



Energy Report & Sustainability Statement

Proposed Development of 9 Flats to the rear of 9 Elsfield Way, Oxford, OX33 1RY

I confirm I have carried out SAP compliance for a notional dwelling / base line dwellings & the proposed dwellings based on Approved Document L1(a) 2012 edition has been used to provide a baseline compliant comparison for the purpose of preparing the Energy Statement for this project.

The statement in the table below demonstrates that the proposed dwellings achieve a reduction in CO2 emissions by the required 40% compared to the baseline properties created for this report.

	Target Emission Rate Base Line Dwelling	Dwelling Emission Rate Proposed Dwelling	Reduction achieved	CO2 Emissions for Actual Proposed Dwelling
CO2 Emissions Dwelling Unit 1 Ground floor unit	29.26 kgCO2/Yr/M2	16.24 kgCO2/yr/M2	Reduction achieved 44.49%	0.68 t/yr
CO2 Emissions Dwelling Unit 2 Ground floor unit	32.53 kgCO2/Yr/M2	12.49 kgCO2/yr/M2	Reduction achieved. 61.60 %	0.17 t/yr
CO2 Emissions Dwelling Unit 3	28.42 kgCO2/Yr/M2	16.47 kgCO2/yr/M2	Reduction Achieved	0.77 t/yr

Ground floor unit			42.05%	
CO2 Emissions Dwelling Unit 4 First floor unit	26.32 kgCO2/Yr/M2	15.3 kgCO2/yr/M2	Reduction Achieved 41.87%	0.71 t/yr
CO2 Emissions Dwelling Unit 5 First floor unit	28.69 kgCO2/Yr/M2	11.13 kgCO2/yr/M2	Reduction Achieved 61.21%	0.15 t/yr
CO2 Emissions Dwelling Unit 6 First floor unit	26.17 kgCO2/Yr/M2	15.15 kgCO2/yr/M2	Reduction Achieved 42.11%	0.71 t/yr
CO2 Emissions Dwelling Unit 7 Second floor unit	28.72 kgCO2/Yr/M2	14.92 kgCO2/yr/M2	Reduction Achieved 48.05%	0.66 t/yr
CO2 Emissions Dwelling Unit 8 Second floor unit	31.41 kgCO2/Yr/M2	14.76 kgCO2/Yr/M2	Reduction Achieved 53.01%	0.33 t/yr
CO2 Emissions Dwelling Unit 9 Second floor unit	28.56 kgCO2/Yr/M2	17.05 kgCO2/Yr/M2	Reduction Achieved 40.31%	0.84 t/yr
Total				5.02 t/yr
Over all Averages	28.9 kgCO2/Yr/M2	14.83 kgCO2/yr/M2	48.3 %	0.55 t/yr

Renewable Features

Unit 1	2.17 KW Solar PV Air Source Heat Pump
Unit 2	2.61 KW Solar PV
Unit 3	2.17 Kw Solar PV Air Source Heat Pump
Unit 4	2.17 Kw Solar PV Air Source Heat Pump
Unit 5	3.05 Kw Solar PV
Unit 6	2.17 Kw Solar PV Air Source Heat Pump
Unit 7	2.61 Kw Solar PV Air Source Heat Pump
Unit 8	3.05 Kw Solar PV
Unit 9	2.17 Kw Solar PV Air Source Heat Pump

Key Features of Model Inputs and Assumptions.

This section details the performance parameters used within the compliance modelling. These parameters should be matched or bettered by the final design to ensure that building regulations compliance is achieved, and that the performance of the building is in line with Oxford City Council planning requirements.

Building Fabric	Limiting Fabric Parameters SAP 2012	Actual Dwellings
Roofs	U-Value 0.20	U-Value 0.11
External Walls	U-Value 0.30	U-Value 0.17
Heat Loss Floor	U-Value 0.25	U-Value 0.10
Openings	U-Value 2.00	U-Value 0.8 Tripple Glazed

Thermal Bridging

All applicable linear thermal bridge junctions conform to the Recognised Construction Details available.

Lighting

All residential light fittings are low energy LEDs

All communal light fittings are low energy LEDs with presence detection and auto on/off controllers.

Residential Heating

2 Bed Units will have Air Source Heat Pumps with Fan Coil Heat Emitters & Secondary Heating will be Panel Radiant Electric heaters with time and temperature controls.

1 Bed Units will have High Heat Retention storage heaters, & Secondary Heating will be Panel Radiant Electric heaters with time and temperature controls.

Hot Water

Domestic hot water will be provided via a hot water cylinder with dual immersion heater in 2 bed units & instantaneous at point of use in 1 bed units.

Water Usage

The project design is subject to achieving a maximum water usage of 125 Litres PP/PD.

Requirement 25% of Energy to be generated by on site renewables.

Estimated Annual Usage

No.	Beds	M2	kWh/m2	Annual usage kWh
Unit 1	2	62	100	6200
Unit 2	1	49	100	4900
Unit 3	2	68	100	6800
Unit 4	2	69	100	6900
Unit 5	1	55	100	5500
Unit 6	2	69	100	6900
Unit 7	2	69	100	6900
Unit 8	1	55	100	5500
Unit 9	2	69	100	6900
Communal Areas				1000
	Total	565		56500

*kWh/m2 taken from Energy Consumption in new domestic buildings 2015-2017 (England & Wales) Published in December 2019

The proposal proposes to install a solar array design that includes 52 x 435W Jinko Tiger Neo solar panels, maximising the roof space available. With an array peak output of 22.62Kw, the array is expected to produce 20901 kWh per year.

Providing an estimated percentage annual production of 37%

Supporting Documents:

Plan of Solar PV to be installed.

Full and Summary SAP Calculations for the 9 proposed dwellings.

SAP calculations carried out by K Davis Elmhurst accreditation EES/012996

Calculations based on drawings and specification supplied by: Ifor Rhys Ltd & Hugh Goodwin

Report prepared by: K Davis

Cotswold Energy Consultants Ltd

Russell Lodge

Moseley Green

Parkend

GL15 4HS



www.cotswold-energy.co.uk

