



PJR

BUILDING SERVICES
DESIGN ENGINEERS

ENERGY STATEMENT (PLANNING)

FOR

Montague Quarter,
Worthing, West Sussex

Report Reference: C38/01/ENS Ver 03

Site Location: Montague Quarter, Worthing, West Sussex

Development: 9 Flats (First Floor), Flats N1-N9

Local Authority: Worthing Borough Council

Planning Policy:

Minimise Carbon Emissions and Promote Energy Efficiency through the Worthing Energy Hierarchy.

Minimum 10% of Energy Demand to be met through On-Site Renewable Energy Generation.

Energy Hierarchy

The following shows Worthing District Council's Energy Hierarchy, and the proposed measures to meet these requirements:

1. Reduce Energy Demand

Requirement

Design buildings that minimise the need for heating, cooling, and artificial lighting through passive design elements and by minimising overheating risks.

Design

The dwellings are change of use from retail space, therefore there are significant design limitations in respect of passive design elements. However, thermal mass will be retained to assist in heating patterns and cooling, and new windows fitted to help reduce solar gains. Please also see the Overheating Risk report (thermal dynamic modelling) which confirms that any overheating risk is adequately minimised.

2. Energy Efficiency

Requirement

Improve the building's fabric, and incorporate energy efficient systems.

Design

Fabric insulation will be improved by fitting additional insulation, and new high-performance double-glazed windows. There will also be new flats built above, hence significantly reducing heat loss, energy use, and carbon emissions further.

3. On-Site Renewable, Low and Zero Carbon Technologies

Requirement

Remaining regulated energy demand (after 1 and 2 above) should be reduced by at least 10% by on-site renewable, low and zero carbon technologies.

Design

Incorporating renewable or low/zero carbon technologies is challenging due to the dwellings being change of use rather than new build. However, air source heat pumps (water only) are to be installed to achieve the 10% reduction in carbon emissions required.

SAP Calculations have been produced calculated on the total floor areas, external wall areas, windows etc. for all the proposed dwellings which are then divided by 9 to provide the most accurate/representative base for the energy assessment, with samples contained within this report.

BASELINE CO2 / ENERGY

Calculations (SAP) :	Part L Compliant
Carbon Emissions :	13.98 kg CO2 per m2 (DER)
Primary Energy :	145.69 kWh per m2 per year (DPER)

ENERGY EFFICIENCY

Calculations (SAP) :	Energy Efficiency Measures
Carbon Emissions :	12.43 kg CO2 per m2 (DER)
Primary Energy :	129.71 kWh per m2 per year (DPER)
Carbon Saving :	1.55 kg CO2 per m2 = 11.09 %
Energy Saving :	15.98 kWh per m2 per year = 10.97 %

RENEWABLES / LZCs

Calculations (SAP) :	Renewables / Low and Zeros Carbon Technologies
Carbon Emissions :	9.23 kg CO2 per m2 (DER)
Primary Energy :	95.15 kWh per m2 per year (DPER)
Carbon Saving :	3.20 kg CO2 per m2 = 25.74 %
Energy Saving :	34.56 kWh per m2 per year = 26.64 %

Construction specification

Construction and insulation	
Element	U-Value (W/m ² K)
<u>Exposed Wall</u> Existing construction assumed to achieve a U-value of 0.60W/m ² K.	0.60
<u>Party Walls</u> Steel frame construction (fully insulated with no air gaps).	0.00
<u>Floor (over retail)</u> Insulated to achieve a U-value of 0.13W/m ² K (or better).	0.13
<u>Roof</u> Insulated to achieve a U-value of 0.11W/m ² K (or better).	0.11
<u>Windows & Doors</u> Double-glazed + 16mm cavity (argon gas fill) + soft coat low-E glass + warm edge spacer, or similar to achieve U-value of 1.40W/m ² K (or better).	1.40

Heating, Ventilation & Renewables
<u>Main Heating System</u> Electric panel heaters (appliance programmers and thermostats).
<u>Water Heating</u> Hot water heat pump (Dimplex Edel).
<u>Ventilation</u> Mechanical extract ventilation (MEV). Specific fan power (SFP) = 0.30 (or lower). Rigid ductwork.

Other
<u>Electricity Tariff</u> Standard Tariff.
<u>Lighting</u> Low energy lighting with minimum luminous efficacy of 75 light source lumens/circuit-watt (per light fitting).
<u>Water Use</u> Total water use < 125 litres/person/day.

Mitigation of overheating

To assess potential overheating of the proposed dwellings as assessment has been conducted in accordance with Approved Document Part O Overheating/CIBSE TM59 Design methodology for the assessment of overheating risk in homes.

The assessment of overheating risk has been based on the proposed dwellings having openable windows with a minimum of 150mm opening, with the glazing having a maximum "G" value of 0.62, with the internal conditions and profiles being in accordance with the Part O and TM59 requirements.

In line with the above the proposed dwellings confirm compliance is achieved with the Approved Document Part O requirements.

Domestic Overheating (CIBSE TM59)

Project Details

Building Designer File (.tbd): BK-37 Overheating Assessment - 9No.additional flats, Montague Quarter, Worthing.tbd
Simulation Results File (.tsd): BK-37 Overheating Assessment - 9No.additional flats, Montague Quarter, Worthing.tsd
Date: 23 July 2025
Building Category: Category II

Natural Ventilation Overheating Results

Zone Name	Room Use	Occupied Summer Hours	Max. Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Annual Night Occupied Hours for Bedroom	Max Exceedable Night Hours	Criterion 2: Number of Night Hours Exceeding 26 °C for Bedrooms.	Result
Flat N1_Bed 1	Bedroom	3672	110	11	3285	32	18	Pass
Flat N1_Bed 2	Bedroom	3672	110	11	3285	32	19	Pass
Flat N1_K/L/D	Living Room / Kitchen	1989	59	34	N/A	N/A	N/A	Pass
Flat N2_Bed 1	Bedroom	3672	110	11	3285	32	19	Pass
Flat N2_Bed 2	Bedroom	3672	110	12	3285	32	19	Pass
Flat N2_K/L/D	Living Room / Kitchen	1989	59	26	N/A	N/A	N/A	Pass
Flat N3_Bed 1	Bedroom	3672	110	12	3285	32	20	Pass
Flat N3_Bed 2	Bedroom	3672	110	7	3285	32	12	Pass
Flat N3_K/L/D	Living Room / Kitchen	1989	59	39	N/A	N/A	N/A	Pass
Flat N4_Bed 1	Bedroom	3672	110	6	3285	32	12	Pass
Flat N4_K/L/D	Living Room / Kitchen	1989	59	17	N/A	N/A	N/A	Pass
Flat N5_Bed 1	Bedroom	3672	110	7	3285	32	13	Pass
Flat N5_K/L/D	Living Room / Kitchen	1989	59	23	N/A	N/A	N/A	Pass
Flat N6_Bed 1	Bedroom	3672	110	8	3285	32	14	Pass
Flat N6_K/L/D	Living Room / Kitchen	1989	59	29	N/A	N/A	N/A	Pass
Flat N7_Bed 1	Bedroom	3672	110	19	3285	32	26	Pass
Flat N7_Bed 2	Bedroom	3672	110	12	3285	32	20	Pass
Flat N7_K/L/D	Living Room / Kitchen	1989	59	30	N/A	N/A	N/A	Pass
Flat N8_Bed 1	Bedroom	3672	110	21	3285	32	29	Pass
Flat N8_K/L/D	Living Room / Kitchen	1989	59	47	N/A	N/A	N/A	Pass
Flat N9_Bed 1	Bedroom	3672	110	21	3285	32	28	Pass
Flat N9_K/L/D	Living Room / Kitchen	1989	59	43	N/A	N/A	N/A	Pass

*Zone names that have an orange coloured font are bedrooms which do not have 24/7 365 days a year occupancy, as per the

Appendix 1 – SAP Calculations