

# HOWITT CLOSE, HOWITT ROAD, BELLSIZE PARK

## **ENERGY AND SUSTAINABILITY**

### STATEMENT

### FOR

### DAEJAN PROPERTIES LTD

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#### 1.0 EXECUTIVE SUMMARY

This report assesses the predicted energy and sustainability performance for the proposed development by Daejan Properties Ltd at Howitt Close, Howitt Road, Belsize Park.

The proposal is to provide 7 residential apartments (use class C3) in a new attic storey on the existing flat roof of Howitt Close. The existing building is a 3 storey with part basement residential block.

The scheme has considered the issue of energy and sustainability from an early stage. The client and architect have been decisive in their brief and design intentions.

Where more than one apartment is physically attached to another, the average DER / TER result can be used to demonstrate compliance with the regulations of all included apartments (Block Compliance). This is instead of requiring each apartment to meet the requirements in its stand-alone form.

The Block Compliance method has been used in this report, providing average DER / TER results. Compliance is reached when the overall averaged DER is less than that of the equivalent TER.

The methodology used to determine the CO<sub>2</sub> emissions is in accordance with the Camden Planning Guidance Energy Efficiency and Adaption (2021) which requires all development to follow the energy hierarchy in accordance with Policy CC1.



#### be lean: use less energy.

The first step addresses reduction in energy use, through the adoption of sustainable design and construction measures.

In accordance with this strategy, the proposed development will incorporate a range of passive and active energy efficient measures, exceeding current Building Regulations 2010, Part L (2013 edition with 2016 amendments) requirements for the levels of insulation and air tightness, the installation of high-performance glazing, heat recovery ventilation, waste water heat recovery and energy efficient lighting.

The implementation of these measures will reduce CO<sub>2</sub> emissions by 4.59%.

#### be clean: supply energy efficiently.

As the development is not considered as Major Development, the Be Clean stage of the energy hierarchy is not required.

#### be green: use renewable energy.

Once the Be Lean energy efficiency measures have been incorporated, the report will show how the development will achieve a 20% CO<sub>2</sub> reduction against Part L (2013 Building Regulations) from on-site renewables (after all other energy efficiency measures have been incorporated) by incorporating photovoltaics (PV) into the design. The implementation of the PV panels will reduce  $CO_2$  emissions by a further 25.21% and an overall  $CO_2$  emission reduction of 28.64%.

	Regulated Carbon Dioxide Savings	
	(kg/co <sub>2</sub> /m²)	(%)
Baseline: Part L 2013 of the Building Regulations Compliant Development	28.45	
After Energy Demand Reduction	27.14	4.59%
After Renewable Energy	20.30	25.21%
Cumulatitve On-site Savings	8.15	28.64%

The report will also demonstrate that the development can achieve a maximum internal water use of 105 litres per day per person.

#### 2.0 INTRODUCTION

This report assesses the predicted energy and sustainability performance for the proposed development by Daejan Properties Ltd at Howitt Close, Howitt Road, Belsize Park.

The proposal is to provide 7 residential apartments (use class C3) in a new attic storey on the existing flat roof of Howitt Close. The existing building is a 3 storey with part basement residential block.

This report will demonstrate how the proposed development will address the relevant policies of the London Borough of Camden as outlined in their Camden Local Plan (2017).



Moreover, this report responds to the energy and sustainability policies of the London Borough of Camden Local Plan, including:

• Policy CC1 Climate change mitigation

Guidance on the above policy has been taken from the Camden Planning Guidance Energy Efficiency and Adaption (2021).



In line with policy CC1 of the London Borough of Camden Local Plan and the Camden Planning Guidance Energy Efficiency and Adaption, this energy assessment will follow the steps of the energy hierarchy set out below:

- 1. be lean: use less.
- 2. be clean: supply energy efficiently.
- 3. be green: use renewable energy.

Where more than one apartment is physically attached to another, the average DER / TER result can be used to demonstrate compliance with the regulations of all included apartments (Block Compliance). This is instead of requiring each apartment to meet the requirements in its stand-alone form.

The Block Compliance method has been used in this report, providing average DER / TER results. Compliance is reached when the overall averaged DER is less than that of the equivalent TER.

As the development is not considered as Major Development, the Be Clean stage of the energy hierarchy is not required.

Energy calculations were carried out using the FSAP2012 methodology.

The BRUKL outputs of the modelling undertaken are contained in Appendix A.

This report should be read in conjunction with the Design and Access Statement, prepared by Bubble Architects, and the other supporting application documents.

#### 3.0 BE LEAN – USE LESS ENERGY

A range of passive and active energy efficiency measures have been used to reduce the energy requirements of the residential units.

#### Passive Design Measures

#### Enhanced Building Fabric

The heat loss of different building elements is dependent upon their u-value. The lower the u-value, the better the level of insulation of a particular element. A building with low u-values has a reduced heating demand during the cooler months.

The proposed development will incorporate high levels of insulation and high-performance glazing on all facades to significantly reduce the demand for space heating (table 1 below).

#### Air Tightness

Heat loss may also occur due to air infiltration. Although this cannot be eliminated altogether, good construction detailing, and the use of best practice construction techniques can minimise the amount of air infiltration into a building.

Current Part L Building Regulations (2013) sets a maximum air permeability rate of 10m<sup>3</sup>/h.m<sup>2</sup> at 50Pa. The development is likely to improve upon this to achieve at least 3m<sup>3</sup>/h.m<sup>2</sup> at 50Pa through the application of best practice construction techniques.

Element	nent Part L1A Limiting Part L1A Notional Values Building Values		Applied Residential Building Values	
Walls	0.30 W/m²K	0.18 W/m²K	0.15 W/m²K	
Party Walls	0.20 W/m²K	0.00 W/m²K	0.00 W/m²K	
Floor	0.25 W/m²K	0.13 W/m²K	0.11 W/m²K	
Roof	0.20 W/m²K	0.13 W/m²K	0.11 W/m²K	
Window s (incl. frame) / Curtain w alling	2.00 W/m²K	1.4 W/m²K (g-value 0.63)	1.0 W/m²K (g-value 0.6)	
Doors (incl. frame) / Pedestrian doors	2.00 W/m²K	Opaque 1.0 W/m²K / Semi-glazed 1.2 W/m²K	1.0 W/m²K (Solid)	
Air Tightness @ 50Pa	10.0 m³/h.m²	5.0 m³/h.m²	3.0 m³/h.m²	
Thermal Bridging	y = 0.15 W/m²K	y = 0.05 W/m²K	y = 0.084 W/m²K	

Table 1 Apartment Fabric Specification

#### Waste Water Heat Recovery

Waste Water Heat Recovery (WWHR) will be used for the development to recover heat from shower water as it passes through the drainage system. The heat is used to pre-heat the cold water supply to the shower, reducing the amount of hot water required when the shower is in use.

#### Active Design Measures

#### High Efficiency Lighting

The development intends to incorporate low energy light fittings throughout the buildings. 100% of all light fittings will be specified as low energy lighting.

Internal areas of infrequent use will be fitted with occupant sensors.

#### Heat Recovery Ventilation

Mechanical Ventilation with Heat Recovery (MVHR) will be used for the development to achieve ventilation in the most energy efficient way. MVHR units recover heat from the building which would normally be wasted through extract only ventilation systems. The MVHR units will have automatic summer bypass to help mitigate the risk of overheating during the summer months.

#### Heating and Hot Water

The proposed apartments heating, and hot water will be electric room panels heaters with individual time and temperature control and electric hot water storage cylinders.

Electricity, at the point of use is a clean energy which helps to mitigate Air Quality issues.

The electricity generating mix within the UK has changed considerably due to Government pressure to de-carbonise the electricity grid, with more renewable electricity generating sources and less major polluting sources like coal-fired power stations.

The next iteration of Part L of the Building Regulations will recognise this change and the carbon content of grid supplied electricity is expected to be reduced to 0.136 kg CO<sub>2</sub> kWh, a 74% reduction over the current figure of 0.519 kg CO<sub>2</sub> kWh.

#### CO<sub>2</sub> Emissions

The table below show the percentage improvement the proposed development achieves over a Building Regulations compliant notional building through Be Lean energy efficiency measures.

	Regulated Carbon Dioxide Savings	
	(kg/co₂/m²)	(%)
Baseline: Part L 2013 of the Building Regulations Compliant Development	28.45	
After Energy Demand Reduction	27.14	4.59%

#### 4.0 BE GREEN – USE RENEWABLE ENERGY

Policy CC1 Climate Change Mitigation requires developments to achieve a 20% reduction in carbon dioxide emissions from on-site renewable energy generation after all proposed CO<sub>2</sub> reductions from energy efficiency measures have been implemented.

The proposed development will utilise photovoltaic (PV) panels to generate renewable electricity on-site.

The proposed apartments will achieve a further 25.21% reduction in carbon emissions using PV panels as shown in the table below.

	Regulated Carbon Dioxide Savings	
	(kg/co₂/m²)	(%)
Baseline: Part L 2013 of the Building Regulations Compliant Development	28.45	
After Energy Demand Reduction	27.14	4.59%
After Renewable Energy	20.30	25.21%

#### 5.0 WATER EFFICIENCY

The development will minimise the use of mains water by achieving a maximum indoor water consumption of 105 litres per person per day in line with the 'Optional Requirement' of Approved Document Part G (2016). It will do this by using Table 2.2 of Part G replicated below.

 Table 2.2 from Approved Document Part G (2016)

Water Fitting	Maximum Consumption
WC	4 / 2.6 litres dual flush
Shower	8 l/ min
Bath	170 litres
Basin taps	5 I / min
Sink taps	6 I / min
Dishwasher	1.25 I / place setting
Washing machine	8.17 l / kilogram

#### 6.0 CONCLUSION

This report has demonstrated the commitment for the proposed development at Howitt Close, Howitt Road, Belsize Park to the policies relating to energy and sustainability within the London Borough of Camden as outlined in their Camden Local Plan (2017), specifically:

• Policy CC1 Climate change mitigation

Using a range of passive and active energy efficient measures, exceeding current Building Regulations 2010, Part L (2013 edition with 2016 amendments) requirements for the levels of insulation and air tightness, the installation of high-performance glazing, heat recovery ventilation, waste water heat recovery and energy efficient lighting, will reduce  $CO_2$  emissions by 4.59% as shown in the tables below.

	Regulated Carbon Dioxide Savings	
	(kg/co₂/m²)	(%)
Baseline: Part L 2013 of the Building Regulations Compliant Development	28.45	
After Energy Demand Reduction	27.14	4.59%

Photovoltaic (PV) panels will generate renewable electricity on-site and will achieve a further 25.21% reduction in carbon emissions after the energy efficiency measures.

	Regulated Carbon Dioxide Savings	
	(kg/co <sub>2</sub> /m²)	(%)
Baseline: Part L 2013 of the Building Regulations Compliant Development	28.45	
After Energy Demand Reduction	27.14	4.59%
After Renewable Energy	20.30	25.21%

The proposed apartments will achieve an overall carbon reduction of 28.64% against notional apartments built to current Part L Building Regulations (2013) as shown below.

	Regulated Carbon Dioxide Savings	
	(kg/co <sub>2</sub> /m²)	(%)
Baseline: Part L 2013 of the Building Regulations Compliant Development	28.45	
After Energy Demand Reduction	27.14	4.59%
After Renewable Energy	20.30	25.21%
Cumulatitve On-site Savings	8.15	28.64%

The proposed development will also minimise water usage by achieving a maximum indoor water consumption of 105 litres per person per day in line with the 'Optional Requirement' of Approved Document Part G (2016). It will do this by using Table 2.2 of Part G replicated below.

Table 2.2 from	Approved	Document	Part G (	(2016)
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Water Fitting	Maximum Consumption
WC	4 / 2.6 litres dual flush
Shower	8 l/ min
Bath	170 litres
Basin taps	5 l / min
Sink taps	6 l / min
Dishwasher	1.25 I / place setting
Washing machine	8.17 l / kilogram

#### APPENDIX A PART L1A BRUKL OUTPUTS