8898	22.8898	22.9183	22.8308	22.7374	22.6717	22.6036	
alpha	2.4973	2.4998	2.5022	2.5137	2.5158	2.5260	2.5260	2.5279	2.5221	2.5158	2.5114	2.5069	
util living area													
	0.9558	0.9315	0.8980	0.8368	0.7457	0.6151	0.4854	0.5203	0.6972	0.8607	0.9352	0.9610	(86)
MIT	18.2194	18.5891	19.0940	19.7289	20.2858	20.6976	20.8808	20.8539	20.5557	19.8155	18.9036	18.1505	(87)
Th 2	19.7463	19.7481	19.7498	19.7580	19.7596	19.7667	19.7667	19.7681	19.7640	19.7596	19.7564	19.7532	(88)
util rest of house													
	0.9481	0.9199	0.8801	0.8067	0.6949	0.5317	0.3699	0.4061	0.6223	0.8284	0.9222	0.9541	(89)
MIT 2	16.5586	17.0229	17.6543	18.4375	19.0949	19.5447	19.7080	19.6908	19.4092	18.5619	17.4319	16.4757	(90)
Living area fraction										fLA = Living area / (4) =		0.3036	(91)
MIT	17.0628	17.4984	18.0914	18.8296	19.4565	19.8947	20.0641	20.0439	19.7573	18.9425	17.8787	16.9842	(92)
Temperature adjustment												0.0000	

adjusted MIT	17.0628	17.4984	18.0914	18.8296	19.4565	19.8947	20.0641	20.0439	19.7573	18.9425	17.8787	16.9842	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9243	0.8914	0.8495	0.7794	0.6807	0.5411	0.3996	0.4336	0.6219	0.8018	0.8950	0.9319	(94)
Useful gains	634.2302	732.2139	775.5365	777.5988	704.1731	545.7787	387.4425	400.6305	545.8694	624.3097	615.6159	605.3931	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1566.5673	1543.8530	1418.1633	1205.6393	940.4390	637.6865	417.2051	438.3200	683.1145	1011.4886	1310.6517	1559.2002	(97)
Space heating kWh	693.6588	545.4215	478.1144	308.1891	175.7818	0.0000	0.0000	0.0000	0.0000	288.0611	500.4258	709.6325	(98a)
Space heating requirement - total per year (kWh/year)												3699.2850	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	693.6588	545.4215	478.1144	308.1891	175.7818	0.0000	0.0000	0.0000	0.0000	288.0611	500.4258	709.6325	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3699.2850	
Space heating per m2											(98c) / (4) =	42.8654	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												249.9000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	693.6588	545.4215	478.1144	308.1891	175.7818	0.0000	0.0000	0.0000	0.0000	288.0611	500.4258	709.6325	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	277.5745	218.2559	191.3223	123.3250	70.3409	0.0000	0.0000	0.0000	0.0000	115.2706	200.2504	283.9666	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	230.9128	203.2610	213.6133	182.3426	173.0223	151.8506	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	131.8748	116.0828	121.9950	104.1363	98.8134	86.7222	83.9244	88.5673	90.9849	104.2264	114.2070	130.0288	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	21.7742	17.4681	15.7281	11.5231	8.9008	7.2720	8.1196	10.5541	13.7088	17.9866	20.3159	22.3794	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.9910	-24.9859	-39.6163	-48.6728	-55.5248	-50.7744	-50.0092	-45.4602	-37.9022	-29.8911	-18.3268	-13.5614	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-2.7914	-6.3566	-13.7636	-22.8667	-32.8563	-36.1182	-35.7351	-29.4550	-20.7715	-10.1761	-3.9519	-2.1563	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	1480.3061	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	175.1000	
Water heating fuel used	1271.5634	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
Total electricity for the above, kWh/year	0.0000	(231)
Electricity for lighting (calculated in Appendix L)	175.7306	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	-647.7148	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	2279.8853	(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	1480.3061	0.1544	228.5595	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	1271.5634	0.1416	180.0257	(264)
Space and water heating			408.5852	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)
Energy for lighting	175.7306	0.1443	25.3634	(268)

Energy saving/generation technologies				
PV Unit electricity used in dwelling	-430.7161	0.1332	-57.3577	
PV Unit electricity exported	-216.9987	0.1223	-26.5379	
Total			-83.8955	(269)
Total CO2, kg/year			350.0530	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			4.0600	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	1480.3061	1.5716	2326.4729	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	1271.5634	1.5235	1937.2757	(278)
Space and water heating			4263.7486	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	175.7306	1.5338	269.5415	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-430.7161	1.4921	-642.6695	
PV Unit electricity exported	-216.9987	0.4487	-97.3572	
Total			-740.0266	(283)
Total Primary energy kWh/year			3793.2635	(286)
Dwelling Primary energy Rate (DPER)			43.9500	(287)

Full SAP Calculation Printout

Plot Reference	Unit E	Issued on Date	13/02/2026
Assessment Reference	Unit E - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	83 B	DER	4.06	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.31	DFEE	49.55	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	43.95	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	86.3000 (1b)	x	2.8000 (2b)	=	241.6400	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	86.3000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	241.6400	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	3 * 10 =	30.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)

		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	30.0000 / (5) =	0.1242	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3742	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3180	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4055	0.3975	0.3896	0.3498	0.3419	0.3021	0.3021	0.2942	0.3180	0.3419	0.3578	0.3737	(22b)
If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)												0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =												0.0000	(23c)
Effective ac	0.5822	0.5790	0.5759	0.5612	0.5584	0.5456	0.5456	0.5433	0.5506	0.5584	0.5640	0.5698	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			16.5000	1.1450	18.8931			(27)
EW	79.5200	16.5000	63.0200	0.1800	11.3436			(29a)
Sloping Ceiling	46.8000		46.8000	0.1300	6.0840			(30)
Plan Roof	48.8000		48.8000	0.1300	6.3440			(30)
Total net area of external elements Aum(A, m2)			175.1200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		42.6647			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	35.0240	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	77.6887	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	46.4261	46.1715	45.9220	44.7501	44.5308	43.5100	43.5100	43.3210	43.9032	44.5308	44.9744	45.4381	(38)

Heat transfer coeff

	124.1148	123.8603	123.6108	122.4388	122.2195	121.1988	121.1988	121.0097	121.5919	122.2195	122.6631	123.1268 (39)
Average = Sum(39)m / 12 =												122.4377

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4382	1.4352	1.4323	1.4188	1.4162	1.4044	1.4044	1.4022	1.4089	1.4162	1.4214	1.4267	(40)
HLP (average)												1.4187	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.5716 (42)

Hot water usage for mixer showers

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(42a)

Hot water usage for baths

29.0805	28.6486	28.0404	26.9190	26.0793	25.1482	24.6453	25.2493	25.9068	26.9031	28.0476	28.9821	(42b)

Hot water usage for other uses

40.9659	39.4762	37.9866	36.4969	35.0072	33.5176	33.5176	35.0072	36.4969	37.9866	39.4762	40.9659	(42c)

Average daily hot water use (litres/day) 64.2039 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	70.0464	68.1248	66.0270	63.4159	61.0866	58.6658	58.1629	60.2565	62.4037	64.8897	67.5238	69.9481	(44)
Energy conte	110.9363	97.0088	101.4810	86.8132	82.2342	72.1365	70.3430	74.6101	76.9500	88.0547	96.2001	109.5218	(45)
Energy content (annual)										Total = Sum(45)m =		1066.2897	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	94.2959	82.4575	86.2588	73.7912	69.8991	61.3160	59.7915	63.4186	65.4075	74.8465	81.7701	93.0935	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	94.2959	82.4575	86.2588	73.7912	69.8991	61.3160	59.7915	63.4186	65.4075	74.8465	81.7701	93.0935	(64)
										Total per year (kWh/year) = Sum(64)m =		906.3463	(64)
12Total per year (kWh/year)												906	(64)
Electric shower(s)													
	53.9259	48.0485	52.4671	50.0687	51.0082	48.6569	50.2788	51.0082	50.0687	52.4671	51.4805	53.9259	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		613.4044	(64a)
Heat gains from water heating, kWh/month													
	37.0555	32.6265	34.6815	30.9650	30.2268	27.4932	27.5176	28.6067	28.8691	31.8284	33.3126	36.7549	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	118.5223	131.2211	118.5223	122.4730	118.5223	122.4730	118.5223	118.5223	122.4730	118.5223	122.4730	118.5223	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	232.1037	234.5122	228.4429	215.5219	199.2115	183.8820	173.6410	171.2325	177.3018	190.2228	206.5332	221.8627	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	(71)
Water heating gains (Table 5)													
	49.8057	48.5513	46.6149	43.0069	40.6275	38.1850	36.9860	38.4499	40.0959	42.7801	46.2676	49.4017	(72)
Total internal gains													
	462.0059	475.8589	455.1542	442.5760	419.9354	406.1143	390.7235	389.7788	401.4450	413.0994	436.8480	451.3609	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	8.3000	46.7521	0.6300	0.7000	0.7700	118.5907	(78)
West	8.2000	19.6403	0.6300	0.7000	0.7700	49.2190	(80)

Solar gains	167.8097	290.5039	405.9673	510.8756	574.7939	570.5381	550.1916	503.3344	442.8585	323.7333	201.9408	142.9486	(83)
Total gains	629.8157	766.3628	861.1215	953.4517	994.7294	976.6524	940.9150	893.1132	844.3035	736.8327	638.7888	594.3095	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, nil,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.2117	22.2574	22.3023	22.5158	22.5562	22.7462	22.7462	22.7817	22.6726	22.5562	22.4746	22.3900	
alpha	2.4808	2.4838	2.4868	2.5011	2.5037	2.5164	2.5164	2.5188	2.5115	2.5037	2.4983	2.4927	
util living area													
	0.9632	0.9406	0.9090	0.8494	0.7605	0.6294	0.4987	0.5352	0.7130	0.8740	0.9444	0.9678	(86)
MIT	18.0890	18.4697	18.9920	19.6589	20.2403	20.6772	20.8716	20.8422	20.5253	19.7469	18.8017	18.0249	(87)
Th 2	19.7342	19.7364	19.7386	19.7490	19.7509	19.7600	19.7600	19.7616	19.7565	19.7509	19.7470	19.7429	(88)
util rest of house													
	0.9566	0.9303	0.8926	0.8207	0.7107	0.5455	0.3808	0.4190	0.6388	0.8438	0.9329	0.9620	(89)
MIT 2	17.1269	17.5014	18.0126	18.6590	19.1973	19.5743	19.7104	19.6962	19.4592	18.7584	17.8407	17.0693	(90)
Living area fraction										fLA = Living area / (4) =		0.3036	(91)

MIT	17.4190	17.7953	18.3099	18.9626	19.5140	19.9091	20.0629	20.0441	19.7829	19.0585	18.1324	17.3595	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.4190	17.7953	18.3099	18.9626	19.5140	19.9091	20.0629	20.0441	19.7829	19.0585	18.1324	17.3595	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9397	0.9090	0.8688	0.7990	0.6999	0.5566	0.4116	0.4476	0.6406	0.8229	0.9128	0.9464	(94)
Useful gains	591.8245	696.6312	748.1494	761.7668	696.2032	543.6281	387.3222	399.7991	540.8508	606.3294	583.0621	562.4613	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	1628.2627	1597.2193	1459.8357	1232.0521	955.0201	643.4622	419.7051	440.9751	690.9923	1033.7937	1353.2726	1620.2821	(97)
Space heating kWh													
	771.1100	605.1952	529.4947	338.6054	192.5598	0.0000	0.0000	0.0000	0.0000	318.0335	554.5515	787.0186	(98a)
Space heating requirement - total per year (kWh/year)												4096.5686	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	771.1100	605.1952	529.4947	338.6054	192.5598	0.0000	0.0000	0.0000	0.0000	318.0335	554.5515	787.0186	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												4096.5686	
Space heating per m2											(98c) / (4) =	47.4689	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	1139.2683	896.8708	919.6739	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7011	0.7710	0.7456	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	798.7054	691.4871	685.6689	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	1094.3024	1054.8717	1001.3325	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	212.8299	270.3581	234.8537	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction										fC = cooled area / (4) =		1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	53.2075	67.5895	58.7134	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												179.5104	(107)
Energy for space heating												47.4689	(99)
Energy for space cooling												2.0801	(108)
Total												49.5490	(109)
Fabric Energy Efficiency (DFEE)												49.5	(109)

Full SAP Calculation Printout

Plot Reference	Unit E	Issued on Date	13/02/2026
Assessment Reference	Unit E - BG	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	83 B	DER	4.06	TER	
Environmental	97 A	% DER < TER			N/A
CO_2 Emissions (t/year)	0.31	DFEE	49.55	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	43.95	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	86.3000	(1b)	x 2.8000	(2b) =	241.6400	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	86.3000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	241.6400	(5)

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2. Ventilation rate

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	m3 per hour	
Number of open chimneys	0 * 80 =	0.0000 (6a)
Number of open flues	0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000 (6d)
Number of flues attached to other heater	0 * 35 =	0.0000 (6e)
Number of blocked chimneys	0 * 20 =	0.0000 (6f)
Number of intermittent extract fans	2 * 10 =	20.0000 (7a)
Number of passive vents	0 * 10 =	0.0000 (7b)
Number of flueless gas fires	0 * 40 =	0.0000 (7c)

	Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.0828 (8)
Pressure test		Yes
Pressure Test Method		Blower Door
Measured/design AP50		5.0000 (17)
Infiltration rate		0.3328 (18)
Number of sides sheltered		2 (19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500 (20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.2829 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.3606	0.3536	0.3465	0.3111	0.3041	0.2687	0.2687	0.2616	0.2829	0.3041	0.3182	0.3324	(22b)
Effective ac	0.5650	0.5625	0.5600	0.5484	0.5462	0.5361	0.5361	0.5342	0.5400	0.5462	0.5506	0.5552	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			16.5000	1.1450	18.8931			(27)
EW	79.5200	16.5000	63.0200	0.1800	11.3436			(29a)
Sloping Ceiling	46.8000		46.8000	0.1300	6.0840			(30)
Plan Roof	48.8000		48.8000	0.1300	6.3440			(30)
Total net area of external elements Aum(A, m2)			175.1200					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		42.6647			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K		115.0000 (35)
Thermal bridges (Default value 0.200 * total exposed area)		35.0240 (36)
Point Thermal bridges	(36a) =	0.0000
Total fabric heat loss	(33) + (36) + (36a) =	77.6887 (37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	45.0561	44.8548	44.6574	43.7303	43.5569	42.7495	42.7495	42.5999	43.0605	43.5569	43.9078	44.2746	(38)
Heat transfer coeff	122.7449	122.5435	122.3461	121.4191	121.2456	120.4382	120.4382	120.2887	120.7492	121.2456	121.5965	121.9633	(39)

Average = Sum(39)m / 12 = 121.4182

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.4223	1.4200	1.4177	1.4069	1.4049	1.3956	1.3956	1.3938	1.3992	1.4049	1.4090	1.4132	(40)
HLP (average)												1.4069	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.5716 (42)

Hot water usage for mixer showers

75.7544	74.6160	72.9571	69.7830	67.4406	64.8284	63.3436	64.9900	66.7947	69.5995	72.8417	75.4642	(42a)

Hot water usage for baths

29.0805	28.6486	28.0404	26.9190	26.0793	25.1482	24.6453	25.2493	25.9068	26.9031	28.0476	28.9821	(42b)

Hot water usage for other uses

40.9659	39.4762	37.9866	36.4969	35.0072	33.5176	33.5176	35.0072	36.4969	37.9866	39.4762	40.9659	(42c)

Average daily hot water use (litres/day) 134.0470 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	145.8008	142.7408	138.9840	133.1989	128.5272	123.4942	121.5065	125.2465	129.1985	134.4891	140.3655	145.4122	(44)
Energy conte	230.9128	203.2610	213.6133	182.3426	173.0223	151.8506	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(45)
Energy content (annual)										Total = Sum(45)m =		2226.5075	
Distribution loss (46)m = 0.15 x (45)m													
	34.6369	30.4892	32.0420	27.3514	25.9533	22.7776	22.0427	23.2622	23.8972	27.3751	29.9965	34.1521	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	230.9128	203.2610	213.6133	182.3426	173.0223	151.8506	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	230.9128	203.2610	213.6133	182.3426	173.0223	151.8506	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(64)
										Total per year (kWh/year) = Sum(64)m =		2226.5075	(64)
12Total per year (kWh/year)												2227	(64)
Electric shower(s)													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month													
	76.7785	67.5843	71.0264	60.6289	57.5299	50.4903	48.8614	51.5645	52.9721	60.6814	66.4922	75.7037	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	128.5808	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	118.5223	131.2211	118.5223	122.4730	118.5223	122.4730	118.5223	118.5223	122.4730	118.5223	122.4730	118.5223	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	232.1037	234.5122	228.4429	215.5219	199.2115	183.8820	173.6410	171.2325	177.3018	190.2228	206.5332	221.8627	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	35.8581	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	-102.8646	(71)
Water heating gains (Table 5)													
	103.1969	100.5719	95.4656	84.2068	77.3251	70.1254	65.6739	69.3072	73.5724	81.5610	92.3502	101.7523	(72)
Total internal gains													
	518.3971	530.8794	507.0050	486.7760	459.6331	438.0547	419.4114	420.6362	434.9215	454.8803	485.9307	506.7115	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	8.3000	46.7521	0.6300	0.7000	0.7700	118.5907	(78)
West	8.2000	19.6403	0.6300	0.7000	0.7700	49.2190	(80)

Solar gains	167.8097	290.5039	405.9673	510.8756	574.7939	570.5381	550.1916	503.3344	442.8585	323.7333	201.9408	142.9486	(83)
Total gains	686.2069	821.3833	912.9723	997.6516	1034.4270	1008.5928	969.6030	923.9705	877.7799	778.6137	687.8715	649.6602	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	22.4596	22.4965	22.5328	22.7049	22.7374	22.8898	22.8898	22.9183	22.8308	22.7374	22.6717	22.6036	
alpha	2.4973	2.4998	2.5022	2.5137	2.5158	2.5260	2.5260	2.5279	2.5221	2.5158	2.5114	2.5069	
util living area													
	0.9558	0.9315	0.8980	0.8368	0.7457	0.6151	0.4854	0.5203	0.6972	0.8607	0.9352	0.9610	(86)
MIT	18.2194	18.5891	19.0940	19.7289	20.2858	20.6976	20.8808	20.8539	20.5557	19.8155	18.9036	18.1505	(87)
Th 2	19.7463	19.7481	19.7498	19.7580	19.7596	19.7667	19.7667	19.7681	19.7640	19.7596	19.7564	19.7532	(88)
util rest of house													
	0.9481	0.9199	0.8801	0.8067	0.6949	0.5317	0.3699	0.4061	0.6223	0.8284	0.9222	0.9541	(89)
MIT 2	16.5586	17.0229	17.6543	18.4375	19.0949	19.5447	19.7080	19.6908	19.4092	18.5619	17.4319	16.4757	(90)
Living area fraction										fLA = Living area / (4) =		0.3036	(91)
MIT	17.0628	17.4984	18.0914	18.8296	19.4565	19.8947	20.0641	20.0439	19.7573	18.9425	17.8787	16.9842	(92)
Temperature adjustment												0.0000	

adjusted MIT	17.0628	17.4984	18.0914	18.8296	19.4565	19.8947	20.0641	20.0439	19.7573	18.9425	17.8787	16.9842	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9243	0.8914	0.8495	0.7794	0.6807	0.5411	0.3996	0.4336	0.6219	0.8018	0.8950	0.9319	(94)
Useful gains	634.2302	732.2139	775.5365	777.5988	704.1731	545.7787	387.4425	400.6305	545.8694	624.3097	615.6159	605.3931	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1566.5673	1543.8530	1418.1633	1205.6393	940.4390	637.6865	417.2051	438.3200	683.1145	1011.4886	1310.6517	1559.2002	(97)
Space heating kWh	693.6588	545.4215	478.1144	308.1891	175.7818	0.0000	0.0000	0.0000	0.0000	288.0611	500.4258	709.6325	(98a)
Space heating requirement - total per year (kWh/year)												3699.2850	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	693.6588	545.4215	478.1144	308.1891	175.7818	0.0000	0.0000	0.0000	0.0000	288.0611	500.4258	709.6325	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3699.2850	
Space heating per m2											(98c) / (4) =	42.8654	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												249.9000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	693.6588	545.4215	478.1144	308.1891	175.7818	0.0000	0.0000	0.0000	0.0000	288.0611	500.4258	709.6325	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	277.5745	218.2559	191.3223	123.3250	70.3409	0.0000	0.0000	0.0000	0.0000	115.2706	200.2504	283.9666	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	230.9128	203.2610	213.6133	182.3426	173.0223	151.8506	146.9516	155.0813	159.3146	182.5005	199.9764	227.6804	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	131.8748	116.0828	121.9950	104.1363	98.8134	86.7222	83.9244	88.5673	90.9849	104.2264	114.2070	130.0288	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	21.7742	17.4681	15.7281	11.5231	8.9008	7.2720	8.1196	10.5541	13.7088	17.9866	20.3159	22.3794	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.9910	-24.9859	-39.6163	-48.6728	-55.5248	-50.7744	-50.0092	-45.4602	-37.9022	-29.8911	-18.3268	-13.5614	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-2.7914	-6.3566	-13.7636	-22.8667	-32.8563	-36.1182	-35.7351	-29.4550	-20.7715	-10.1761	-3.9519	-2.1563	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	1480.3061	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	175.1000	
Water heating fuel used	1271.5634	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
Total electricity for the above, kWh/year	0.0000	(231)
Electricity for lighting (calculated in Appendix L)	175.7306	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	-647.7148	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	2279.8853	(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	1480.3061	0.1544	228.5595	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	1271.5634	0.1416	180.0257	(264)
Space and water heating			408.5852	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)
Energy for lighting	175.7306	0.1443	25.3634	(268)

Energy saving/generation technologies				
PV Unit electricity used in dwelling	-430.7161	0.1332	-57.3577	
PV Unit electricity exported	-216.9987	0.1223	-26.5379	
Total			-83.8955	(269)
Total CO2, kg/year			350.0530	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			4.0600	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	1480.3061	1.5716	2326.4729	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	1271.5634	1.5235	1937.2757	(278)
Space and water heating			4263.7486	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	175.7306	1.5338	269.5415	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-430.7161	1.4921	-642.6695	
PV Unit electricity exported	-216.9987	0.4487	-97.3572	
Total			-740.0266	(283)
Total Primary energy kWh/year			3793.2635	(286)
Dwelling Primary energy Rate (DPER)			43.9500	(287)

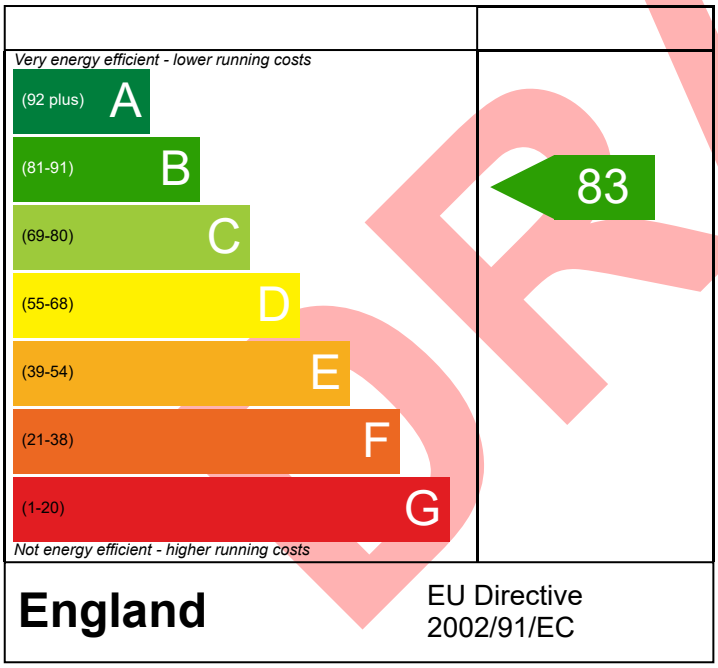
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	86.3 m²
DRRN:	

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

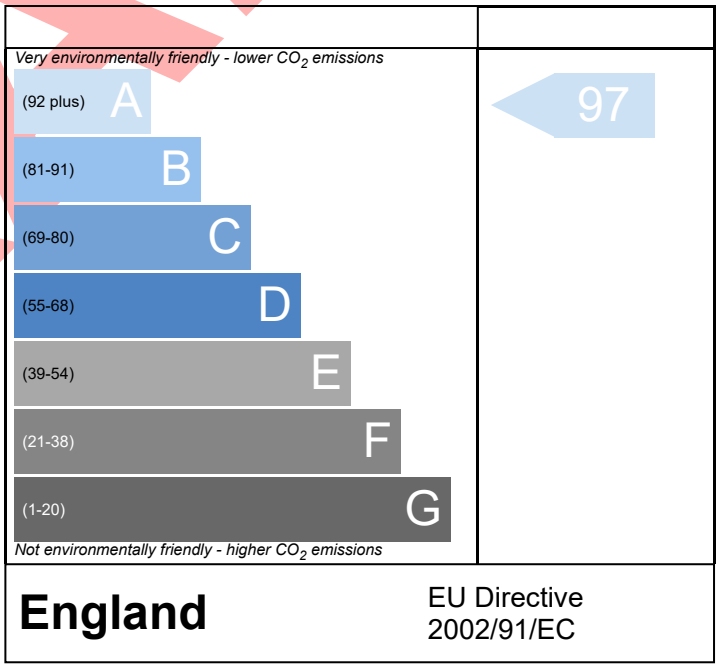
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

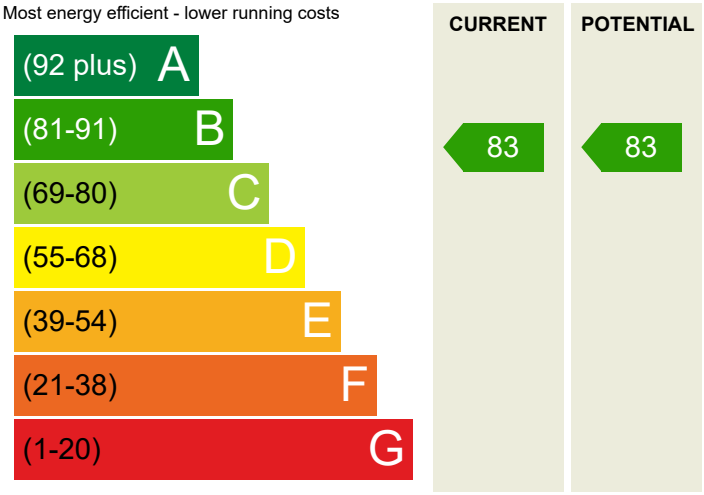
Energy Report

Dwelling Address	
Reference	Unit E-Unit E - BG
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	86

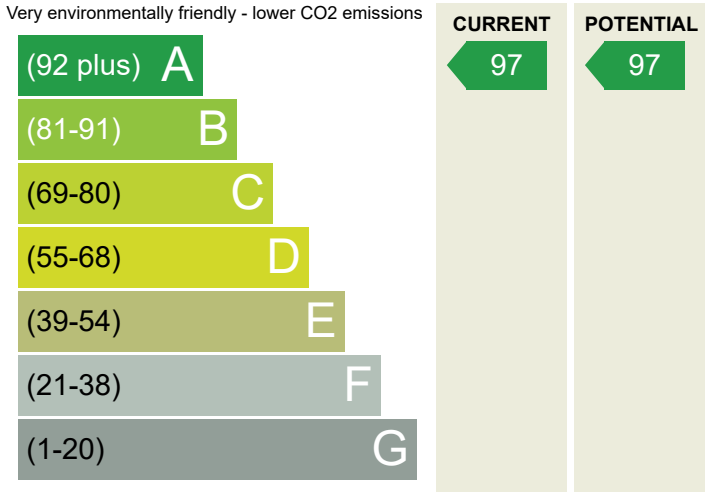
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

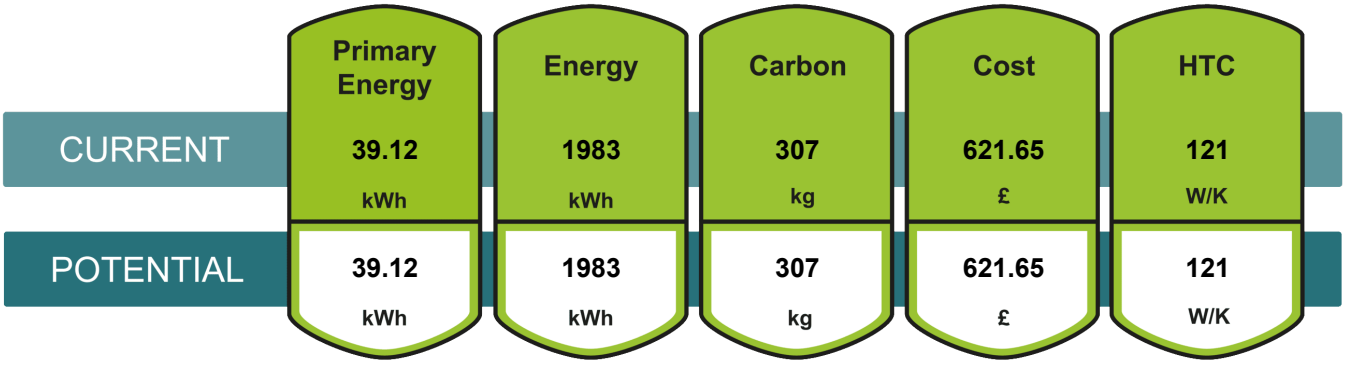


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Roof	Average thermal transmittance 0.13 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Air source heat pump, radiators, electric	Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Average
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£50	£50	
Heating	£358	£358	
Hot Water	£362	£362	
New Technologies e.g. Impact of PV	-(£148)	-(£148)	
TOTAL	£622	£622	

Estimated energy use and potential savings

Space Heating
1259
kWh per year

Water Heating
1272
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit F	**Issued on Date**	13/02/2026
Assessment Reference	Unit F - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	80 C	**DER**	23.32	**TER**	
Environmental	81 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.49	**DFEE**	68.38	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	127.93	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Top-floor flat	
Which Floor	1	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	22.20 m	70.20 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.30		62.16	54.96	0.00	None	7.20	Calculate Wall Area

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Sloping Ceiling	External Slope Roof	Plasterboard, insulated slope	0.15	9.00	72.40	70.40	None	0.00	Enter Gross Area	2.00

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Timber I-joists, carpeted	30.00	86.40

12.0 Opening Types

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

Summary for Input Data

RW	Manufacturer	Roof Window	Double Low-E Soft 0.05	0.63	0.70	1.60

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
E	Windows	EW	West	6.50	
S	Windows	EW	South	0.70	
ERW	RW	Sloping Ceiling	West	2.00	15

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	No

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0
Number of chimneys/flues attached to closed fire	0
Number of flues attached to solid fuel boiler	0
Number of flues attached to other heater	0
Number of blocked chimneys	0
Number of intermittent extract fans	2
Number of passive vents	0
Number of flueless gas fires	0

21.0 Fixed Cooling System	No
22.0 Pressure Testing	No

22.0 Lighting

No Fixed Lighting	No

Name	Efficacy	Power	Capacity	Count
Lighting 1	75.00	5.00	375.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Unknown	
Boiler Interlock	Yes	

Summary for Input Data

Combi boiler type	Standard Combi
Combi keep hot type	None

25.0 Main Heating 2 — None

26.0 Heat Networks — None

27.0 Secondary Heating — None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder — None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit F	**Issued on Date**	13/02/2026
Assessment Reference	Unit F - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	80 C	**DER**	23.32	**TER**	
Environmental	81 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.49	**DFEE**	68.38	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	127.93	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

		Area		Storey height		Volume	
Main dwelling		(m2)		(m)		(m3)	
Ground floor		70.2000	(1b)	x 2.8000	(2b) =	196.5600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	70.2000						(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =		196.5600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1018	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8518	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7240	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate													
	0.9231	0.9050	0.8869	0.7964	0.7783	0.6878	0.6878	0.6697	0.7240	0.7783	0.8145	0.8507	(22b)
Effective ac	0.9260	0.9095	0.8933	0.8171	0.8029	0.7365	0.7365	0.7242	0.7621	0.8029	0.8317	0.8618	(25)

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3. Heat losses and heat loss parameter

Element	Gross	Openings	NetArea	U-value	A x U	K-value	A x K	
	m2	m2	m2	W/m2K	W/K	kJ/m2K	kJ/K	
Main dwelling								
Windows			7.2000	1.5038	10.8271			(27)
RW			2.0000	1.5038	3.0075			(27a)
EW	62.1600	7.2000	54.9600	0.3000	16.4880			(29a)
Sloping Ceiling	72.4000	2.0000	70.4000	0.1500	10.5600			(30)
Total net area of external elements Aum(A, m2)			134.5600					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		40.8826			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	26.9120	(36)
Point Thermal bridges	(36a) = 0.0000	
Total fabric heat loss	(33) + (36) + (36a) = 67.7946	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	60.0675	58.9944	57.9426	53.0020	52.0777	47.7746	47.7746	46.9778	49.4321	52.0777	53.9476	55.9026	(38)
Heat transfer coeff													
	127.8621	126.7890	125.7372	120.7966	119.8723	115.5692	115.5692	114.7724	117.2267	119.8723	121.7422	123.6972	(39)

Average = Sum(39)m / 12 = 120.7922

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.8214	1.8061	1.7911	1.7207	1.7076	1.6463	1.6463	1.6349	1.6699	1.7076	1.7342	1.7621	(40)
HLP (average)												1.7207	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.2510 (42)

Hot water usage for mixer showers

69.7062	68.6586	67.1321	64.2115	62.0561	59.6525	58.2862	59.8012	61.4618	64.0426	67.0260	69.4391	(42a)

Hot water usage for baths

26.7685	26.3709	25.8111	24.7789	24.0060	23.1489	22.6860	23.2419	23.8472	24.7643	25.8177	26.6780	(42b)

Hot water usage for other uses

37.6822	36.3119	34.9417	33.5714	32.2011	30.8309	30.8309	32.2011	33.5714	34.9417	36.3119	37.6822	(42c)

Average daily hot water use (litres/day) 123.3419 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use	134.1568	131.3415	127.8849	122.5618	118.2632	113.6323	111.8031	115.2442	118.8804	123.7485	129.1556	133.7993	(44)
Energy conte	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(45)
Energy content (annual)										Total = Sum(45)m =		2048.6972	
Distribution loss (46)m = 0.15 x (45)m	31.8707	28.0543	29.4831	25.1671	23.8808	20.9586	20.2824	21.4045	21.9887	25.1888	27.6009	31.4246	(46)
Water storage loss (or HIU loss):													
Total storage loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9589	49.3151	50.9589	50.9589	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(64)
										Total per year (kWh/year) = Sum(64)m =		2648.6972	(64)
12Total per year (kWh/year)												2649	(64)
Electric shower(s)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month	83.3865	73.6938	78.0940	68.1159	65.6754	58.7870	57.6991	60.1863	61.0704	68.5750	73.5107	82.3976	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5	107.5387	119.0607	107.5387	111.1233	107.5387	111.1233	107.5387	107.5387	111.1233	107.5387	111.1233	107.5387	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5	197.7634	199.8156	194.6442	183.6349	169.7377	156.6762	147.9504	145.8982	151.0696	162.0789	175.9761	189.0376	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	(71)
Water heating gains (Table 5)	112.0787	109.6634	104.9651	94.6054	88.2734	81.6487	77.5525	80.8955	84.8200	92.1707	102.0982	110.7494	(72)
Total internal gains	477.1453	488.3043	466.9125	449.1282	425.3143	406.2127	389.8062	391.0970	403.7775	421.5528	448.9622	467.0902	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	0.7000	46.7521	0.6300	0.7000	0.7700	10.0016	(78)
West	6.5000	19.6403	0.6300	0.7000	0.7700	39.0151	(80)
West	2.0000	26.5854	0.6300	0.7000	1.0000	21.1035	(82)

Solar gains	70.1202	135.8998	222.2905	324.3085	399.1514	409.7282	389.5904	333.2356	258.3484	160.7103	87.1639	57.8565	(83)
Total gains	547.2656	624.2040	689.2030	773.4367	824.4657	815.9409	779.3966	724.3326	662.1259	582.2630	536.1261	524.9467	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	17.5384	17.6869	17.8348	18.5643	18.7074	19.4040	19.4040	19.5387	19.1296	18.7074	18.4201	18.1289	
alpha	2.1692	2.1791	2.1890	2.2376	2.2472	2.2936	2.2936	2.3026	2.2753	2.2472	2.2280	2.2086	
util living area	0.9607	0.9463	0.9226	0.8701	0.7883	0.6615	0.5397	0.5817	0.7608	0.8948	0.9459	0.9638	(86)
MIT	17.4656	17.8017	18.3719	19.2213	19.9478	20.5400	20.7977	20.7538	20.3023	19.3576	18.3369	17.4931	(87)
Th 2	19.4551	19.4657	19.4762	19.5260	19.5354	19.5796	19.5796	19.5878	19.5625	19.5354	19.5164	19.4967	(88)
util rest of house	0.9529	0.9357	0.9064	0.8413	0.7358	0.5687	0.4012	0.4472	0.6830	0.8654	0.9336	0.9567	(89)
MIT 2	15.4748	15.9016	16.6222	17.6960	18.5701	19.2505	19.4861	19.4635	19.0107	17.8892	16.6040	15.5244	(90)
Living area fraction										fLA = Living area / (4) =		0.3732	(91)
MIT	16.2178	16.6108	17.2752	18.2652	19.0843	19.7318	19.9756	19.9451	19.4927	18.4372	17.2507	16.2592	(92)

Temperature adjustment												-0.1500	
adjusted MIT	16.0678	16.4608	17.1252	18.1152	18.9343	19.5818	19.8256	19.7951	19.3427	18.2872	17.1007	16.1092	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9261	0.9043	0.8706	0.8048	0.7093	0.5689	0.4279	0.4695	0.6684	0.8306	0.9031	0.9316	(94)
Useful gains	506.8066	564.4676	600.0464	622.4958	584.8164	464.1878	333.4889	340.0693	442.5808	483.6520	484.1912	489.0397	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1504.6593	1465.7809	1335.9835	1113.1705	867.1878	575.7420	372.7790	389.6604	614.5863	921.4843	1217.5096	1473.1312	(97)
Space heating kWh	742.4024	605.6825	547.5372	353.2857	210.0843	0.0000	0.0000	0.0000	0.0000	325.7472	527.9893	732.1641	(98a)
Space heating requirement - total per year (kWh/year)												4044.8927	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	742.4024	605.6825	547.5372	353.2857	210.0843	0.0000	0.0000	0.0000	0.0000	325.7472	527.9893	732.1641	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												4044.8927	
Space heating per m2											(98c) / (4) =	57.6196	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												89.5000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	742.4024	605.6825	547.5372	353.2857	210.0843	0.0000	0.0000	0.0000	0.0000	325.7472	527.9893	732.1641	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	829.4999	676.7403	611.7734	394.7327	234.7310	0.0000	0.0000	0.0000	0.0000	363.9634	589.9321	818.0604	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(64)
Efficiency of water heater												81.0000	(216)
(217)m	87.1060	86.9642	86.6686	86.0626	85.0373	81.0000	81.0000	81.0000	81.0000	85.8782	86.7113	87.1017	(217)
Fuel for water heating, kWh/month	302.4252	267.9905	285.5858	252.2537	247.1432	233.3817	229.8457	239.0806	241.8599	254.8779	269.0779	299.0256	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	22.8620	18.3408	16.5138	12.0987	9.3454	7.6353	8.5252	11.0814	14.3936	18.8852	21.3308	23.4974	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	4519.4332	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	3122.5476	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	184.5096	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	7867.4904	(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	4519.4332	0.2100	949.0810	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	3122.5476	0.2100	655.7350	(264)
Space and water heating			1604.8160	(265)

Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	184.5096	0.1443	26.6304	(268)
Total CO2, kg/year			1637.1336	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			23.3200	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	4519.4332	1.1300	5106.9595	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	3122.5476	1.1300	3528.4788	(278)
Space and water heating			8635.4384	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	184.5096	1.5338	283.0070	(282)
Total Primary energy kWh/year			8980.4701	(286)
Dwelling Primary energy Rate (DPER)			127.9300	(287)

Full SAP Calculation Printout

Plot Reference	Unit F	Issued on Date	13/02/2026
Assessment Reference	Unit F - BS	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	80 C	DER	23.32	TER	
Environmental	81 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.49	DFEE	68.38	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	127.93	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	70.2000 (1b)	x	2.8000 (2b)	=	196.5600	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	70.2000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	196.5600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys		0 * 80 =	0.0000 (6a)
Number of open flues		0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire		0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler		0 * 20 =	0.0000 (6d)
Number of flues attached to other heater		0 * 35 =	0.0000 (6e)
Number of blocked chimneys		0 * 20 =	0.0000 (6f)
Number of intermittent extract fans		3 * 10 =	30.0000 (7a)
Number of passive vents		0 * 10 =	0.0000 (7b)
Number of flueless gas fires		0 * 40 =	0.0000 (7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =		30.0000 / (5) =	0.1526 (8)
Pressure test			No
Pressure Test Method			Blower Door
Measured/design AP50			15.0000 (17)
Infiltration rate			0.9026 (18)
Number of sides sheltered			2 (19)
Shelter factor	(20) = 1 - [0.075 x (19)] =		0.8500 (20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =		0.7672 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.9782	0.9590	0.9399	0.8440	0.8248	0.7289	0.7289	0.7097	0.7672	0.8248	0.8631	0.9015	(22b)
If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)												0.0000	(23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =												0.0000	(23c)
Effective ac	0.9785	0.9599	0.9417	0.8561	0.8401	0.7656	0.7656	0.7518	0.7943	0.8401	0.8725	0.9063	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.2000	1.5038	10.8271			(27)
RW			2.0000	1.5038	3.0075			(27a)
EW	62.1600	7.2000	54.9600	0.3000	16.4880			(29a)
Sloping Ceiling	72.4000	2.0000	70.4000	0.1500	10.5600			(30)
Total net area of external elements Aum(A, m2)			134.5600					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		40.8826			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	26.9120	(36)
Point Thermal bridges (36a) =	0.0000	
Total fabric heat loss (33) + (36) + (36a) =	67.7946	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	63.4674	62.2623	61.0810	55.5327	54.4946	49.6622	49.6622	48.7673	51.5235	54.4946	56.5946	58.7901	(38)

Heat transfer coeff

	131.2620	130.0569	128.8756	123.3273	122.2892	117.4567	117.4567	116.5618	119.3181	122.2892	124.3892	126.5847 (39)
Average = Sum(39)m / 12 =												123.3223

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.8698	1.8527	1.8358	1.7568	1.7420	1.6732	1.6732	1.6604	1.6997	1.7420	1.7719	1.8032	(40)
HLP (average)												1.7567	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.2510 (42)

Hot water usage for mixer showers

	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000 (42a)

Hot water usage for baths

	26.7685	26.3709	25.8111	24.7789	24.0060	23.1489	22.6860	23.2419	23.8472	24.7643	25.8177	26.6780 (42b)

Hot water usage for other uses

	37.6822	36.3119	34.9417	33.5714	32.2011	30.8309	30.8309	32.2011	33.5714	34.9417	36.3119	37.6822 (42c)

Average daily hot water use (litres/day) 59.0751 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	64.4507	62.6829	60.7528	58.3503	56.2071	53.9798	53.5169	55.4430	57.4186	59.7059	62.1297	64.3602	(44)
Energy conte	102.0741	89.2596	93.3748	79.8786	75.6656	66.3744	64.7240	68.6501	70.8029	81.0204	88.5151	100.7725	(45)
Energy content (annual)										Total = Sum(45)m =		981.1120	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	86.7630	75.8706	79.3685	67.8968	64.3157	56.4183	55.0154	58.3525	60.1824	68.8673	75.2378	85.6566	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	86.7630	75.8706	79.3685	67.8968	64.3157	56.4183	55.0154	58.3525	60.1824	68.8673	75.2378	85.6566	(64)
										Total per year (kWh/year) = Sum(64)m =		833.9452	(64)
12Total per year (kWh/year)												834	(64)
Electric shower(s)													
	49.6205	44.2122	48.2781	46.0712	46.9357	44.7721	46.2645	46.9357	46.0712	48.2781	47.3703	49.6205	(64a)
							Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =					564.4298	(64a)
Heat gains from water heating, kWh/month													
	34.0959	30.0207	31.9117	28.4920	27.8129	25.2976	25.3200	26.3221	26.5634	29.2863	30.6520	33.8193	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	107.5387	119.0607	107.5387	111.1233	107.5387	111.1233	107.5387	107.5387	111.1233	107.5387	111.1233	107.5387	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	197.7634	199.8156	194.6442	183.6349	169.7377	156.6762	147.9504	145.8982	151.0696	162.0789	175.9761	189.0376	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	(71)
Water heating gains (Table 5)													
	45.8278	44.6737	42.8920	39.5722	37.3829	35.1355	34.0322	35.3791	36.8936	39.3634	42.5723	45.4560	(72)
Total internal gains													
	407.8944	420.3145	401.8394	391.0950	371.4238	359.6996	346.2858	345.5806	355.8511	365.7455	386.4362	398.7968	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	0.7000	46.7521	0.6300	0.7000	0.7700	10.0016	(78)
West	6.5000	19.6403	0.6300	0.7000	0.7700	39.0151	(80)
West	2.0000	26.5854	0.6300	0.7000	1.0000	21.1035	(82)

Solar gains	70.1202	135.8998	222.2905	324.3085	399.1514	409.7282	389.5904	333.2356	258.3484	160.7103	87.1639	57.8565	(83)
Total gains	478.0147	556.2143	624.1299	715.4035	770.5752	769.4278	735.8763	678.8162	614.1995	526.4557	473.6002	456.6533	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	17.0842	17.2425	17.4005	18.1833	18.3377	19.0921	19.0921	19.2387	18.7943	18.3377	18.0281	17.7154	
alpha	2.1389	2.1495	2.1600	2.2122	2.2225	2.2728	2.2728	2.2826	2.2530	2.2225	2.2019	2.1810	
util living area													
	0.9697	0.9568	0.9357	0.8870	0.8101	0.6863	0.5657	0.6101	0.7864	0.9124	0.9574	0.9724	(86)
MIT	17.2518	17.5985	18.1895	19.0841	19.8494	20.4891	20.7703	20.7203	20.2281	19.2251	18.1621	17.2875	(87)
Th 2	19.4215	19.4334	19.4450	19.5004	19.5109	19.5601	19.5601	19.5693	19.5411	19.5109	19.4897	19.4678	(88)
util rest of house													
	0.9635	0.9480	0.9216	0.8606	0.7599	0.5937	0.4229	0.4726	0.7116	0.8865	0.9472	0.9668	(89)
MIT 2	16.1162	16.4649	17.0538	17.9555	18.6820	19.2727	19.4767	19.4579	19.0598	18.1138	17.0591	16.1776	(90)

Living area fraction											fLA = Living area / (4) =		0.3732 (91)
MIT	16.5400	16.8880	17.4777	18.3767	19.1177	19.7267	19.9595	19.9291	19.4958	18.5285	17.4708		16.5919 (92)
Temperature adjustment													0.0000
adjusted MIT	16.5400	16.8880	17.4777	18.3767	19.1177	19.7267	19.9595	19.9291	19.4958	18.5285	17.4708		16.5919 (93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9463	0.9270	0.8968	0.8349	0.7438	0.6059	0.4669	0.5117	0.7087	0.8633	0.9274	0.9510	(94)
Useful gains	452.3262	515.6012	559.7302	597.3103	573.1567	466.2313	343.5652	347.3230	435.3022	454.4745	439.2104	434.2694	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	1606.6470	1559.1224	1414.7527	1168.7371	907.1069	602.1635	394.5972	411.3551	643.8216	969.5739	1290.0153	1568.6211	(97)
Space heating kWh													
	858.8147	701.2463	636.1368	411.4273	248.4589	0.0000	0.0000	0.0000	0.0000	383.2340	612.5795	843.9577	(98a)
Space heating requirement - total per year (kWh/year)												4695.8551	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	858.8147	701.2463	636.1368	411.4273	248.4589	0.0000	0.0000	0.0000	0.0000	383.2340	612.5795	843.9577	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												4695.8551	
Space heating per m2											(98c) / (4) =	66.8925	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	1104.0933	869.1799	885.8700	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.5895	0.6612	0.6263	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	650.9001	574.7389	554.7806	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	826.7141	791.2535	730.9059	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	126.5861	161.0869	131.0372	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction											fC = cooled area / (4) =	1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	31.6465	40.2717	32.7593	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												104.6776	(107)
Energy for space heating												66.8925	(99)
Energy for space cooling												1.4911	(108)
Total												68.3837	(109)
Fabric Energy Efficiency (DFEE)												68.4	(109)

Full SAP Calculation Printout

Plot Reference	Unit F	**Issued on Date**	13/02/2026
Assessment Reference	Unit F - BS	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	80 C	**DER**	23.32	**TER**	
Environmental	81 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.49	**DFEE**	68.38	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	127.93	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

		Area		Storey height		Volume	
Main dwelling		(m2)		(m)		(m3)	
Ground floor		70.2000	(1b)	x 2.8000	(2b) =	196.5600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	70.2000						(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =		196.5600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1018	(8)
Pressure test		No	
Pressure Test Method		Blower Door	
Measured/design AP50		15.0000	(17)
Infiltration rate		0.8518	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.7240	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate													
	0.9231	0.9050	0.8869	0.7964	0.7783	0.6878	0.6878	0.6697	0.7240	0.7783	0.8145	0.8507	(22b)
Effective ac	0.9260	0.9095	0.8933	0.8171	0.8029	0.7365	0.7365	0.7242	0.7621	0.8029	0.8317	0.8618	(25)

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3. Heat losses and heat loss parameter

Element	Gross	Openings	NetArea	U-value	A x U	K-value	A x K	
	m2	m2	m2	W/m2K	W/K	kJ/m2K	kJ/K	
Main dwelling								
Windows			7.2000	1.5038	10.8271			(27)
RW			2.0000	1.5038	3.0075			(27a)
EW	62.1600	7.2000	54.9600	0.3000	16.4880			(29a)
Sloping Ceiling	72.4000	2.0000	70.4000	0.1500	10.5600			(30)
Total net area of external elements Aum(A, m2)			134.5600					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		40.8826			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	26.9120	(36)
Point Thermal bridges	(36a) = 0.0000	
Total fabric heat loss	(33) + (36) + (36a) = 67.7946	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	60.0675	58.9944	57.9426	53.0020	52.0777	47.7746	47.7746	46.9778	49.4321	52.0777	53.9476	55.9026	(38)
Heat transfer coeff													
	127.8621	126.7890	125.7372	120.7966	119.8723	115.5692	115.5692	114.7724	117.2267	119.8723	121.7422	123.6972	(39)

Average = Sum(39)m / 12 = 120.7922

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.8214	1.8061	1.7911	1.7207	1.7076	1.6463	1.6463	1.6349	1.6699	1.7076	1.7342	1.7621	(40)
HLP (average)												1.7207	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.2510 (42)

Hot water usage for mixer showers

69.7062	68.6586	67.1321	64.2115	62.0561	59.6525	58.2862	59.8012	61.4618	64.0426	67.0260	69.4391	(42a)

Hot water usage for baths

26.7685	26.3709	25.8111	24.7789	24.0060	23.1489	22.6860	23.2419	23.8472	24.7643	25.8177	26.6780	(42b)

Hot water usage for other uses

37.6822	36.3119	34.9417	33.5714	32.2011	30.8309	30.8309	32.2011	33.5714	34.9417	36.3119	37.6822	(42c)

Average daily hot water use (litres/day) 123.3419 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use	134.1568	131.3415	127.8849	122.5618	118.2632	113.6323	111.8031	115.2442	118.8804	123.7485	129.1556	133.7993	(44)
Energy conte	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(45)
Energy content (annual)										Total = Sum(45)m =		2048.6972	
Distribution loss (46)m = 0.15 x (45)m	31.8707	28.0543	29.4831	25.1671	23.8808	20.9586	20.2824	21.4045	21.9887	25.1888	27.6009	31.4246	(46)
Water storage loss (or HIU loss):													
Total storage loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9589	49.3151	50.9589	50.9589	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(64)
										Total per year (kWh/year) = Sum(64)m =		2648.6972	(64)
12Total per year (kWh/year)												2649	(64)
Electric shower(s)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month	83.3865	73.6938	78.0940	68.1159	65.6754	58.7870	57.6991	60.1863	61.0704	68.5750	73.5107	82.3976	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5	107.5387	119.0607	107.5387	111.1233	107.5387	111.1233	107.5387	107.5387	111.1233	107.5387	111.1233	107.5387	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5	197.7634	199.8156	194.6442	183.6349	169.7377	156.6762	147.9504	145.8982	151.0696	162.0789	175.9761	189.0376	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	(71)
Water heating gains (Table 5)	112.0787	109.6634	104.9651	94.6054	88.2734	81.6487	77.5525	80.8955	84.8200	92.1707	102.0982	110.7494	(72)
Total internal gains	477.1453	488.3043	466.9125	449.1282	425.3143	406.2127	389.8062	391.0970	403.7775	421.5528	448.9622	467.0902	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	0.7000	46.7521	0.6300	0.7000	0.7700	10.0016	(78)
West	6.5000	19.6403	0.6300	0.7000	0.7700	39.0151	(80)
West	2.0000	26.5854	0.6300	0.7000	1.0000	21.1035	(82)

Solar gains	70.1202	135.8998	222.2905	324.3085	399.1514	409.7282	389.5904	333.2356	258.3484	160.7103	87.1639	57.8565	(83)
Total gains	547.2656	624.2040	689.2030	773.4367	824.4657	815.9409	779.3966	724.3326	662.1259	582.2630	536.1261	524.9467	(84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	17.5384	17.6869	17.8348	18.5643	18.7074	19.4040	19.4040	19.5387	19.1296	18.7074	18.4201	18.1289	
alpha	2.1692	2.1791	2.1890	2.2376	2.2472	2.2936	2.2936	2.3026	2.2753	2.2472	2.2280	2.2086	
util living area	0.9607	0.9463	0.9226	0.8701	0.7883	0.6615	0.5397	0.5817	0.7608	0.8948	0.9459	0.9638	(86)
MIT	17.4656	17.8017	18.3719	19.2213	19.9478	20.5400	20.7977	20.7538	20.3023	19.3576	18.3369	17.4931	(87)
Th 2	19.4551	19.4657	19.4762	19.5260	19.5354	19.5796	19.5796	19.5878	19.5625	19.5354	19.5164	19.4967	(88)
util rest of house	0.9529	0.9357	0.9064	0.8413	0.7358	0.5687	0.4012	0.4472	0.6830	0.8654	0.9336	0.9567	(89)
MIT 2	15.4748	15.9016	16.6222	17.6960	18.5701	19.2505	19.4861	19.4635	19.0107	17.8892	16.6040	15.5244	(90)
Living area fraction										fLA = Living area / (4) =		0.3732	(91)
MIT	16.2178	16.6108	17.2752	18.2652	19.0843	19.7318	19.9756	19.9451	19.4927	18.4372	17.2507	16.2592	(92)

Temperature adjustment												-0.1500	
adjusted MIT	16.0678	16.4608	17.1252	18.1152	18.9343	19.5818	19.8256	19.7951	19.3427	18.2872	17.1007	16.1092	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9261	0.9043	0.8706	0.8048	0.7093	0.5689	0.4279	0.4695	0.6684	0.8306	0.9031	0.9316	(94)
Useful gains	506.8066	564.4676	600.0464	622.4958	584.8164	464.1878	333.4889	340.0693	442.5808	483.6520	484.1912	489.0397	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1504.6593	1465.7809	1335.9835	1113.1705	867.1878	575.7420	372.7790	389.6604	614.5863	921.4843	1217.5096	1473.1312	(97)
Space heating kWh	742.4024	605.6825	547.5372	353.2857	210.0843	0.0000	0.0000	0.0000	0.0000	325.7472	527.9893	732.1641	(98a)
Space heating requirement - total per year (kWh/year)												4044.8927	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	742.4024	605.6825	547.5372	353.2857	210.0843	0.0000	0.0000	0.0000	0.0000	325.7472	527.9893	732.1641	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												4044.8927	
Space heating per m2											(98c) / (4) =	57.6196	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												89.5000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	742.4024	605.6825	547.5372	353.2857	210.0843	0.0000	0.0000	0.0000	0.0000	325.7472	527.9893	732.1641	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	829.4999	676.7403	611.7734	394.7327	234.7310	0.0000	0.0000	0.0000	0.0000	363.9634	589.9321	818.0604	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(64)
Efficiency of water heater												81.0000	(216)
(217)m	87.1060	86.9642	86.6686	86.0626	85.0373	81.0000	81.0000	81.0000	81.0000	85.8782	86.7113	87.1017	(217)
Fuel for water heating, kWh/month	302.4252	267.9905	285.5858	252.2537	247.1432	233.3817	229.8457	239.0806	241.8599	254.8779	269.0779	299.0256	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	22.8620	18.3408	16.5138	12.0987	9.3454	7.6353	8.5252	11.0814	14.3936	18.8852	21.3308	23.4974	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	4519.4332	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	3122.5476	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	184.5096	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	7867.4904	(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	4519.4332	0.2100	949.0810	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	3122.5476	0.2100	655.7350	(264)
Space and water heating			1604.8160	(265)

Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	184.5096	0.1443	26.6304	(268)
Total CO2, kg/year			1637.1336	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			23.3200	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	4519.4332	1.1300	5106.9595	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	3122.5476	1.1300	3528.4788	(278)
Space and water heating			8635.4384	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	184.5096	1.5338	283.0070	(282)
Total Primary energy kWh/year			8980.4701	(286)
Dwelling Primary energy Rate (DPER)			127.9300	(287)

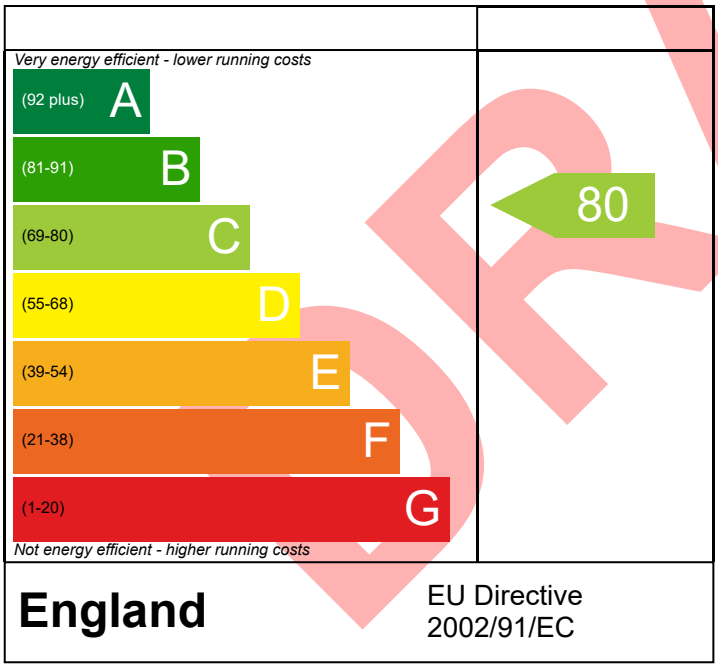
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	70.2 m²
DRRN:	

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

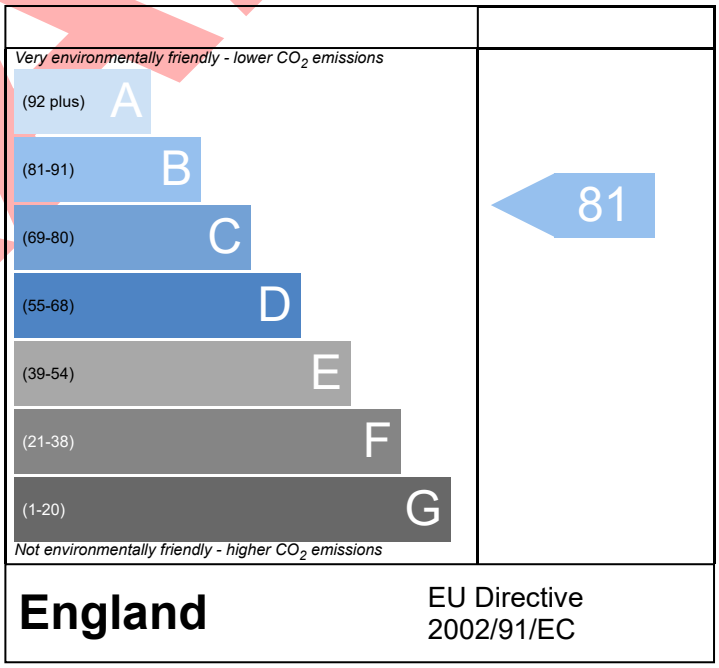
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

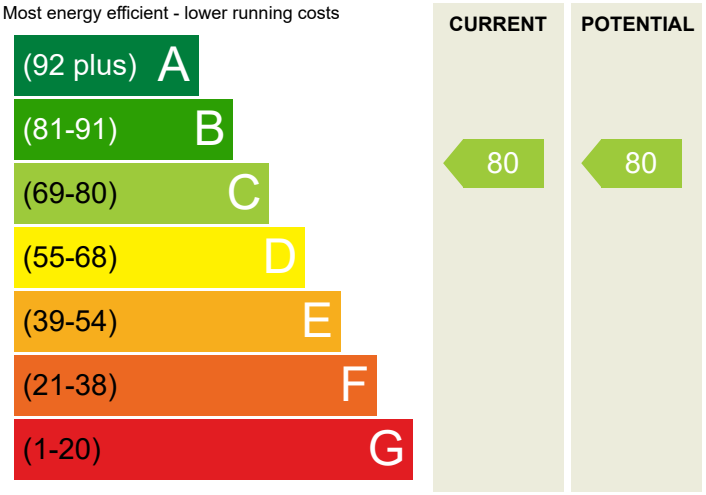
Energy Report

Dwelling Address	
Reference	Unit F-Unit F - BS
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	70

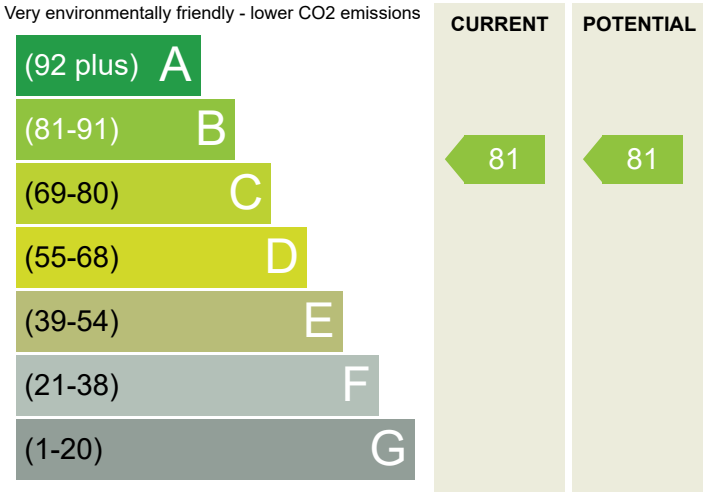
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

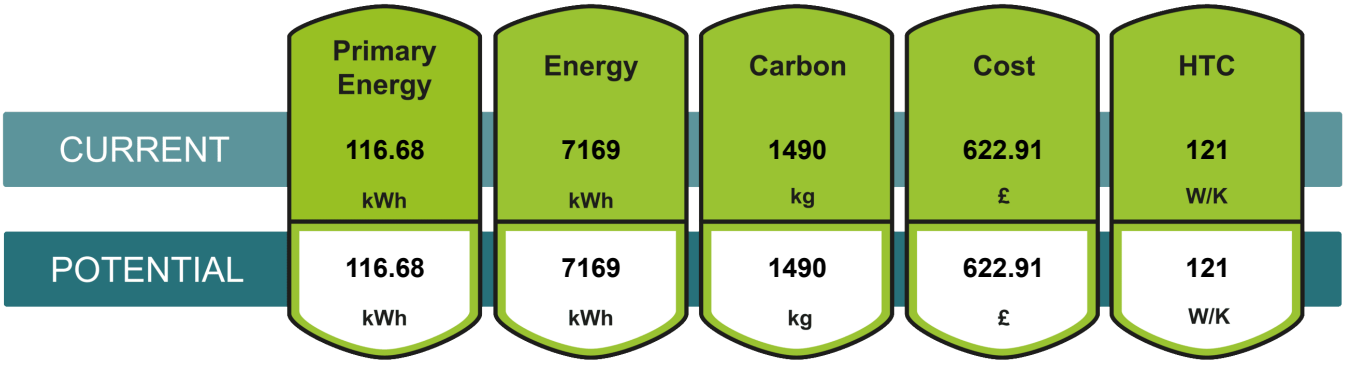


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.3 W/m²K	Good
Roof	Average thermal transmittance 0.15 W/m²K	Very Good
Windows	High performance glazing	Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Good lighting efficiency	Good
Air tightness	(not tested)	

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total

energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£52	£52	You could save £0
Heating	£365	£365	
Hot Water	£205	£205	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£623	£623	

Estimated energy use and potential savings

Space Heating
3811
kWh per year

Water Heating
3132
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit F	**Issued on Date**	13/02/2026
Assessment Reference	Unit F - BL	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	82 B	**DER**	19.15	**TER**	
Environmental	85 B	**% DER < TER**			N/A
CO_2 Emissions (t/year)	1.24	**DFEE**	47.96	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	105.20	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Top-floor flat	
Which Floor	1	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	22.20 m	70.20 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		62.16	54.96	0.00	None	7.20	Calculate Wall Area

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Sloping Ceiling	External Slope Roof	Plasterboard, insulated slope	0.13	9.00	72.40	70.40	None	0.00	Enter Gross Area	2.00

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Timber I-joists, carpeted	30.00	86.40

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

Summary for Input Data

elmhurst energy

RW	Manufacturer	Roof Window	Double Low-E Soft 0.05	0.63	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
E	Windows	EW	West	6.50	
S	Windows	EW	South	0.70	
ERW	RW	Sloping Ceiling	West	2.00	15

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	No	

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	Manufacturer	
Percentage of Heat	100.00	%
Fuel Type	Mains gas	
SAP Code	104	
In Winter	89.50	
In Summer	81.00	
Model Name	GB	
Manufacturer	GB	
Controls SAP Code	2110	
Delayed Start Stat	Yes	
Burner Control	On/Off	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	

Summary for Input Data

Flow Temperature	Unknown
Boiler Interlock	Yes
Combi boiler type	Standard Combi
Combi keep hot type	None

25.0 Main Heating 2	None
26.0 Heat Networks	None
27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit F	Issued on Date	13/02/2026
Assessment Reference	Unit F - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	82 B	DER	19.15	TER	
Environmental	85 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.24	DFEE	47.96	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	105.20	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	70.2000	(1b)	x 2.8000	(2b) =	196.5600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	70.2000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	196.5600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1018	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3518	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.2990	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.3812	0.3737	0.3663	0.3289	0.3214	0.2840	0.2840	0.2766	0.2990	0.3214	0.3364	0.3513	(22b)
Effective ac	0.5727	0.5698	0.5671	0.5541	0.5517	0.5403	0.5403	0.5382	0.5447	0.5517	0.5566	0.5617	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.2000	1.1450	8.2443			(27)
RW			2.0000	1.1450	2.2901			(27a)
EW	62.1600	7.2000	54.9600	0.1800	9.8928			(29a)
Sloping Ceiling	72.4000	2.0000	70.4000	0.1300	9.1520			(30)
Total net area of external elements Aum(A, m2)			134.5600					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		29.5792			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	26.9120	(36)
Point Thermal bridges	(36a) = 0.0000	
Total fabric heat loss	(33) + (36) + (36a) = 56.4912	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	37.1455	36.9625	36.7831	35.9405	35.7828	35.0490	35.0490	34.9131	35.3316	35.7828	36.1018	36.4352	(38)
Heat transfer coeff	93.6366	93.4536	93.2742	92.4316	92.2740	91.5401	91.5401	91.4042	91.8228	92.2740	92.5929	92.9263	(39)

Average = Sum(39)m / 12 = 92.4309

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3339	1.3312	1.3287	1.3167	1.3144	1.3040	1.3040	1.3021	1.3080	1.3144	1.3190	1.3237	(40)
HLP (average)												1.3167	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.2510 (42)

Hot water usage for mixer showers

69.7062	68.6586	67.1321	64.2115	62.0561	59.6525	58.2862	59.8012	61.4618	64.0426	67.0260	69.4391	(42a)

Hot water usage for baths

26.7685	26.3709	25.8111	24.7789	24.0060	23.1489	22.6860	23.2419	23.8472	24.7643	25.8177	26.6780	(42b)

Hot water usage for other uses

37.6822	36.3119	34.9417	33.5714	32.2011	30.8309	30.8309	32.2011	33.5714	34.9417	36.3119	37.6822	(42c)

Average daily hot water use (litres/day) 123.3419 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use	134.1568	131.3415	127.8849	122.5618	118.2632	113.6323	111.8031	115.2442	118.8804	123.7485	129.1556	133.7993	(44)
Energy conte	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(45)
Energy content (annual)										Total = Sum(45)m =		2048.6972	
Distribution loss (46)m = 0.15 x (45)m	31.8707	28.0543	29.4831	25.1671	23.8808	20.9586	20.2824	21.4045	21.9887	25.1888	27.6009	31.4246	(46)
Water storage loss (or HIU loss):													
Total storage loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9589	49.3151	50.9589	50.9589	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(64)
									Total per year (kWh/year) = Sum(64)m =			2648.6972	(64)
12Total per year (kWh/year)												2649	(64)
Electric shower(s)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
									Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =			0.0000	(64a)
Heat gains from water heating, kWh/month	83.3865	73.6938	78.0940	68.1159	65.6754	58.7870	57.6991	60.1863	61.0704	68.5750	73.5107	82.3976	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5	107.5387	119.0607	107.5387	111.1233	107.5387	111.1233	107.5387	107.5387	111.1233	107.5387	111.1233	107.5387	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5	197.7634	199.8156	194.6442	183.6349	169.7377	156.6762	147.9504	145.8982	151.0696	162.0789	175.9761	189.0375	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	(71)
Water heating gains (Table 5)	112.0787	109.6634	104.9651	94.6054	88.2734	81.6487	77.5525	80.8955	84.8200	92.1707	102.0982	110.7494	(72)
Total internal gains	477.1453	488.3042	466.9125	449.1282	425.3143	406.2127	389.8062	391.0970	403.7775	421.5528	448.9622	467.0902	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	0.7000	46.7521	0.6300	0.7000	0.7700	10.0016	(78)
West	6.5000	19.6403	0.6300	0.7000	0.7700	39.0151	(80)
West	2.0000	26.5854	0.6300	0.7000	1.0000	21.1035	(82)

Solar gains	70.1202	135.8998	222.2905	324.3085	399.1514	409.7282	389.5904	333.2356	258.3484	160.7103	87.1639	57.8565	(83)
Total gains	547.2656	624.2040	689.2030	773.4367	824.4657	815.9409	779.3966	724.3326	662.1259	582.2630	536.1261	524.9467	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.9490	23.9959	24.0420	24.2612	24.3026	24.4975	24.4975	24.5339	24.4220	24.3026	24.2189	24.1320	
alpha	2.5966	2.5997	2.6028	2.6174	2.6202	2.6332	2.6332	2.6356	2.6281	2.6202	2.6146	2.6088	
util living area	0.9564	0.9380	0.9070	0.8405	0.7381	0.5971	0.4685	0.5131	0.7082	0.8730	0.9383	0.9606	(86)
MIT	18.3812	18.6844	19.1661	19.8149	20.3680	20.7494	20.9044	20.8759	20.5823	19.8572	19.0175	18.3313	(87)
Th 2	19.8144	19.8164	19.8184	19.8278	19.8295	19.8377	19.8377	19.8392	19.8346	19.8295	19.8260	19.8223	(88)
util rest of house	0.9491	0.9276	0.8909	0.8119	0.6888	0.5177	0.3612	0.4054	0.6373	0.8438	0.9262	0.9539	(89)
MIT 2	16.7996	17.1818	17.7858	18.5870	19.2373	19.6519	19.7893	19.7717	19.4940	18.6587	17.6138	16.7410	(90)
Living area fraction									fLA = Living area / (4) =			0.3732	(91)
MIT	17.3898	17.7426	18.3009	19.0453	19.6593	20.0615	20.2055	20.1838	19.9002	19.1060	18.1377	17.3345	(92)

Temperature adjustment												-0.1500	
adjusted MIT	17.2398	17.5926	18.1509	18.8953	19.5093	19.9115	20.0555	20.0338	19.7502	18.9560	17.9877	17.1845	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9261	0.9009	0.8613	0.7844	0.6735	0.5232	0.3825	0.4248	0.6314	0.8162	0.9000	0.9322	(94)
Useful gains	506.8449	562.3475	593.6145	606.6649	555.2530	426.9007	298.1402	307.6688	418.0924	475.2350	482.4989	489.3618	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1211.6437	1186.1689	1086.7315	923.8813	720.5943	486.2125	316.3160	332.1444	518.8159	771.0396	1008.1226	1206.6048	(97)
Space heating kWh	524.3703	419.2080	366.8791	228.3958	123.0139	0.0000	0.0000	0.0000	0.0000	220.0786	378.4491	533.6288	(98a)
Space heating requirement - total per year (kWh/year)												2794.0235	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	524.3703	419.2080	366.8791	228.3958	123.0139	0.0000	0.0000	0.0000	0.0000	220.0786	378.4491	533.6288	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2794.0235	
Space heating per m2											(98c) / (4) =	39.8009	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												89.5000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	524.3703	419.2080	366.8791	228.3958	123.0139	0.0000	0.0000	0.0000	0.0000	220.0786	378.4491	533.6288	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	585.8886	468.3888	409.9207	255.1908	137.4457	0.0000	0.0000	0.0000	0.0000	245.8979	422.8481	596.2333	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.4659	86.2655	85.8698	85.1458	83.9435	81.0000	81.0000	81.0000	81.0000	85.0497	86.0559	86.5220	(217)
Fuel for water heating, kWh/month	304.6640	270.1612	288.2424	254.9697	250.3636	233.3817	229.8457	239.0806	241.8598	257.3608	271.1273	301.0290	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	19.7564	15.8493	14.2706	10.4552	8.0759	6.5981	7.3671	9.5761	12.4384	16.3198	18.4332	20.3055	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3121.8140	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	3142.0859	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	159.4455	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	6464.3453	(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	3121.8140	0.2100	655.5809	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	3142.0859	0.2100	659.8380	(264)
Space and water heating			1315.4190	(265)

Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	159.4455	0.1443	23.0129	(268)
Total CO2, kg/year			1344.1191	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			19.1500	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3121.8140	1.1300	3527.6498	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	3142.0859	1.1300	3550.5570	(278)
Space and water heating			7078.2068	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	159.4455	1.5338	244.5628	(282)
Total Primary energy kWh/year			7384.7944	(286)
Dwelling Primary energy Rate (DPER)			105.2000	(287)

Full SAP Calculation Printout

Plot Reference	Unit F	Issued on Date	13/02/2026
Assessment Reference	Unit F - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	82 B	DER	19.15	TER	
Environmental	85 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.24	DFEE	47.96	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	105.20	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	70.2000 (1b)	x	2.8000 (2b)	=	196.5600	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	70.2000					
Dwelling volume			(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	196.5600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	3 * 10 =	30.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	30.0000 / (5) =	0.1526	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.4026	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3422	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4363	0.4278	0.4192	0.3765	0.3679	0.3251	0.3251	0.3166	0.3422	0.3679	0.3850	0.4021	(22b)

If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a)	0.0000 (23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) =	0.0000 (23c)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Effective ac	0.5952	0.5915	0.5879	0.5709	0.5677	0.5529	0.5529	0.5501	0.5586	0.5677	0.5741	0.5809	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.2000	1.1450	8.2443			(27)
RW			2.0000	1.1450	2.2901			(27a)
EW	62.1600	7.2000	54.9600	0.1800	9.8928			(29a)
Sloping Ceiling	72.4000	2.0000	70.4000	0.1300	9.1520			(30)
Total net area of external elements Aum(A, m2)			134.5600					(31)
Fabric heat loss, W/K = Sum (A x U)				(26)...(30) + (32) =	29.5792			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000 (35)
Thermal bridges (Default value 0.200 * total exposed area)	26.9120 (36)
Point Thermal bridges (36a) =	0.0000
Total fabric heat loss (33) + (36) + (36a) =	56.4912 (37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	38.6074	38.3676	38.1326	37.0287	36.8221	35.8606	35.8606	35.6825	36.2310	36.8221	37.2399	37.6768	(38)

Heat transfer coeff

	95.0986	94.8588	94.6238	93.5198	93.3133	92.3517	92.3517	92.1737	92.7221	93.3133	93.7311	94.1679 (39)
Average = Sum(39)m / 12 =												93.5188

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3547	1.3513	1.3479	1.3322	1.3292	1.3156	1.3156	1.3130	1.3208	1.3292	1.3352	1.3414	(40)
HLP (average)												1.3322	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.2510 (42)

Hot water usage for mixer showers

	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000 (42a)

Hot water usage for baths

	26.7685	26.3709	25.8111	24.7789	24.0060	23.1489	22.6860	23.2419	23.8472	24.7643	25.8177	26.6780 (42b)

Hot water usage for other uses

	37.6822	36.3119	34.9417	33.5714	32.2011	30.8309	30.8309	32.2011	33.5714	34.9417	36.3119	37.6822 (42c)

Average daily hot water use (litres/day) 59.0751 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	64.4507	62.6829	60.7528	58.3503	56.2071	53.9798	53.5169	55.4430	57.4186	59.7059	62.1297	64.3602	(44)
Energy conte	102.0741	89.2596	93.3748	79.8786	75.6656	66.3744	64.7240	68.6501	70.8029	81.0204	88.5151	100.7725	(45)
Energy content (annual)										Total = Sum(45)m =		981.1120	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	86.7630	75.8706	79.3685	67.8968	64.3157	56.4183	55.0154	58.3525	60.1824	68.8673	75.2378	85.6566	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	86.7630	75.8706	79.3685	67.8968	64.3157	56.4183	55.0154	58.3525	60.1824	68.8673	75.2378	85.6566	(64)
										Total per year (kWh/year) = Sum(64)m =		833.9452	(64)
12Total per year (kWh/year)												834	(64)
Electric shower(s)													
	49.6205	44.2122	48.2781	46.0712	46.9357	44.7721	46.2645	46.9357	46.0712	48.2781	47.3703	49.6205	(64a)
							Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =					564.4298	(64a)
Heat gains from water heating, kWh/month													
	34.0959	30.0207	31.9117	28.4920	27.8129	25.2976	25.3200	26.3221	26.5634	29.2863	30.6520	33.8193	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	107.5387	119.0607	107.5387	111.1233	107.5387	111.1233	107.5387	107.5387	111.1233	107.5387	111.1233	107.5387	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	197.7634	199.8156	194.6442	183.6349	169.7377	156.6762	147.9504	145.8982	151.0696	162.0789	175.9761	189.0375	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	(71)
Water heating gains (Table 5)													
	45.8278	44.6737	42.8920	39.5722	37.3829	35.1355	34.0322	35.3791	36.8936	39.3634	42.5723	45.4560	(72)
Total internal gains													
	407.8944	420.3145	401.8394	391.0950	371.4238	359.6996	346.2858	345.5806	355.8511	365.7455	386.4362	398.7968	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	0.7000	46.7521	0.6300	0.7000	0.7700	10.0016	(78)
West	6.5000	19.6403	0.6300	0.7000	0.7700	39.0151	(80)
West	2.0000	26.5854	0.6300	0.7000	1.0000	21.1035	(82)

Solar gains	70.1202	135.8998	222.2905	324.3085	399.1514	409.7282	389.5904	333.2356	258.3484	160.7103	87.1639	57.8565 (83)
Total gains	478.0146	556.2143	624.1299	715.4035	770.5752	769.4278	735.8763	678.8162	614.1995	526.4557	473.6002	456.6532 (84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, nil,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.5808	23.6404	23.6991	23.9789	24.0320	24.2822	24.2822	24.3291	24.1852	24.0320	23.9248	23.8138	
alpha	2.5721	2.5760	2.5799	2.5986	2.6021	2.6188	2.6188	2.6219	2.6123	2.6021	2.5950	2.5876	
util living area													
	0.9677	0.9516	0.9240	0.8617	0.7638	0.6230	0.4931	0.5412	0.7378	0.8953	0.9527	0.9711	(86)
MIT	18.1841	18.5008	19.0063	19.7026	20.2961	20.7173	20.8899	20.8565	20.5283	19.7417	18.8569	18.1403	(87)
Th 2	19.7982	19.8009	19.8035	19.8157	19.8180	19.8287	19.8287	19.8307	19.8246	19.8180	19.8134	19.8085	(88)
util rest of house													
	0.9620	0.9431	0.9102	0.8354	0.7162	0.5429	0.3817	0.4300	0.6686	0.8696	0.9430	0.9660	(89)
MIT 2	17.2615	17.5748	18.0720	18.7499	19.2996	19.6637	19.7849	19.7690	19.5209	18.8037	17.9386	17.2248	(90)

Living area fraction											fLA = Living area / (4) =	0.3732	(91)
MIT	17.6058	17.9204	18.4207	19.1055	19.6715	20.0569	20.1973	20.1749	19.8969	19.1538	18.2813	17.5665	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.6058	17.9204	18.4207	19.1055	19.6715	20.0569	20.1973	20.1749	19.8969	19.1538	18.2813	17.5665	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9475	0.9253	0.8897	0.8166	0.7095	0.5598	0.4188	0.4650	0.6734	0.8516	0.9260	0.9525	(94)
Useful gains	452.9176	514.6568	555.3007	584.1936	546.7381	430.7102	308.1567	315.6735	413.6058	448.3211	438.5388	434.9741	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	1265.3652	1235.1013	1127.9784	954.4171	743.8481	503.9585	332.2157	347.9474	537.4994	798.1855	1048.0362	1258.6953	(97)
Space heating kWh													
	604.4610	484.1387	426.0722	266.5609	146.6498	0.0000	0.0000	0.0000	0.0000	260.2991	438.8382	612.8486	(98a)
Space heating requirement - total per year (kWh/year)												3239.8684	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	604.4610	484.1387	426.0722	266.5609	146.6498	0.0000	0.0000	0.0000	0.0000	260.2991	438.8382	612.8486	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3239.8684	
Space heating per m2											(98c) / (4) =	46.1520	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	868.1064	683.4029	700.5200	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7058	0.7744	0.7391	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	612.6792	529.1995	517.7484	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	826.7141	791.2535	730.9059	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	154.1052	194.9682	158.5892	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction											fC = cooled area / (4) =	1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	38.5263	48.7420	39.6473	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												126.9156	(107)
Energy for space heating												46.1520	(99)
Energy for space cooling												1.8079	(108)
Total												47.9599	(109)
Fabric Energy Efficiency (DFEE)												48.0	(109)

Full SAP Calculation Printout

Plot Reference	Unit F	Issued on Date	13/02/2026
Assessment Reference	Unit F - BL	Plot Type Ref	
Plot Address		SAP Version	10.2

SAP Rating	82 B	DER	19.15	TER	
Environmental	85 B	% DER < TER			N/A
CO_2 Emissions (t/year)	1.24	DFEE	47.96	TFEE	
Compliance Check	N/A	% DFEE < TFEE			
% DPER < TPER		DPER	105.20	TPER	

Assessor Details	Mr. Samuel Westover	Assessor ID	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

---

1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	70.2000	(1b)	x 2.8000	(2b) =	196.5600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	70.2000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	196.5600	(5)

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2. Ventilation rate

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		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	2 * 10 =	20.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
	Air changes per hour		
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1018	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.3518	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.2990	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.3812	0.3737	0.3663	0.3289	0.3214	0.2840	0.2840	0.2766	0.2990	0.3214	0.3364	0.3513	(22b)
Effective ac	0.5727	0.5698	0.5671	0.5541	0.5517	0.5403	0.5403	0.5382	0.5447	0.5517	0.5566	0.5617	(25)

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3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.2000	1.1450	8.2443			(27)
RW			2.0000	1.1450	2.2901			(27a)
EW	62.1600	7.2000	54.9600	0.1800	9.8928			(29a)
Sloping Ceiling	72.4000	2.0000	70.4000	0.1300	9.1520			(30)
Total net area of external elements Aum(A, m2)			134.5600					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		29.5792			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K	115.0000	(35)
Thermal bridges (Default value 0.200 * total exposed area)	26.9120	(36)
Point Thermal bridges	(36a) = 0.0000	
Total fabric heat loss	(33) + (36) + (36a) = 56.4912	(37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	37.1455	36.9625	36.7831	35.9405	35.7828	35.0490	35.0490	34.9131	35.3316	35.7828	36.1018	36.4352	(38)
Heat transfer coeff	93.6366	93.4536	93.2742	92.4316	92.2740	91.5401	91.5401	91.4042	91.8228	92.2740	92.5929	92.9263	(39)

Average = Sum(39)m / 12 = 92.4309

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3339	1.3312	1.3287	1.3167	1.3144	1.3040	1.3040	1.3021	1.3080	1.3144	1.3190	1.3237	(40)
HLP (average)												1.3167	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.2510 (42)

Hot water usage for mixer showers

69.7062	68.6586	67.1321	64.2115	62.0561	59.6525	58.2862	59.8012	61.4618	64.0426	67.0260	69.4391	(42a)

Hot water usage for baths

26.7685	26.3709	25.8111	24.7789	24.0060	23.1489	22.6860	23.2419	23.8472	24.7643	25.8177	26.6780	(42b)

Hot water usage for other uses

37.6822	36.3119	34.9417	33.5714	32.2011	30.8309	30.8309	32.2011	33.5714	34.9417	36.3119	37.6822	(42c)

Average daily hot water use (litres/day) 123.3419 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use	134.1568	131.3415	127.8849	122.5618	118.2632	113.6323	111.8031	115.2442	118.8804	123.7485	129.1556	133.7993	(44)
Energy conte	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(45)
Energy content (annual)										Total = Sum(45)m =		2048.6972	
Distribution loss (46)m = 0.15 x (45)m	31.8707	28.0543	29.4831	25.1671	23.8808	20.9586	20.2824	21.4045	21.9887	25.1888	27.6009	31.4246	(46)
Water storage loss (or HIU loss):													
Total storage loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	50.9589	46.0274	50.9589	49.3151	50.9589	49.3151	50.9589	50.9589	49.3151	50.9589	49.3151	50.9589	(61)
Total heat required for water heating calculated for each month	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(64)
									Total per year (kWh/year) = Sum(64)m =			2648.6972	(64)
12Total per year (kWh/year)												2649	(64)
Electric shower(s)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
									Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =			0.0000	(64a)
Heat gains from water heating, kWh/month	83.3865	73.6938	78.0940	68.1159	65.6754	58.7870	57.6991	60.1863	61.0704	68.5750	73.5107	82.3976	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5	107.5387	119.0607	107.5387	111.1233	107.5387	111.1233	107.5387	107.5387	111.1233	107.5387	111.1233	107.5387	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5	197.7634	199.8156	194.6442	183.6349	169.7377	156.6762	147.9504	145.8982	151.0696	162.0789	175.9761	189.0375	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	(71)
Water heating gains (Table 5)	112.0787	109.6634	104.9651	94.6054	88.2734	81.6487	77.5525	80.8955	84.8200	92.1707	102.0982	110.7494	(72)
Total internal gains	477.1453	488.3042	466.9125	449.1282	425.3143	406.2127	389.8062	391.0970	403.7775	421.5528	448.9622	467.0902	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	0.7000	46.7521	0.6300	0.7000	0.7700	10.0016	(78)
West	6.5000	19.6403	0.6300	0.7000	0.7700	39.0151	(80)
West	2.0000	26.5854	0.6300	0.7000	1.0000	21.1035	(82)

Solar gains	70.1202	135.8998	222.2905	324.3085	399.1514	409.7282	389.5904	333.2356	258.3484	160.7103	87.1639	57.8565	(83)
Total gains	547.2656	624.2040	689.2030	773.4367	824.4657	815.9409	779.3966	724.3326	662.1259	582.2630	536.1261	524.9467	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.9490	23.9959	24.0420	24.2612	24.3026	24.4975	24.4975	24.5339	24.4220	24.3026	24.2189	24.1320	
alpha	2.5966	2.5997	2.6028	2.6174	2.6202	2.6332	2.6332	2.6356	2.6281	2.6202	2.6146	2.6088	
util living area	0.9564	0.9380	0.9070	0.8405	0.7381	0.5971	0.4685	0.5131	0.7082	0.8730	0.9383	0.9606	(86)
MIT	18.3812	18.6844	19.1661	19.8149	20.3680	20.7494	20.9044	20.8759	20.5823	19.8572	19.0175	18.3313	(87)
Th 2	19.8144	19.8164	19.8184	19.8278	19.8295	19.8377	19.8377	19.8392	19.8346	19.8295	19.8260	19.8223	(88)
util rest of house	0.9491	0.9276	0.8909	0.8119	0.6888	0.5177	0.3612	0.4054	0.6373	0.8438	0.9262	0.9539	(89)
MIT 2	16.7996	17.1818	17.7858	18.5870	19.2373	19.6519	19.7893	19.7717	19.4940	18.6587	17.6138	16.7410	(90)
Living area fraction									fLA = Living area / (4) =			0.3732	(91)
MIT	17.3898	17.7426	18.3009	19.0453	19.6593	20.0615	20.2055	20.1838	19.9002	19.1060	18.1377	17.3345	(92)

Temperature adjustment												-0.1500	
adjusted MIT	17.2398	17.5926	18.1509	18.8953	19.5093	19.9115	20.0555	20.0338	19.7502	18.9560	17.9877	17.1845	(93)

8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9261	0.9009	0.8613	0.7844	0.6735	0.5232	0.3825	0.4248	0.6314	0.8162	0.9000	0.9322	(94)
Useful gains	506.8449	562.3475	593.6145	606.6649	555.2530	426.9007	298.1402	307.6688	418.0924	475.2350	482.4989	489.3618	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1211.6437	1186.1689	1086.7315	923.8813	720.5943	486.2125	316.3160	332.1444	518.8159	771.0396	1008.1226	1206.6048	(97)
Space heating kWh	524.3703	419.2080	366.8791	228.3958	123.0139	0.0000	0.0000	0.0000	0.0000	220.0786	378.4491	533.6288	(98a)
Space heating requirement - total per year (kWh/year)												2794.0235	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	524.3703	419.2080	366.8791	228.3958	123.0139	0.0000	0.0000	0.0000	0.0000	220.0786	378.4491	533.6288	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2794.0235	
Space heating per m2											(98c) / (4) =	39.8009	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												89.5000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	524.3703	419.2080	366.8791	228.3958	123.0139	0.0000	0.0000	0.0000	0.0000	220.0786	378.4491	533.6288	(98)
Space heating efficiency (main heating system 1)	89.5000	89.5000	89.5000	89.5000	89.5000	0.0000	0.0000	0.0000	0.0000	89.5000	89.5000	89.5000	(210)
Space heating fuel (main heating system)	585.8886	468.3888	409.9207	255.1908	137.4457	0.0000	0.0000	0.0000	0.0000	245.8979	422.8481	596.2333	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	263.4305	233.0559	247.5132	217.0960	210.1639	189.0392	186.1750	193.6553	195.9065	218.8845	233.3210	260.4562	(64)
Efficiency of water heater												81.0000	(216)
(217)m	86.4659	86.2655	85.8698	85.1458	83.9435	81.0000	81.0000	81.0000	81.0000	85.0497	86.0559	86.5220	(217)
Fuel for water heating, kWh/month	304.6640	270.1612	288.2424	254.9697	250.3636	233.3817	229.8457	239.0806	241.8598	257.3608	271.1273	301.0290	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	3.4822	3.1452	3.4822	3.3699	3.4822	3.3699	3.4822	3.4822	3.3699	3.4822	3.3699	3.4822	(231)
Lighting	19.7564	15.8493	14.2706	10.4552	8.0759	6.5981	7.3671	9.5761	12.4384	16.3198	18.4332	20.3055	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	3121.8140	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	81.0000	
Water heating fuel used	3142.0859	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
central heating pump	41.0000	(230c)
Total electricity for the above, kWh/year	41.0000	(231)
Electricity for lighting (calculated in Appendix L)	159.4455	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	0.0000	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	6464.3453	(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	3121.8140	0.2100	655.5809	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	3142.0859	0.2100	659.8380	(264)
Space and water heating			1315.4190	(265)

Pumps, fans and electric keep-hot	41.0000	0.1387	5.6872	(267)
Energy for lighting	159.4455	0.1443	23.0129	(268)
Total CO2, kg/year			1344.1191	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			19.1500	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	3121.8140	1.1300	3527.6498	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	3142.0859	1.1300	3550.5570	(278)
Space and water heating			7078.2068	(279)
Pumps, fans and electric keep-hot	41.0000	1.5128	62.0248	(281)
Energy for lighting	159.4455	1.5338	244.5628	(282)
Total Primary energy kWh/year			7384.7944	(286)
Dwelling Primary energy Rate (DPER)			105.2000	(287)

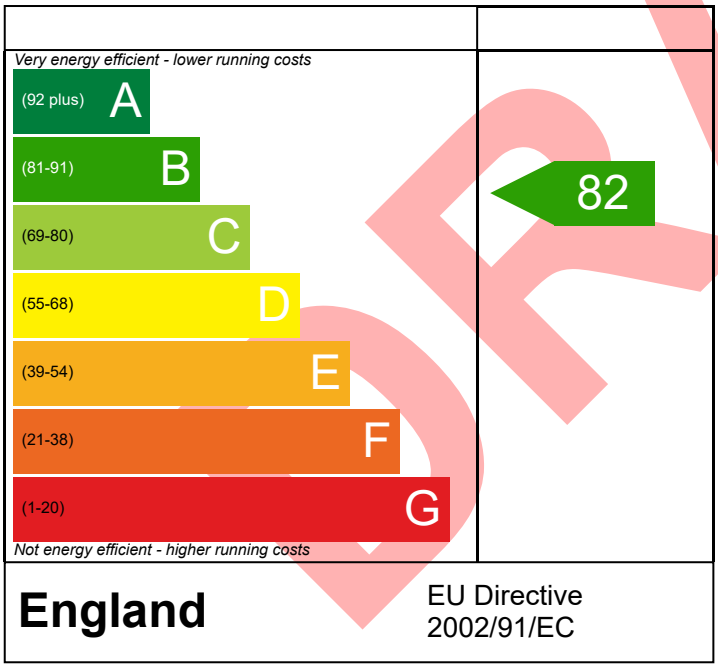
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	70.2 m²
DRRN:	

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

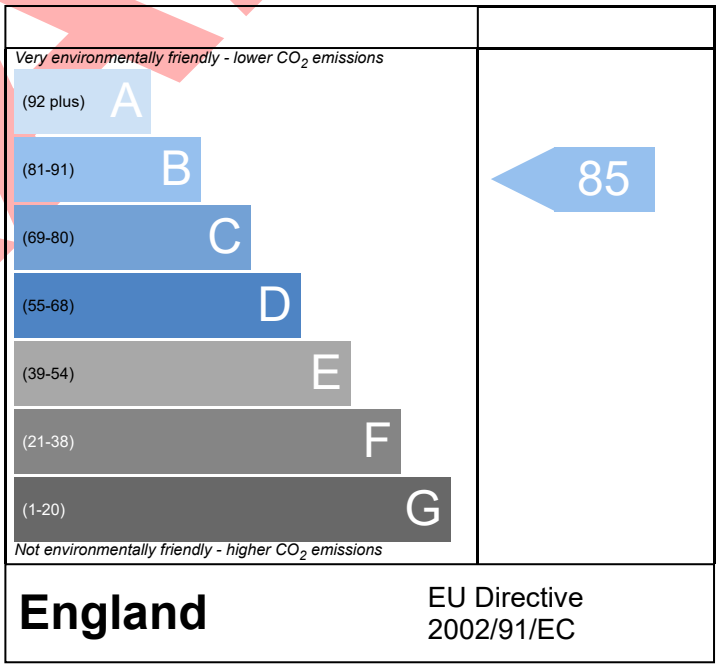
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

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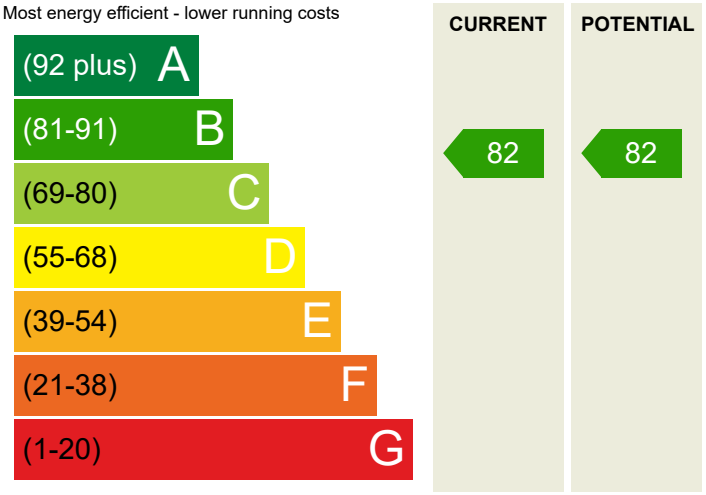
Energy Report

Dwelling Address	
Reference	Unit F-Unit F - BL
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	70

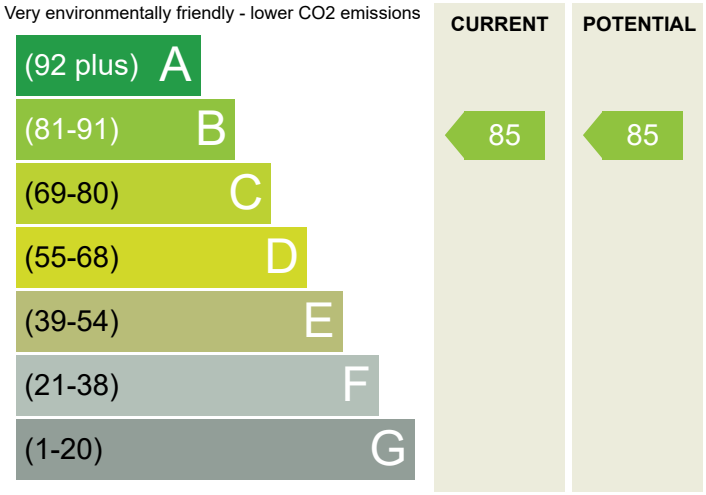
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

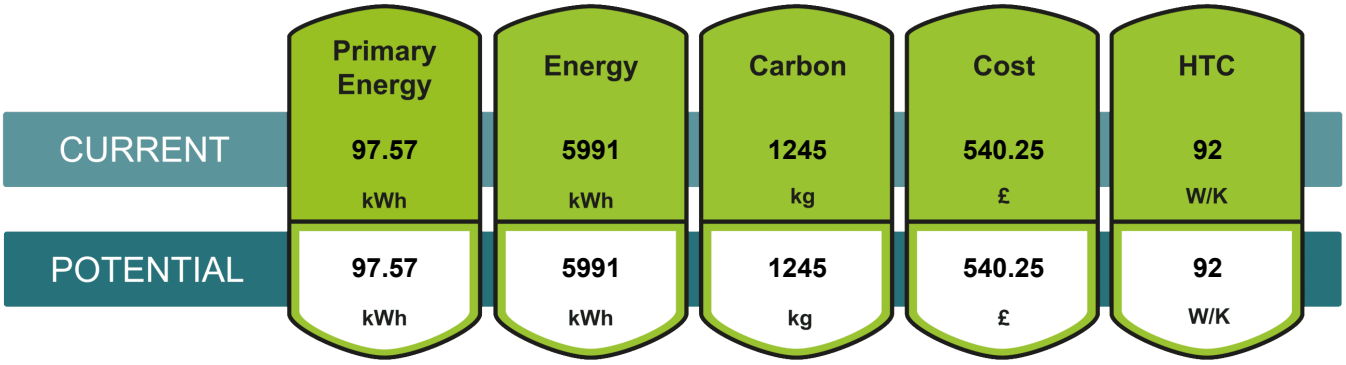


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Roof	Average thermal transmittance 0.13 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Boiler and radiators, mains gas	Very Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Good
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£45	£45	
Heating	£288	£288	
Hot Water	£206	£206	
New Technologies e.g. Impact of PV	£0	£0	
TOTAL	£540	£540	

Estimated energy use and potential savings

Space Heating
2638
kWh per year

Water Heating
3152
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.

Summary for Input Data

Plot Reference	Unit F	**Issued on Date**	13/02/2026
Assessment Reference	Unit F - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	84 B	**DER**	4.05	**TER**	
Environmental	97 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.25	**DFEE**	47.96	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	44.56	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	West	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Top-floor flat	
Which Floor	1	
2.0 Number of Storeys	1	
3.0 Date Built	2026	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	115.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	22.20 m	70.20 m²	2.80 m

8.0 Living Area	26.20	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EW	Cavity Wall	Cavity wall : dense plaster, AAC block, filled cavity, any outside structure	0.18		62.16	54.96	0.00	None	7.20	Calculate Wall Area

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Sloping Ceiling	External Slope Roof	Plasterboard, insulated slope	0.13	9.00	72.40	70.40	None	0.00	Enter Gross Area	2.00

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.70

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Timber I-joists, carpeted	30.00	86.40

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

Summary for Input Data

RW	Manufacturer	Roof Window	Double Low-E Soft 0.05	0.63	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
E	Windows	EW	West	6.50	
S	Windows	EW	South	0.70	
ERW	RW	Sloping Ceiling	West	2.00	15

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Default	
Y-value	0.20	W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	No	

20.0 Fans, Open Fireplaces, Flues		
Number of open chimneys	0	
Number of open flues	0	
Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	2	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting	No				
	Name	**Efficacy**	**Power**	**Capacity**	**Count**
	Lighting 1	120.00	5.00	600.00	25

24.0 Main Heating 1	SAP table	
Percentage of Heat	100.00	%
Fuel Type	Electricity	
SAP Code	214	
In Winter	249.90	
In Summer	175.10	
Controls SAP Code	2207	
Controls description	Time and temperature zone control by arrangement	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	35.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

Summary for Input Data

elmhurst energy

27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
S1	Vented hot water system	9.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

32.0 Photovoltaic Unit	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.75	South	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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating			0	0
Photovoltaic			0	0
Wind turbine			0	0

Full SAP Calculation Printout

Plot Reference	Unit F	**Issued on Date**	13/02/2026
Assessment Reference	Unit F - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	84 B	**DER**	4.05	**TER**	
Environmental	97 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.25	**DFEE**	47.96	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	44.56	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	70.2000	(1b)	x 2.8000	(2b) =	196.5600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	70.2000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	196.5600	(5)

2. Ventilation rate

	m3 per hour	
Number of open chimneys	0 * 80 =	0.0000 (6a)
Number of open flues	0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000 (6d)
Number of flues attached to other heater	0 * 35 =	0.0000 (6e)
Number of blocked chimneys	0 * 20 =	0.0000 (6f)
Number of intermittent extract fans	2 * 10 =	20.0000 (7a)
Number of passive vents	0 * 10 =	0.0000 (7b)
Number of flueless gas fires	0 * 40 =	0.0000 (7c)
	Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1018 (8)
Pressure test		Yes
Pressure Test Method		Blower Door
Measured/design AP50		5.0000 (17)
Infiltration rate		0.3518 (18)
Number of sides sheltered		2 (19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500 (20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.2990 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.3812	0.3737	0.3663	0.3289	0.3214	0.2840	0.2840	0.2766	0.2990	0.3214	0.3364	0.3513	(22b)
Effective ac	0.5727	0.5698	0.5671	0.5541	0.5517	0.5403	0.5403	0.5382	0.5447	0.5517	0.5566	0.5617	(25)

3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.2000	1.1450	8.2443			(27)
RW			2.0000	1.1450	2.2901			(27a)
EW	62.1600	7.2000	54.9600	0.1800	9.8928			(29a)
Sloping Ceiling	72.4000	2.0000	70.4000	0.1300	9.1520			(30)
Total net area of external elements Aum(A, m2)			134.5600					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		29.5792			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K		115.0000 (35)
Thermal bridges (Default value 0.200 * total exposed area)		26.9120 (36)
Point Thermal bridges	(36a) =	0.0000
Total fabric heat loss	(33) + (36) + (36a) =	56.4912 (37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	37.1455	36.9625	36.7831	35.9405	35.7828	35.0490	35.0490	34.9131	35.3316	35.7828	36.1018	36.4352	(38)
Heat transfer coeff	93.6366	93.4536	93.2742	92.4316	92.2740	91.5401	91.5401	91.4042	91.8228	92.2740	92.5929	92.9263	(39)

Average = Sum(39)m / 12 = 92.4309

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3339	1.3312	1.3287	1.3167	1.3144	1.3040	1.3040	1.3021	1.3080	1.3144	1.3190	1.3237	(40)
HLP (average)												1.3167	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.2510 (42)

Hot water usage for mixer showers

69.7062	68.6586	67.1321	64.2115	62.0561	59.6525	58.2862	59.8012	61.4618	64.0426	67.0260	69.4391	(42a)

Hot water usage for baths

26.7685	26.3709	25.8111	24.7789	24.0060	23.1489	22.6860	23.2419	23.8472	24.7643	25.8177	26.6780	(42b)

Hot water usage for other uses

37.6822	36.3119	34.9417	33.5714	32.2011	30.8309	30.8309	32.2011	33.5714	34.9417	36.3119	37.6822	(42c)

Average daily hot water use (litres/day) 123.3419 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use	134.1568	131.3415	127.8849	122.5618	118.2632	113.6323	111.8031	115.2442	118.8804	123.7485	129.1556	133.7993	(44)
Energy conte	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(45)
Energy content (annual)											Total = Sum(45)m =	2048.6972	
Distribution loss (46)m = 0.15 x (45)m	31.8707	28.0543	29.4831	25.1671	23.8808	20.9586	20.2824	21.4045	21.9887	25.1888	27.6009	31.4246	(46)
Water storage loss (or HIU loss):													
Total storage loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(64)
										Total per year (kWh/year) = Sum(64)m =		2048.6972	(64)
12Total per year (kWh/year)												2049	(64)
Electric shower(s)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month	70.6468	62.1870	65.3543	55.7872	52.9357	46.4583	44.9594	47.4465	48.7416	55.8352	61.1820	69.6579	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5	107.5387	119.0607	107.5387	111.1233	107.5387	111.1233	107.5387	107.5387	111.1233	107.5387	111.1233	107.5387	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5	197.7634	199.8156	194.6442	183.6349	169.7377	156.6762	147.9504	145.8982	151.0696	162.0789	175.9761	189.0375	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	(71)
Water heating gains (Table 5)	94.9554	92.5401	87.8418	77.4822	71.1501	64.5254	60.4293	63.7722	67.6967	75.0474	84.9749	93.6262	(72)
Total internal gains	460.0220	471.1809	449.7892	432.0049	408.1910	389.0894	372.6829	373.9737	386.6542	404.4295	431.8389	449.9669	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	0.7000	46.7521	0.6300	0.7000	0.7700	10.0016	(78)
West	6.5000	19.6403	0.6300	0.7000	0.7700	39.0151	(80)
West	2.0000	26.5854	0.6300	0.7000	1.0000	21.1035	(82)

Solar gains	70.1202	135.8998	222.2905	324.3085	399.1514	409.7282	389.5904	333.2356	258.3484	160.7103	87.1639	57.8565	(83)
Total gains	530.1423	607.0807	672.0797	756.3134	807.3424	798.8176	762.2733	707.2093	645.0026	565.1397	519.0028	507.8234	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.9490	23.9959	24.0420	24.2612	24.3026	24.4975	24.4975	24.5339	24.4220	24.3026	24.2189	24.1320	
alpha	2.5966	2.5997	2.6028	2.6174	2.6202	2.6332	2.6332	2.6356	2.6281	2.6202	2.6146	2.6088	
util living area	0.9593	0.9414	0.9114	0.8464	0.7455	0.6055	0.4769	0.5224	0.7179	0.8796	0.9423	0.9633	(86)
MIT	18.3438	18.6492	19.1343	19.7898	20.3510	20.7405	20.9002	20.8704	20.5673	19.8288	18.9822	18.2933	(87)
Th 2	19.8144	19.8164	19.8184	19.8278	19.8295	19.8377	19.8377	19.8392	19.8346	19.8295	19.8260	19.8223	(88)
util rest of house	0.9524	0.9315	0.8958	0.8184	0.6967	0.5260	0.3684	0.4138	0.6476	0.8515	0.9308	0.9571	(89)
MIT 2	16.7527	17.1381	17.7473	18.5580	19.2197	19.6446	19.7870	19.7683	19.4801	18.6259	17.5702	16.6933	(90)
Living area fraction										fLA = Living area / (4) =		0.3732	(91)
MIT	17.3465	17.7021	18.2649	19.0177	19.6419	20.0536	20.2025	20.1796	19.8859	19.0748	18.0972	17.2904	(92)

Temperature adjustment												0.0000	
adjusted MIT	17.3465	17.7021	18.2649	19.0177	19.6419	20.0536	20.2025	20.1796	19.8859	19.0748	18.0972	17.2904	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9318	0.9075	0.8695	0.7953	0.6879	0.5419	0.4042	0.4477	0.6510	0.8287	0.9077	0.9377	(94)
Useful gains	494.0039	550.9397	584.3897	601.4905	555.3614	432.9003	308.1395	316.5924	419.9242	468.3558	471.1240	476.1803	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1221.6340	1196.4044	1097.3663	935.1953	732.8351	499.2229	329.7706	345.4720	531.2737	782.0079	1018.2594	1216.4468	(97)
Space heating kWh	541.3568	433.7523	381.6546	240.2675	132.0404	0.0000	0.0000	0.0000	0.0000	233.3572	393.9375	550.7583	(98a)
Space heating requirement - total per year (kWh/year)												2907.1246	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	541.3568	433.7523	381.6546	240.2675	132.0404	0.0000	0.0000	0.0000	0.0000	233.3572	393.9375	550.7583	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2907.1246	
Space heating per m2											(98c) / (4) =	41.4120	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												249.9000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	541.3568	433.7523	381.6546	240.2675	132.0404	0.0000	0.0000	0.0000	0.0000	233.3572	393.9375	550.7583	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	216.6294	173.5703	152.7229	96.1454	52.8373	0.0000	0.0000	0.0000	0.0000	93.3802	157.6381	220.3915	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	121.3430	106.8124	112.2526	95.8201	90.9223	79.7967	77.2222	81.4942	83.7187	95.9027	105.0862	119.6444	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	19.7564	15.8493	14.2706	10.4552	8.0759	6.5981	7.3671	9.5761	12.4384	16.3198	18.4332	20.3055	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.7547	-24.4967	-38.6313	-47.1153	-53.4445	-48.9390	-48.1994	-43.9488	-36.8016	-29.2142	-18.0152	-13.3740	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-3.0277	-6.8458	-14.7486	-24.4242	-34.9365	-37.9537	-37.5449	-30.9665	-21.8721	-10.8530	-4.2635	-2.3437	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	1163.3152	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	175.1000	
Water heating fuel used	1170.0155	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
Total electricity for the above, kWh/year	0.0000	(231)
Electricity for lighting (calculated in Appendix L)	159.4455	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	-647.7148	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	1845.0614	(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	1163.3152	0.1544	179.5986	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	1170.0155	0.1416	165.6487	(264)
Space and water heating			345.2473	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)

Energy for lighting	159.4455	0.1443	23.0129	(268)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-417.9345	0.1333	-55.6985	
PV Unit electricity exported	-229.7802	0.1226	-28.1618	
Total			-83.8603	(269)
Total CO2, kg/year			284.3999	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			4.0500	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	1163.3152	1.5716	1828.2309	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	1170.0155	1.5235	1782.5636	(278)
Space and water heating			3610.7944	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	159.4455	1.5338	244.5628	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-417.9345	1.4925	-623.7595	
PV Unit electricity exported	-229.7802	0.4496	-103.3206	
Total			-727.0801	(283)
Total Primary energy kWh/year			3128.2771	(286)
Dwelling Primary energy Rate (DPER)			44.5600	(287)

Full SAP Calculation Printout

Plot Reference	Unit F	**Issued on Date**	13/02/2026
Assessment Reference	Unit F - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	84 B	**DER**	4.05	**TER**	
Environmental	97 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.25	**DFEE**	47.96	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	44.56	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF FABRIC ENERGY EFFICIENCY

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1. Overall dwelling characteristics

		Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling							
Ground floor		70.2000	(1b)	x 2.8000	(2b) =	196.5600	(1b) - (3b) (4)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	70.2000						
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n)	=	196.5600	(5)

2. Ventilation rate

		m3 per hour	
Number of open chimneys	0 * 80 =	0.0000	(6a)
Number of open flues	0 * 20 =	0.0000	(6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000	(6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000	(6d)
Number of flues attached to other heater	0 * 35 =	0.0000	(6e)
Number of blocked chimneys	0 * 20 =	0.0000	(6f)
Number of intermittent extract fans	3 * 10 =	30.0000	(7a)
Number of passive vents	0 * 10 =	0.0000	(7b)
Number of flueless gas fires	0 * 40 =	0.0000	(7c)
		Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	30.0000 / (5) =	0.1526	(8)
Pressure test		Yes	
Pressure Test Method		Blower Door	
Measured/design AP50		5.0000	(17)
Infiltration rate		0.4026	(18)
Number of sides sheltered		2	(19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500	(20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.3422	(21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.4363	0.4278	0.4192	0.3765	0.3679	0.3251	0.3251	0.3166	0.3422	0.3679	0.3850	0.4021	(22b)

If exhaust air heat pump using Appendix N, (23b) = (23a) x Fmv (equation (N5)), otherwise (23b) = (23a) 0.0000 (23b)
If balanced with heat recovery: efficiency in % allowing for in-use factor (from Table 4h) = 0.0000 (23c)

Effective ac	0.5952	0.5915	0.5879	0.5709	0.5677	0.5529	0.5529	0.5501	0.5586	0.5677	0.5741	0.5809	(25)

3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.2000	1.1450	8.2443			(27)
RW			2.0000	1.1450	2.2901			(27a)
EW	62.1600	7.2000	54.9600	0.1800	9.8928			(29a)
Sloping Ceiling	72.4000	2.0000	70.4000	0.1300	9.1520			(30)
Total net area of external elements Aum(A, m2)			134.5600					(31)
Fabric heat loss, W/K = Sum (A x U)				(26)...(30) + (32) =	29.5792			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K		115.0000 (35)
Thermal bridges (Default value 0.200 * total exposed area)		26.9120 (36)
Point Thermal bridges	(36a) =	0.0000
Total fabric heat loss	(33) + (36) + (36a) =	56.4912 (37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	38.6074	38.3676	38.1326	37.0287	36.8221	35.8606	35.8606	35.6825	36.2310	36.8221	37.2399	37.6768	(38)

Heat transfer coeff

	95.0986	94.8588	94.6238	93.5198	93.3133	92.3517	92.3517	92.1737	92.7221	93.3133	93.7311	94.1679 (39)
Average = Sum(39)m / 12 =												93.5188

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3547	1.3513	1.3479	1.3322	1.3292	1.3156	1.3156	1.3130	1.3208	1.3292	1.3352	1.3414	(40)
HLP (average)												1.3322	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.2510 (42)

Hot water usage for mixer showers

	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000 (42a)

Hot water usage for baths

	26.7685	26.3709	25.8111	24.7789	24.0060	23.1489	22.6860	23.2419	23.8472	24.7643	25.8177	26.6780 (42b)

Hot water usage for other uses

	37.6822	36.3119	34.9417	33.5714	32.2011	30.8309	30.8309	32.2011	33.5714	34.9417	36.3119	37.6822 (42c)

Average daily hot water use (litres/day) 59.0751 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use													
	64.4507	62.6829	60.7528	58.3503	56.2071	53.9798	53.5169	55.4430	57.4186	59.7059	62.1297	64.3602	(44)
Energy conte	102.0741	89.2596	93.3748	79.8786	75.6656	66.3744	64.7240	68.6501	70.8029	81.0204	88.5151	100.7725	(45)
Energy content (annual)										Total = Sum(45)m =		981.1120	
Distribution loss (46)m = 0.15 x (45)m													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(46)
Water storage loss (or HIU loss):													
Total storage loss													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month													
	86.7630	75.8706	79.3685	67.8968	64.3157	56.4183	55.0154	58.3525	60.1824	68.8673	75.2378	85.6566	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h													
	86.7630	75.8706	79.3685	67.8968	64.3157	56.4183	55.0154	58.3525	60.1824	68.8673	75.2378	85.6566	(64)
										Total per year (kWh/year) = Sum(64)m =		833.9452	(64)
12Total per year (kWh/year)												834	(64)
Electric shower(s)													
	49.6205	44.2122	48.2781	46.0712	46.9357	44.7721	46.2645	46.9357	46.0712	48.2781	47.3703	49.6205	(64a)
							Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =					564.4298	(64a)
Heat gains from water heating, kWh/month													
	34.0959	30.0207	31.9117	28.4920	27.8129	25.2976	25.3200	26.3221	26.5634	29.2863	30.6520	33.8193	(65)

5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5													
	107.5387	119.0607	107.5387	111.1233	107.5387	111.1233	107.5387	107.5387	111.1233	107.5387	111.1233	107.5387	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5													
	197.7634	199.8156	194.6442	183.6349	169.7377	156.6762	147.9504	145.8982	151.0696	162.0789	175.9761	189.0375	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5													
	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	(69)
Pumps, fans	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)													
	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	(71)
Water heating gains (Table 5)													
	45.8278	44.6737	42.8920	39.5722	37.3829	35.1355	34.0322	35.3791	36.8936	39.3634	42.5723	45.4560	(72)
Total internal gains													
	407.8944	420.3145	401.8394	391.0950	371.4238	359.6996	346.2858	345.5806	355.8511	365.7455	386.4362	398.7968	(73)

6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	0.7000	46.7521	0.6300	0.7000	0.7700	10.0016	(78)
West	6.5000	19.6403	0.6300	0.7000	0.7700	39.0151	(80)
West	2.0000	26.5854	0.6300	0.7000	1.0000	21.1035	(82)

Solar gains	70.1202	135.8998	222.2905	324.3085	399.1514	409.7282	389.5904	333.2356	258.3484	160.7103	87.1639	57.8565 (83)
Total gains	478.0146	556.2143	624.1299	715.4035	770.5752	769.4278	735.8763	678.8162	614.1995	526.4557	473.6002	456.6532 (84)

7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, nil,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.5808	23.6404	23.6991	23.9789	24.0320	24.2822	24.2822	24.3291	24.1852	24.0320	23.9248	23.8138	
alpha	2.5721	2.5760	2.5799	2.5986	2.6021	2.6188	2.6188	2.6219	2.6123	2.6021	2.5950	2.5876	
util living area													
	0.9677	0.9516	0.9240	0.8617	0.7638	0.6230	0.4931	0.5412	0.7378	0.8953	0.9527	0.9711	(86)
MIT	18.1841	18.5008	19.0063	19.7026	20.2961	20.7173	20.8899	20.8565	20.5283	19.7417	18.8569	18.1403	(87)
Th 2	19.7982	19.8009	19.8035	19.8157	19.8180	19.8287	19.8287	19.8307	19.8246	19.8180	19.8134	19.8085	(88)
util rest of house													
	0.9620	0.9431	0.9102	0.8354	0.7162	0.5429	0.3817	0.4300	0.6686	0.8696	0.9430	0.9660	(89)
MIT 2	17.2615	17.5748	18.0720	18.7499	19.2996	19.6637	19.7849	19.7690	19.5209	18.8037	17.9386	17.2248	(90)

Living area fraction											fLA = Living area / (4) =	0.3732	(91)
MIT	17.6058	17.9204	18.4207	19.1055	19.6715	20.0569	20.1973	20.1749	19.8969	19.1538	18.2813	17.5665	(92)
Temperature adjustment												0.0000	
adjusted MIT	17.6058	17.9204	18.4207	19.1055	19.6715	20.0569	20.1973	20.1749	19.8969	19.1538	18.2813	17.5665	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9475	0.9253	0.8897	0.8166	0.7095	0.5598	0.4188	0.4650	0.6734	0.8516	0.9260	0.9525	(94)
Useful gains	452.9176	514.6568	555.3007	584.1936	546.7381	430.7102	308.1567	315.6735	413.6058	448.3211	438.5388	434.9741	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W													
	1265.3652	1235.1013	1127.9784	954.4171	743.8481	503.9585	332.2157	347.9474	537.4994	798.1855	1048.0362	1258.6953	(97)
Space heating kWh													
	604.4610	484.1387	426.0722	266.5609	146.6498	0.0000	0.0000	0.0000	0.0000	260.2991	438.8382	612.8486	(98a)
Space heating requirement - total per year (kWh/year)												3239.8684	
Solar heating kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh													
	604.4610	484.1387	426.0722	266.5609	146.6498	0.0000	0.0000	0.0000	0.0000	260.2991	438.8382	612.8486	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												3239.8684	
Space heating per m2											(98c) / (4) =	46.1520	(99)

8c. Space cooling requirement

Calculated for June, July and August. See Table 10b

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Ext. temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	
Heat loss rate W													
	0.0000	0.0000	0.0000	0.0000	0.0000	868.1064	683.4029	700.5200	0.0000	0.0000	0.0000	0.0000	(100)
Utilisation	0.0000	0.0000	0.0000	0.0000	0.0000	0.7058	0.7744	0.7391	0.0000	0.0000	0.0000	0.0000	(101)
Useful loss	0.0000	0.0000	0.0000	0.0000	0.0000	612.6792	529.1995	517.7484	0.0000	0.0000	0.0000	0.0000	(102)
Total gains	0.0000	0.0000	0.0000	0.0000	0.0000	826.7141	791.2535	730.9059	0.0000	0.0000	0.0000	0.0000	(103)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	154.1052	194.9682	158.5892	0.0000	0.0000	0.0000	0.0000	(104)
Cooled fraction											fC = cooled area / (4) =	1.0000	(105)
Intermittency factor (Table 10b)													
	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	(106)
Space cooling kWh													
	0.0000	0.0000	0.0000	0.0000	0.0000	38.5263	48.7420	39.6473	0.0000	0.0000	0.0000	0.0000	(107)
Space cooling requirement												126.9156	(107)
Energy for space heating												46.1520	(99)
Energy for space cooling												1.8079	(108)
Total												47.9599	(109)
Fabric Energy Efficiency (DFEE)												48.0	(109)

Full SAP Calculation Printout

Plot Reference	Unit F	**Issued on Date**	13/02/2026
Assessment Reference	Unit F - BG	**Plot Type Ref**	
Plot Address		**SAP Version**	10.2

SAP Rating	84 B	**DER**	4.05	**TER**	
Environmental	97 A	**% DER < TER**			N/A
CO_2 Emissions (t/year)	0.25	**DFEE**	47.96	**TFEE**	
Compliance Check	N/A	**% DFEE < TFEE**			
% DPER < TPER		**DPER**	44.56	**TPER**	

Assessor Details	Mr. Samuel Westover	**Assessor ID**	AX13-0001
Client			

SAP 10 WORKSHEET FOR Conversion (As Designed) (Version 10.2, February 2022)
CALCULATION OF DWELLING EMISSIONS FOR REGULATIONS COMPLIANCE

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1. Overall dwelling characteristics

	Area (m2)		Storey height (m)		Volume (m3)	
Main dwelling						
Ground floor	70.2000	(1b)	x 2.8000	(2b) =	196.5600	(1b) - (3b)
Total floor area TFA = (1a)+(1b)+(1c)+(1d)+(1e)...(1n)	70.2000					(4)
Dwelling volume				(3a)+(3b)+(3c)+(3d)+(3e)...(3n) =	196.5600	(5)

2. Ventilation rate

	m3 per hour	
Number of open chimneys	0 * 80 =	0.0000 (6a)
Number of open flues	0 * 20 =	0.0000 (6b)
Number of chimneys / flues attached to closed fire	0 * 10 =	0.0000 (6c)
Number of flues attached to solid fuel boiler	0 * 20 =	0.0000 (6d)
Number of flues attached to other heater	0 * 35 =	0.0000 (6e)
Number of blocked chimneys	0 * 20 =	0.0000 (6f)
Number of intermittent extract fans	2 * 10 =	20.0000 (7a)
Number of passive vents	0 * 10 =	0.0000 (7b)
Number of flueless gas fires	0 * 40 =	0.0000 (7c)
	Air changes per hour	
Infiltration due to chimneys, flues and fans = (6a)+(6b)+(6c)+(6d)+(6e)+(6f)+(6g)+(7a)+(7b)+(7c) =	20.0000 / (5) =	0.1018 (8)
Pressure test		Yes
Pressure Test Method		Blower Door
Measured/design AP50		5.0000 (17)
Infiltration rate		0.3518 (18)
Number of sides sheltered		2 (19)
Shelter factor	(20) = 1 - [0.075 x (19)] =	0.8500 (20)
Infiltration rate adjusted to include shelter factor	(21) = (18) x (20) =	0.2990 (21)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wind speed	5.1000	5.0000	4.9000	4.4000	4.3000	3.8000	3.8000	3.7000	4.0000	4.3000	4.5000	4.7000	(22)
Wind factor	1.2750	1.2500	1.2250	1.1000	1.0750	0.9500	0.9500	0.9250	1.0000	1.0750	1.1250	1.1750	(22a)
Adj infilt rate	0.3812	0.3737	0.3663	0.3289	0.3214	0.2840	0.2840	0.2766	0.2990	0.3214	0.3364	0.3513	(22b)
Effective ac	0.5727	0.5698	0.5671	0.5541	0.5517	0.5403	0.5403	0.5382	0.5447	0.5517	0.5566	0.5617	(25)

3. Heat losses and heat loss parameter

Element	Gross m2	Openings m2	NetArea m2	U-value W/m2K	A x U W/K	K-value kJ/m2K	A x K kJ/K	
Main dwelling								
Windows			7.2000	1.1450	8.2443			(27)
RW			2.0000	1.1450	2.2901			(27a)
EW	62.1600	7.2000	54.9600	0.1800	9.8928			(29a)
Sloping Ceiling	72.4000	2.0000	70.4000	0.1300	9.1520			(30)
Total net area of external elements Aum(A, m2)			134.5600					(31)
Fabric heat loss, W/K = Sum (A x U)			(26)...(30) + (32) =		29.5792			(33)
Main dwelling								
Party Floor 1			86.4000					(32d)
Party Ceiling 1			48.7000					(32b)

Thermal mass parameter (TMP = Cm / TFA) in kJ/m2K		115.0000 (35)
Thermal bridges (Default value 0.200 * total exposed area)		26.9120 (36)
Point Thermal bridges	(36a) =	0.0000
Total fabric heat loss	(33) + (36) + (36a) =	56.4912 (37)

Ventilation heat loss calculated monthly (38)m = 0.33 x (25)m x (5)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(38)m	37.1455	36.9625	36.7831	35.9405	35.7828	35.0490	35.0490	34.9131	35.3316	35.7828	36.1018	36.4352	(38)
Heat transfer coeff	93.6366	93.4536	93.2742	92.4316	92.2740	91.5401	91.5401	91.4042	91.8228	92.2740	92.5929	92.9263	(39)

Average = Sum(39)m / 12 = 92.4309

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
HLP	1.3339	1.3312	1.3287	1.3167	1.3144	1.3040	1.3040	1.3021	1.3080	1.3144	1.3190	1.3237	(40)
HLP (average)												1.3167	
Days in mont	31	28	31	30	31	30	31	31	30	31	30	31	

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4. Water heating energy requirements (kWh/year)

Assumed occupancy 2.2510 (42)

Hot water usage for mixer showers

69.7062	68.6586	67.1321	64.2115	62.0561	59.6525	58.2862	59.8012	61.4618	64.0426	67.0260	69.4391	(42a)

Hot water usage for baths

26.7685	26.3709	25.8111	24.7789	24.0060	23.1489	22.6860	23.2419	23.8472	24.7643	25.8177	26.6780	(42b)

Hot water usage for other uses

37.6822	36.3119	34.9417	33.5714	32.2011	30.8309	30.8309	32.2011	33.5714	34.9417	36.3119	37.6822	(42c)

Average daily hot water use (litres/day) 123.3419 (43)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Daily hot water use	134.1568	131.3415	127.8849	122.5618	118.2632	113.6323	111.8031	115.2442	118.8804	123.7485	129.1556	133.7993	(44)
Energy conte	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(45)
Energy content (annual)											Total = Sum(45)m =	2048.6972	
Distribution loss (46)m = 0.15 x (45)m	31.8707	28.0543	29.4831	25.1671	23.8808	20.9586	20.2824	21.4045	21.9887	25.1888	27.6009	31.4246	(46)
Water storage loss (or HIU loss):													
Total storage loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(56)
If cylinder contains dedicated solar storage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(57)
Primary loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(59)
Combi loss	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(61)
Total heat required for water heating calculated for each month	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(62)
WWHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63a)
PV diverter	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	(63b)
Solar input	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63c)
FGHRS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(63d)
Output from w/h	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(64)
										Total per year (kWh/year) = Sum(64)m =		2048.6972	(64)
12Total per year (kWh/year)												2049	(64)
Electric shower(s)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(64a)
										Total Energy used by instantaneous electric shower(s) (kWh/year) = Sum(64a)m =		0.0000	(64a)
Heat gains from water heating, kWh/month	70.6468	62.1870	65.3543	55.7872	52.9357	46.4583	44.9594	47.4465	48.7416	55.8352	61.1820	69.6579	(65)

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5. Internal gains (see Table 5 and 5a)

Metabolic gains (Table 5), Watts

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
(66)m	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	112.5485	(66)
Lighting gains (calculated in Appendix L, equation L9 or L9a), also see Table 5	107.5387	119.0607	107.5387	111.1233	107.5387	111.1233	107.5387	107.5387	111.1233	107.5387	111.1233	107.5387	(67)
Appliances gains (calculated in Appendix L, equation L13 or L13a), also see Table 5	197.7634	199.8156	194.6442	183.6349	169.7377	156.6762	147.9504	145.8982	151.0696	162.0789	175.9761	189.0375	(68)
Cooking gains (calculated in Appendix L, equation L15 or L15a), also see Table 5	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	34.2549	(69)
Pumps, fans	3.0000	3.0000	3.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	3.0000	3.0000	(70)
Losses e.g. evaporation (negative values) (Table 5)	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	-90.0388	(71)
Water heating gains (Table 5)	94.9554	92.5401	87.8418	77.4822	71.1501	64.5254	60.4293	63.7722	67.6967	75.0474	84.9749	93.6262	(72)
Total internal gains	460.0220	471.1809	449.7892	432.0049	408.1910	389.0894	372.6829	373.9737	386.6542	404.4295	431.8389	449.9669	(73)

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6. Solar gains

[Jan]	Area m2	Solar flux Table 6a W/m2	g Specific data or Table 6b	FF Specific data or Table 6c	Access factor Table 6d	Gains W	
South	0.7000	46.7521	0.6300	0.7000	0.7700	10.0016	(78)
West	6.5000	19.6403	0.6300	0.7000	0.7700	39.0151	(80)
West	2.0000	26.5854	0.6300	0.7000	1.0000	21.1035	(82)

Solar gains	70.1202	135.8998	222.2905	324.3085	399.1514	409.7282	389.5904	333.2356	258.3484	160.7103	87.1639	57.8565	(83)
Total gains	530.1423	607.0807	672.0797	756.3134	807.3424	798.8176	762.2733	707.2093	645.0026	565.1397	519.0028	507.8234	(84)

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7. Mean internal temperature (heating season)

Temperature during heating periods in the living area from Table 9, Th1 (C) 21.0000 (85)

Utilisation factor for gains for living area, ni1,m (see Table 9a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
tau	23.9490	23.9959	24.0420	24.2612	24.3026	24.4975	24.4975	24.5339	24.4220	24.3026	24.2189	24.1320	
alpha	2.5966	2.5997	2.6028	2.6174	2.6202	2.6332	2.6332	2.6356	2.6281	2.6202	2.6146	2.6088	
util living area	0.9593	0.9414	0.9114	0.8464	0.7455	0.6055	0.4769	0.5224	0.7179	0.8796	0.9423	0.9633	(86)
MIT	18.3438	18.6492	19.1343	19.7898	20.3510	20.7405	20.9002	20.8704	20.5673	19.8288	18.9822	18.2933	(87)
Th 2	19.8144	19.8164	19.8184	19.8278	19.8295	19.8377	19.8377	19.8392	19.8346	19.8295	19.8260	19.8223	(88)
util rest of house	0.9524	0.9315	0.8958	0.8184	0.6967	0.5260	0.3684	0.4138	0.6476	0.8515	0.9308	0.9571	(89)
MIT 2	16.7527	17.1381	17.7473	18.5580	19.2197	19.6446	19.7870	19.7683	19.4801	18.6259	17.5702	16.6933	(90)
Living area fraction										fLA = Living area / (4) =		0.3732	(91)
MIT	17.3465	17.7021	18.2649	19.0177	19.6419	20.0536	20.2025	20.1796	19.8859	19.0748	18.0972	17.2904	(92)

Temperature adjustment												0.0000	
adjusted MIT	17.3465	17.7021	18.2649	19.0177	19.6419	20.0536	20.2025	20.1796	19.8859	19.0748	18.0972	17.2904	(93)

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8. Space heating requirement

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Utilisation	0.9318	0.9075	0.8695	0.7953	0.6879	0.5419	0.4042	0.4477	0.6510	0.8287	0.9077	0.9377	(94)
Useful gains	494.0039	550.9397	584.3897	601.4905	555.3614	432.9003	308.1395	316.5924	419.9242	468.3558	471.1240	476.1803	(95)
Ext temp.	4.3000	4.9000	6.5000	8.9000	11.7000	14.6000	16.6000	16.4000	14.1000	10.6000	7.1000	4.2000	(96)
Heat loss rate W	1221.6340	1196.4044	1097.3663	935.1953	732.8351	499.2229	329.7706	345.4720	531.2737	782.0079	1018.2594	1216.4468	(97)
Space heating kWh	541.3568	433.7523	381.6546	240.2675	132.0404	0.0000	0.0000	0.0000	0.0000	233.3572	393.9375	550.7583	(98a)
Space heating requirement - total per year (kWh/year)												2907.1246	
Solar heating kWh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(98b)
Solar heating contribution - total per year (kWh/year)												0.0000	
Space heating kWh	541.3568	433.7523	381.6546	240.2675	132.0404	0.0000	0.0000	0.0000	0.0000	233.3572	393.9375	550.7583	(98c)
Space heating requirement after solar contribution - total per year (kWh/year)												2907.1246	
Space heating per m2											(98c) / (4) =	41.4120	(99)

9a. Energy requirements - Individual heating systems, including micro-CHP

Fraction of space heat from secondary/supplementary system (Table 11)												0.0000	(201)
Fraction of space heat from main system(s)												1.0000	(202)
Efficiency of main space heating system 1 (in %)												249.9000	(206)
Efficiency of main space heating system 2 (in %)												0.0000	(207)
Efficiency of secondary/supplementary heating system, %												0.0000	(208)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement	541.3568	433.7523	381.6546	240.2675	132.0404	0.0000	0.0000	0.0000	0.0000	233.3572	393.9375	550.7583	(98)
Space heating efficiency (main heating system 1)	249.9000	249.9000	249.9000	249.9000	249.9000	0.0000	0.0000	0.0000	0.0000	249.9000	249.9000	249.9000	(210)
Space heating fuel (main heating system)	216.6294	173.5703	152.7229	96.1454	52.8373	0.0000	0.0000	0.0000	0.0000	93.3802	157.6381	220.3915	(211)
Space heating efficiency (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(212)
Space heating fuel (main heating system 2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(213)
Space heating fuel (secondary)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(215)
Water heating													
Water heating requirement	212.4716	187.0285	196.5543	167.7809	159.2050	139.7241	135.2161	142.6964	146.5914	167.9256	184.0059	209.4973	(64)
Efficiency of water heater												175.1000	(216)
(217)m	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	175.1000	(217)
Fuel for water heating, kWh/month	121.3430	106.8124	112.2526	95.8201	90.9223	79.7967	77.2222	81.4942	83.7187	95.9027	105.0862	119.6444	(219)
Space cooling fuel requirement													
(221)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(221)
Pumps and Fa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(231)
Lighting	19.7564	15.8493	14.2706	10.4552	8.0759	6.5981	7.3671	9.5761	12.4384	16.3198	18.4332	20.3055	(232)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233a)m	-15.7547	-24.4967	-38.6313	-47.1153	-53.4445	-48.9390	-48.1994	-43.9488	-36.8016	-29.2142	-18.0152	-13.3740	(233a)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234a)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235a)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235a)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235c)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235c)
Electricity generated by PVs (Appendix M) (negative quantity)													
(233b)m	-3.0277	-6.8458	-14.7486	-24.4242	-34.9365	-37.9537	-37.5449	-30.9665	-21.8721	-10.8530	-4.2635	-2.3437	(233b)
Electricity generated by wind turbines (Appendix M) (negative quantity)													
(234b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(234b)
Electricity generated by hydro-electric generators (Appendix M) (negative quantity)													
(235b)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235b)
Electricity used or net electricity generated by micro-CHP (Appendix N) (negative if net generation)													
(235d)m	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	(235d)

Annual totals kWh/year		
Space heating fuel - main system 1	1163.3152	(211)
Space heating fuel - main system 2	0.0000	(213)
Space heating fuel - secondary	0.0000	(215)
Efficiency of water heater	175.1000	
Water heating fuel used	1170.0155	(219)
Space cooling fuel	0.0000	(221)
Electricity for pumps and fans:		
Total electricity for the above, kWh/year	0.0000	(231)
Electricity for lighting (calculated in Appendix L)	159.4455	(232)
Energy saving/generation technologies (Appendices M ,N and Q)		
PV generation	-647.7148	(233)
Wind generation	0.0000	(234)
Hydro-electric generation (Appendix N)	0.0000	(235a)
Electricity generated - Micro CHP (Appendix N)	0.0000	(235)
Appendix Q - special features		
Energy saved or generated	-0.0000	(236)
Energy used	0.0000	(237)
Total delivered energy for all uses	1845.0614	(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	1163.3152	0.1544	179.5986	(261)
Total CO2 associated with community systems			0.0000	(373)
Water heating (other fuel)	1170.0155	0.1416	165.6487	(264)
Space and water heating			345.2473	(265)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(267)

Energy for lighting	159.4455	0.1443	23.0129	(268)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-417.9345	0.1333	-55.6985	
PV Unit electricity exported	-229.7802	0.1226	-28.1618	
Total			-83.8603	(269)
Total CO2, kg/year			284.3999	(272)
EPC Dwelling Carbon Dioxide Emission Rate (DER)			4.0500	(273)

13a. Primary energy - Individual heating systems including micro-CHP

	Energy kWh/year	Primary energy factor kg CO2/kWh	Primary energy kWh/year	
Space heating - main system 1	1163.3152	1.5716	1828.2309	(275)
Total CO2 associated with community systems			0.0000	(473)
Water heating (other fuel)	1170.0155	1.5235	1782.5636	(278)
Space and water heating			3610.7944	(279)
Pumps, fans and electric keep-hot	0.0000	0.0000	0.0000	(281)
Energy for lighting	159.4455	1.5338	244.5628	(282)
Energy saving/generation technologies				
PV Unit electricity used in dwelling	-417.9345	1.4925	-623.7595	
PV Unit electricity exported	-229.7802	0.4496	-103.3206	
Total			-727.0801	(283)
Total Primary energy kWh/year			3128.2771	(286)
Dwelling Primary energy Rate (DPER)			44.5600	(287)

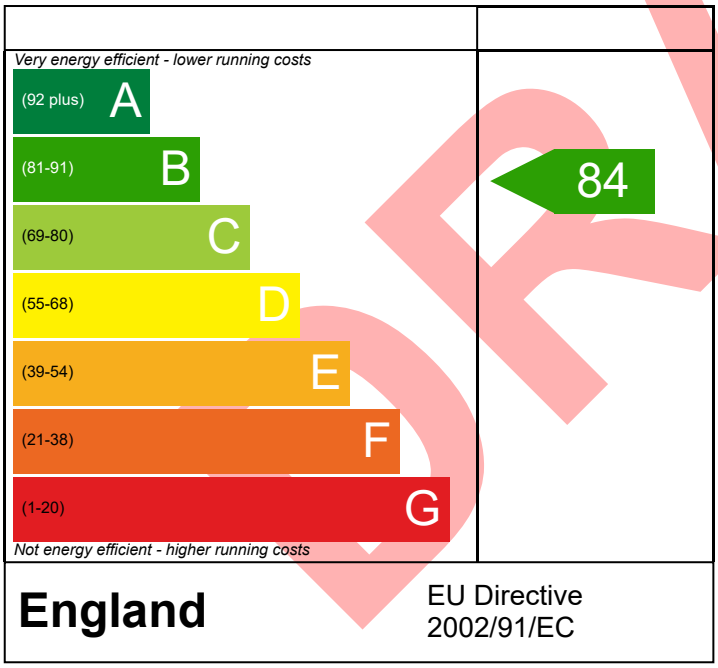
Predicted Energy Assessment

Dwelling type:	Flat, Semi-Detached
Date of assessment:	13/02/2026
SAP Version:	10.2
Produced by:	Samuel Westover
Total floor area:	70.2 m²
DRRN:	

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

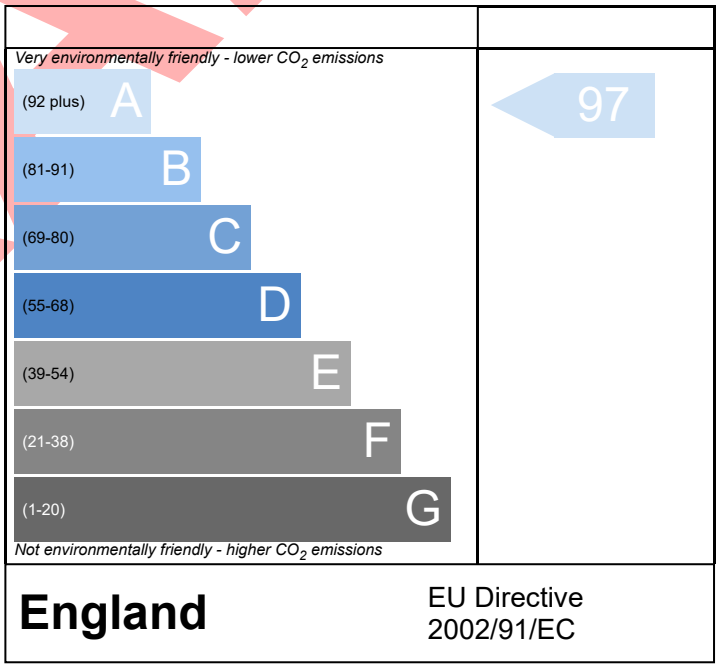
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO_2) Rating



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

DRAFT

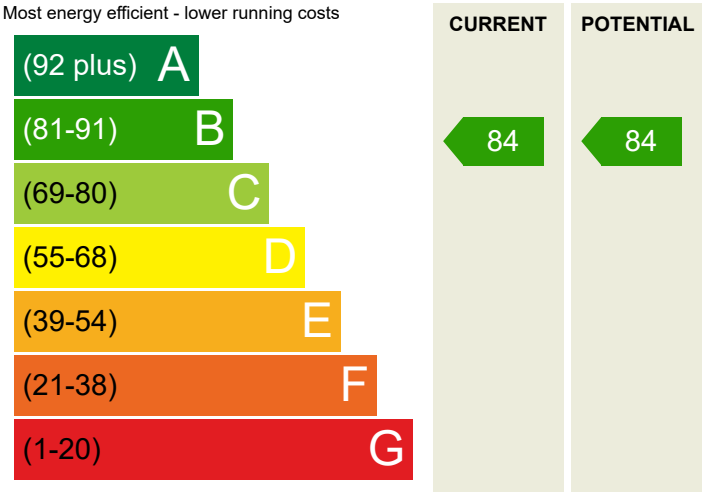
Energy Report

Dwelling Address	
Reference	Unit F-Unit F - BG
SAP Version	10.2
Assessment Date	13/02/2026
Submission Date	
Property Type	Flat, Semi-Detached
Total Floor Area	70

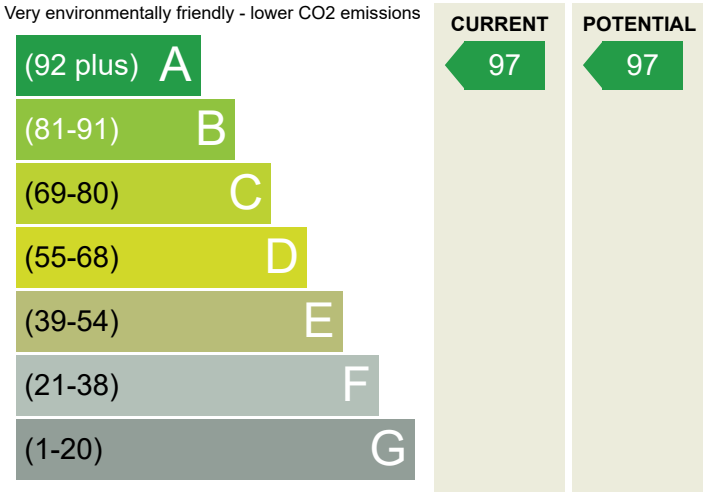
This Energy Report has been generated using the UK's National Calculation Methodology for dwellings, Standard Assessment Procedure (SAP). This methodology is used to assess the energy efficiency of dwellings which is calculated based on a dwelling's heating, hot water, ventilation and lighting usage.

This document is not an Energy Performance Certificate (EPC) as required by the Energy Performance of Buildings Regulations

Energy Efficiency Rating

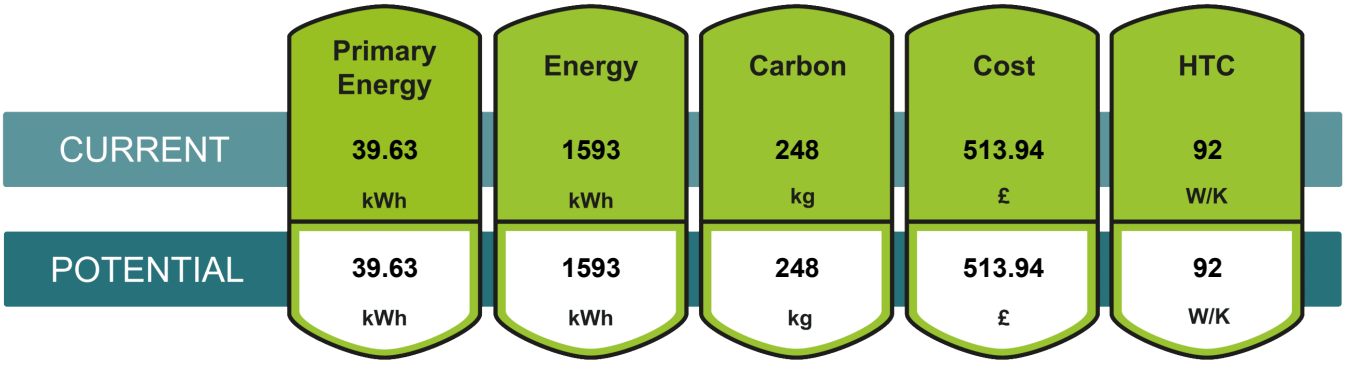


Carbon Dioxide (CO2) Emissions Rating



Additional ratings for your home

Energy Report



Energy Report

Breakdown of property's energy performance

Each feature is assessed as one of the following:

Very Poor	Poor	Average	Good	Very Good

Feature	Description	Energy Performance
Walls	Average thermal transmittance 0.18 W/m²K	Very Good
Roof	Average thermal transmittance 0.13 W/m²K	Very Good
Windows	High performance glazing	Very Good
Main heating	Air source heat pump, radiators, electric	Good
Main heating controls	Time and temperature zone control	Very Good
Secondary heating	None	
Hot water	From main system	Average
Lighting	Excellent lighting efficiency	Very Good
Air tightness	Air permeability [AP50] = 5.0 m³/h.m² (assumed)	Good

Recommendations

The recommended measures provided below will help to improve the energy efficiency of the dwelling.
To reach the dwelling's potential energy rating all of the recommended measures shown below would need to be installed.
Having these measures installed individually or in any other order may give a different result when compared with the cumulative potential rating.

Recommended measures	Cumulative savings (per year)	Cumulative rating	Typical costs	Incremental savings (per year)	Cumulative CO2 rating

The typical cost is based on average installation prices across the country so may not be representative of the actual costs in your area.

Estimated energy costs of the dwelling

Energy Report

The table below shows the estimated running costs of the space and water heating and lighting within the dwelling. It does not include the energy used from household appliances. The estimated annual costs after potential improvements indicates the total energy cost if all recommended measures named above were installed.

	Estimated annual costs	Estimated annual costs after potential improvements	Potential future savings
Lighting	£45	£45	
Heating	£280	£280	
Hot Water	£333	£333	
New Technologies e.g. Impact of PV	-(£144)	-(£144)	
TOTAL	£514	£514	

Estimated energy use and potential savings

Space Heating
986
kWh per year

Water Heating
1170
kWh per year

About this document

Created by:	
Company/Trading name:	
Phone number:	
Email address:	

Disclaimer

This Energy Report should not under any circumstances be treated as a Condition Survey and cannot be used to indicate that any element of the dwelling (e.g.heating system) is working correctly.
This Energy Report must not be used in situations where an Energy Performance Certificate (EPC) is required.
This Energy Report is generated from a set of data inputs which may not reflect the actual dimensions, services or construction of the dwelling.
The calculation used to generate this report reflects the SAP Methodology current at the time of report generation.

Glossary terms for additional metrics

Primary Energy	The measure of the energy required for lighting, heating and hot water in a property. This includes the efficiency of the property's heating system, power station efficiency for electricity and the energy used to produce the fuel and deliver it to the property.
Energy Used	The estimated amount of fuel energy for lighting, heating and hot water for the property. The estimate is based on typical usage which is likely to be different to actual consumption.
Carbon (CO2)	The current emissions based on the energy estimates.
Cost	The estimated cost of energy. The cost of each unit of fuel is based on an industry standard which is likely to be different to those the occupier actually pays.
Heat Transfer Coefficient	Heat flow through the property envelope where internal and external temperatures are different.