

254 & 256 Belsize Road

Energy Statement

23st August 2022

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Executive Summary

This energy strategy has been prepared for 254 & 256 Belsize Road, Camden, to extend and remodel an existing residential apartment building to create 8 no. additional apartments.

This report demonstrates how the proposed development addresses local planning policies for the London Borough of Camden and the London Plan relating to energy and sustainability. The strategy for the development is to utilise the existing communal gas system for the flats and PV panels have also been incorporated on the available roof space.

As only 4¹ of the units have been modelled as a new build it is not considered major in terms of the London Plan so there is no carbon target that should be met. The development must follow the energy hierarchy and meet the requirements of Part L1A and L1B.

As required by the London Plan, the development follows the energy hierarchy, incorporating passive design measures, energy efficient equipment and renewable energy.

¹ Although there are 3 New Build Apartments in the proposed development for the purposes of the SAP model and in accordance with Part L of the Building Regulations apartment 3.14 is also

considered as new build in terms of these new regulations given the extent of remodelling to the external fabric.

1 Introduction

This energy strategy has been prepared for the development at 254 & 256 Belsize Road to extend and remodel an existing residential apartment building to create 8 no. additional apartments.

This statement summarises the sustainable design and construction measures that have been incorporated into the project in order to meet the sustainability requirements of the London Borough of Camden and the London Plan.

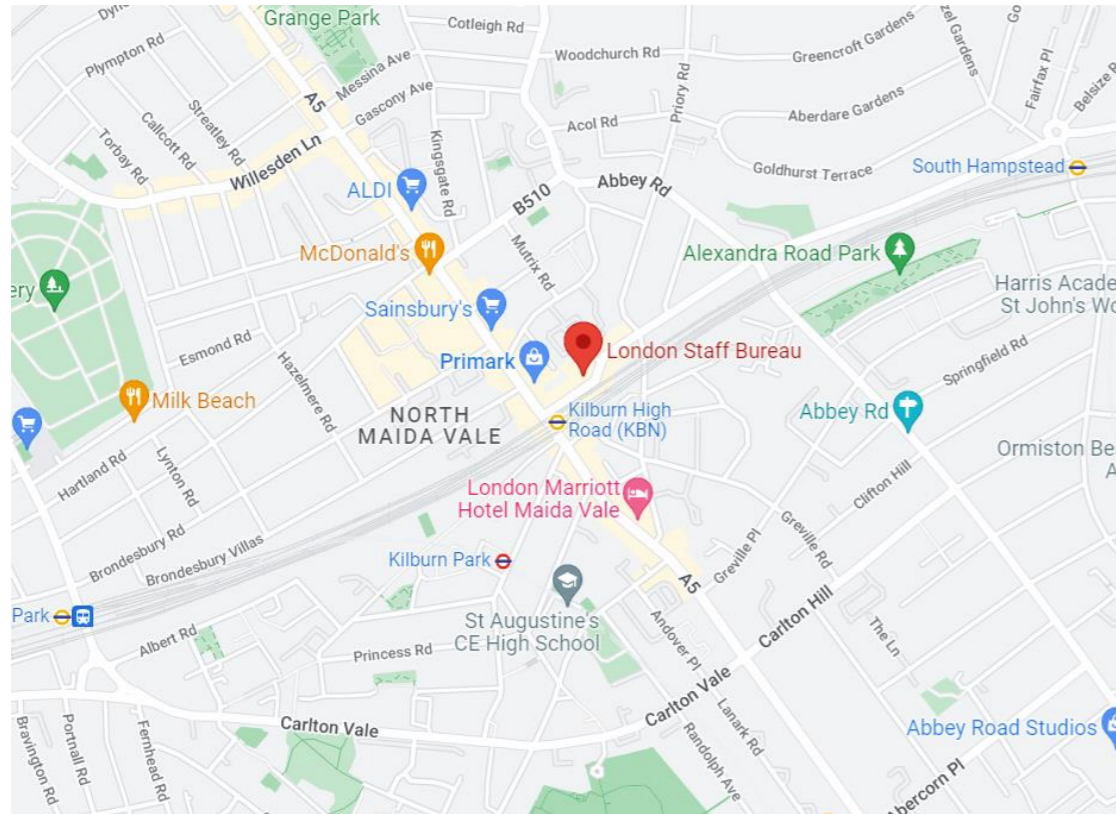


Figure 1-1 the location of the site at 254 Belsize Road

1.1 Assessment approach

This report summarises the work undertaken to support the development of an energy strategy for the proposed development.

Standard Assessment Procedure for the Energy Rating of Dwellings (SAP) calculations have been carried out for the residential units in order to assess the impact on energy demand and CO₂ emissions of improvements through the hierarchy and demonstrate the most appropriate solution for the proposed development to meet the relevant planning requirements.

2 Policy

2.1 London Borough of Camden

Policy CC1: Climate Change Mitigation

The Council will require all development to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation.

We will:

- promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy;
- ensure that the location of development and mix of land uses minimise the need to travel by car and help to support decentralised energy networks;
- support and encourage sensitive energy efficiency improvements to existing buildings;
- require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building; and
- expect all developments to optimise resource efficiency.

For decentralised energy networks, we will promote decentralised energy by:

- working with local organisations and developers to implement decentralised energy networks in the parts of Camden most likely to support them;
- protecting existing decentralised energy networks (e.g. at Gower Street, Bloomsbury, King's Cross, Gospel Oak and Somers Town) and safeguarding potential network routes; and

Policy CC2: Adapting to Climate Change

The Council will require development to be resilient to climate change. All development should adopt appropriate climate change adaptation measures such as:

- the protection of existing green spaces and promoting new appropriate green infrastructure;
- not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems;
- incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and
- measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

Any development involving 5 or more residential units or 500 sqm or more of any additional floorspace is required to demonstrate the above in a Sustainability Statement.

Sustainable design and construction measures

The Council will promote and measure sustainable design and construction by:

- e) ensuring development schemes demonstrate how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation;
- f) encourage new build residential development to use the Home Quality Mark and Passivhaus design standards;
- g) encouraging conversions and extensions of 500 sqm of residential floorspace or above or five or more dwellings to achieve “excellent” in BREEAM domestic refurbishment; and

Policy CC3: Water and Flooding

The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible.

We will require development to:

- a) incorporate water efficiency measures;
- b) avoid harm to the water environment and improve water quality;
- c) consider the impact of development in areas at risk of flooding (including drainage);
- d) incorporate flood resilient measures in areas prone to flooding;
- e) utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and
- f) not locate vulnerable development in flood-prone areas.

Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable. The Council will protect the borough’s existing drinking water and foul water infrastructure, including the reservoirs at Barrow Hill, Hampstead Heath, Highgate and Kidderpore.

Policy CC4: Air Quality

The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough.

The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council’s Air Quality Action Plan.

Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact.

Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan.

Policy CC5: Waste

The Council will seek to make Camden a low waste borough.

We will:

- a) aim to reduce the amount of waste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031;
- b) deal with North London’s waste by working with our partner boroughs in North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the amount of waste apportioned to the area in the London Plan;
- c) safeguard Camden’s existing waste site at Regis Road unless a suitable compensatory waste site is provided that replaces the maximum throughput achievable at the existing site; and
- d) make sure that developments include facilities for the storage and collection of waste and recycling.

2.2 The London Plan Policies on Energy

Policy SI 2 Minimising greenhouse gas emissions

The development should follow the energy hierarchy:

- 1) be lean: use less energy and manage demand during operation
- 2) be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly
- 3) be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site
- 4) be seen: monitor, verify and report on energy performance.

Policy SI 3 Energy infrastructure

Boroughs and developers should engage at an early stage with relevant energy companies and bodies to establish the future energy and infrastructure requirements arising from large-scale development proposals such as Opportunity Areas, Town Centres, other growth areas or clusters of significant new development.

Energy masterplans should be developed for large-scale development locations (such as those outlined in Part A and other opportunities) which establish the most effective energy supply options. Energy masterplans should identify:

- 1) major heat loads (including anchor heat loads, with particular reference to sites such as universities, hospitals and social housing)
- 2) heat loads from existing buildings that can be connected to future phases of a heat network
- 3) major heat supply plant including opportunities to utilise heat from energy from waste plants
- 4) secondary heat sources, including both environmental and waste heat
- 5) opportunities for low and ambient temperature heat networks
- 6) possible land for energy centres and/or energy storage
- 7) possible heating and cooling network routes
- 8) opportunities for futureproofing utility infrastructure networks to minimise the impact from road works
- 9) infrastructure and land requirements for electricity and gas supplies
- 10) implementation options for delivering feasible projects, considering issues of procurement, funding and risk, and the role of the public sector
- 11) opportunities to maximise renewable electricity generation and incorporate demand-side response measures.

Development Plans should:

- 1) identify the need for, and suitable sites for, any necessary energy infrastructure requirements including energy centres, energy storage and upgrades to existing infrastructure
- 2) identify existing heating and cooling networks, identify proposed locations for future heating and cooling networks and identify opportunities for expanding and inter-connecting existing networks as well as establishing new networks.

Heat networks should achieve good practice design and specification standards for primary, secondary and tertiary systems comparable to those set out in the CIBSE/ADE Code of Practice CP1 or equivalent.

2.3 Building Regulations Part L – Material Change of Use

11.5 A material change of use, in relation to dwellings, is when a building satisfies any of the following:

- a. is used as a dwelling, where previously it was not
- b. contains a flat, where previously it did not
- c. contains a greater or lesser number of dwellings than it did, having previously contained at least one dwelling.

² Although there are 3 New Build Apartments in the proposed development for the purposes of the SAP model and in accordance with Part L of the Building Regulations apartment 3.14 is also

11.6 A change to energy status is when a dwelling was previously exempt from the energy efficiency requirements but now is not. The change to energy status applies to the building as a whole or to parts of the building that have been designed or altered to be used separately. For example, when a previously unheated space becomes part of the heated dwelling in a garage or loft conversion, a change to energy status applies to that space.

NOTE: A material change of use may result in a change to energy status, for example if a previously unheated loft is converted into a flat.

11.7 If there is a material change of use and/or a change to energy status, elements should satisfy all of the following.

a. Existing thermal elements should meet the limiting standards in Table 4.3 (refer to table 3.1 on page 10).

b. If both of the following apply to existing windows, roof windows, rooflights and doors (controlled fittings), they should be replaced to meet the limiting standards in Table 4.2 (refer to table 3.1 on page 10).

i. They separate a conditioned space from an unconditioned space or the external environment.

ii. They have a U-value higher than either of the following.

For windows, roof windows and doors – $3.30\text{W}/(\text{m}^2 \cdot \text{K})$.

For rooflights – $3.80\text{W}/(\text{m}^2 \cdot \text{K})$

In addition, all of the following should be met.

a. New or replaced thermal elements should meet the standards in Table 4.2 (refer to table 3.1 on page 10).

b. New or replaced windows, roof windows, rooflights and doors (controlled fittings) should meet the standards in Table 4.2 (refer to table 3.1 on page 10).

c. The area of openings in the newly created dwelling should not be more than 25% of the total floor area. In buildings that contain more than one dwelling a larger percentage area of openings may be achieved by completing SAP calculations.

d. Any fixed building services including building automation and control systems and/or on-site electricity generation that are provided or extended should meet the standards in Sections 5 and 6 in the Part L1B document.

11.8 In buildings that contain more than one dwelling, the Standard Assessment Procedure may be used to show that the dwelling primary energy usage and total CO₂ emissions from all dwellings in the building, after completion of the building work, would be no greater than if each dwelling had been improved.

The development is not classed as a major development as it is the redevelopment of an existing building with only 4² units being assessed as new build under Part L1A. As a result the policies refer to new build, major developments are not relevant in this instance.

considered as new build in terms of these new regulations given the extent of remodelling to the external fabric.

3 Energy Strategy

An energy strategy has been developed following the energy hierarchy 'Be Lean, Be Clean, Be Green', 'Be Seen'. Energy calculations using Building Regulations approved and accredited software have been undertaken at each stage to calculate the savings associated with the measures incorporated.

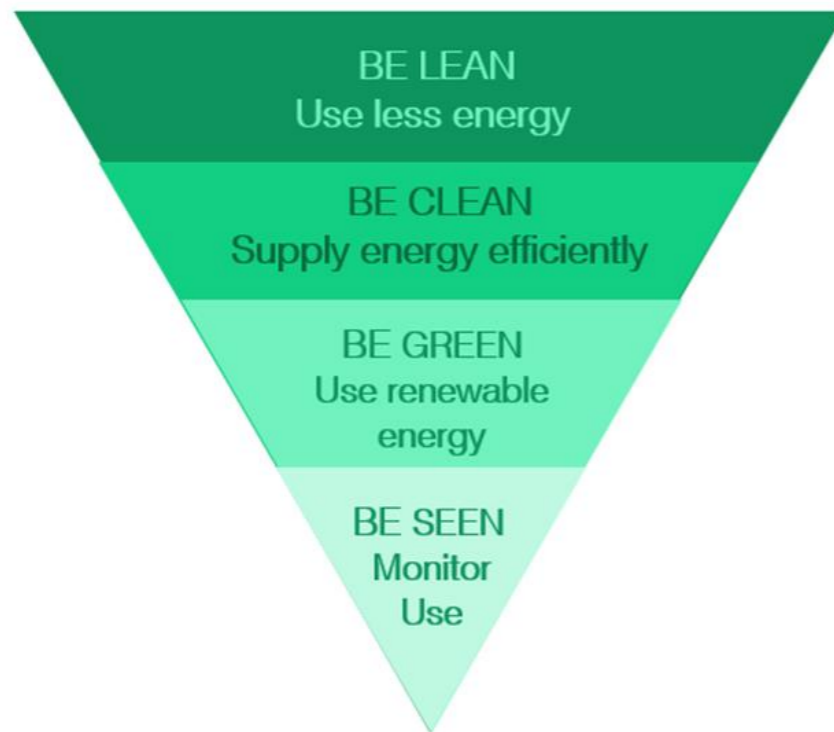


Figure 3-1 The Energy Hierarchy

The energy consumption and carbon emission figures within this report have been calculated using the approved Standard Assessment Procedure for the Energy Rating of Dwellings (SAP). SAP 10 carbon factors are used to represent the carbon intensity of mains gas and electricity.

Part L 2022

On 15th June 2022, a new version of Part L came into force, Part L 2021. This supersedes the previous Part L 2013. The development will be designed to meet the new Part L 2021 standards, with a detailed assessment being undertaken using the new SAP 10 methodology at the detailed design stage. As the new standards have only just been made fully available, it is not possible to assess fully against the new Part L, as the SAP 10 software is not yet fully functional. In order to ensure accuracy of calculations during this transitional period, the carbon calculations within this report have been undertaken using the SAP 2012 software, whilst using the SAP 10 carbon factors. In addition to the software issue, at present the revised London Plan Guidance on undertaken energy assessments based on is yet to be published.

In order to show compliance with Part L 2021, and the latest carbon reduction requirements, the calculations will be revised prior to construction, when the software is fully available. We would expect this requirement to be incorporated into planning conditions.

3.1 Energy Targets

The development incorporates 28 flats in total. Within 4 of the proposed flats, the majority of fabric is new and therefore these units have been considered as a new build and treated under Part L1A. 3 of these are new builds and 1 (Unit 3.14) unit has a majority of new fabric. As such it is not considered major in terms of the London Plan so there is no carbon target that should be met. The development must follow the energy hierarchy and meet the requirements of Part L1A and L1B.

3.2 Be Lean

As part of the Be Lean approach, passive design measures have been considered to reduce initial energy demand. Energy efficient equipment has then been addressed to further reduce the energy demand of the proposed development.

Site and Orientation

The development is constrained by the fact that it is a conversion and extension to an existing building. Where possible, layout and position of windows have been designed to result in passive winter heating and ventilation in summer.

Solar Gain Control and Daylight

Solar gains are a passive form of heating from the sun's radiation and are beneficial to a building during winter months as they provide an effective source of heat and reduce internal heating requirements. However, summer months they must be controlled in order to mitigate the risk of overheating. They can be controlled through glazing and shading design in order to allow low level winter sun to enter the building and to limit access to high level summer sun.

Any new glazing specified will be specified with good levels of solar transmittance levels in order to ensure good levels of sunlight whilst balancing solar gains.

Overheating

The London Plan overheating checklist has been used to assess the risk of overheating in the flats.

Section 1 – Site features affecting vulnerability to overheating		Yes or No
Site location	Urban ²⁹ – within central London or in a high-density conurbation	Yes
	Peri-urban ³⁰ - on the suburban fringes of London	No
Air quality and/or Noise sensitivity - are any of the following in the vicinity of buildings?	Busy roads / A roads	Yes
	Railways / Overground / DLR	Yes
	Airport / Flight path	Yes
	Industrial uses / waste facility	No
Proposed building use	Will any buildings be occupied by vulnerable people (e.g. elderly, disabled, young children)?	Yes
	Are residents likely to be at home during the day (e.g. students)?	No
Dwelling aspect	Are there any single aspect units?	Yes
Glazing ratio	Is the glazing ratio (glazing: internal floor area) greater than 25%?	No
	If yes, is this to allow acceptable levels of daylighting?	N/A
Security - Are there any security issues that could limit opening of windows for ventilation?	Single storey ground floor units	Yes
	Vulnerable areas identified by the Police Architectural Liaison Officer	No
	Other	N/A

²⁹ Urban - as defined in CIBSE Guide TM49. Broadly equivalent to Central Activities Zone and Inner London areas in Map 2.2 of the London Plan

³⁰ Peri-urban – as defined in CIBSE Guide TM49. Broadly equivalent to Outer London areas in Map 2.2 of the London Plan

Section 2 – Design features implemented to mitigate overheating risk		Please Respond
Landscaping	Will deciduous trees be provided for summer shading (to windows and pedestrian routes)?	No
	Will green roofs be provided?	No
	Will other green or blue infrastructure be provided around buildings for evaporative cooling?	No
Materials	Have high albedo (light colour) materials been specified?	No
Daylighting	What is the average daylight factor range?	
Window opening	Are windows openable?	Yes
Window opening	What is the average percentage of openable area for the windows?	50%
Window opening - What is the extent of the opening?	Fully openable	Yes excluding GF.
	Limited (e.g. for security, safety, wind loading reasons)	Yes on GF.

Security	Where there are security issues (e.g. ground floor flats) has an alternative night time natural ventilation method been provided (e.g. ventilation grates)?	No
Shading	Is there any external shading?	No
	Is there any internal shading?	No
Glazing specification	Is there any solar control glazing?	Yes, low emissivity glazing is specified
Ventilation - What is the ventilation strategy?	Natural – background	Yes
	Natural – purge	No
	Mechanical – background (e.g. MVHR)	Yes
	Mechanical – purge	Yes
Heating system	What is the average design air change rate	3
	Is communal heating present?	Yes
	What is the flow/return temperature?	<45 °C
	Have horizontal pipe runs been minimised?	Yes
	Do the specifications include insulation levels in line with the London Heat Network Manual ³¹	Yes

³¹ http://www.londonheatmap.org.uk/Content/uploaded/documents/LHNM_Manual2014Low.pdf

The impact of solar gains has been analysed as part of the SAP calculations, taking into account the ventilation strategies and the risk of solar overheating has been concluded to be not significant, when measured against the Part L1A criteria.

Following the overheating checklist, and results of the SAP assessment, the risk over solar overheating is minimised. Whilst Mechanical Ventilation with Heat Recovery is provided to allow for ventilation during times when windows need to remain closed due to external elements such as noise or air quality, a natural ventilation strategy possible.

Windows are specified to incorporate low emissivity coatings to limit overheating while ensuring adequate daylight. Internal shading has been designed into the flats to reduce the risk of overheating.

Building Fabric

The majority of the existing units will remain unaltered with the fabric not being upgraded. Column A shows the proposed U-Values for the units modelled as a conversion. On the units which are being converted and where existing fabric will be altered, the fabric will be required to meet the improved fabric U-Values Part L1B targets (Shown in column B below). The new walls to the flats formed as part of the conversion will be specified to meet Part L1B minimum values of 0.18 W/m²K. All new windows will exceed building regulation minimum values. The proposed U-Values for the flats modelled as new build is show in column C. The fabric of the new flats in the extension will meet the minimum standards of Part L1A (As shown in Column D).

Table 3-1 provides details of the strategy for the conversion and new build units. These represent the target for the development. In some areas, where existing fabric is being extended, the U-Values may be slightly higher for walls, due to historic building fabric.

	A	B	C	D
Fabric Component	Efficient Specification Proposed converted units	Requirement for Part L1B (2022) Tables 4.2 and 4.3	Efficient Specification Proposed New Build Units	Minimum requirement for Part L1A (2022) – Table 4.1
Units	3.12,3.13,4.07, 4.09		3.08, 3.10, 3.14, 4.08	
Unaltered External walls	0.7 W/m ² K	0.7W/m ² K	-	-
New External Walls	0.18 W/m ² K	0.18 W/m ² K	0.26 W/m ² K	0.26 W/m ² K
Improved External Walls	0.3 W/m ² K	0.3 W/m ² K	-	-
Existing Roof	0.35W/m ² K	0.35 W/m ² K	-	-
Improved Roof	0.16W/m ² K	0.16 W/m ² K		
New Roof	0.15 W/m ² K	0.15 W/m ² K	0.16 W/m ² K	0.16 W/m ² K
Party Walls	Filled cavity with edge sealing	-	Filled cavity with edge sealing	0.2 W/m ² K
New Windows	1.4 W/m ² K	1.4 W/m ² K	1.2 W/m ² K	1.6 W/m ² K/2.0 W/m ² K
New External Doors	1 W/m ² K	1.4 W/m ² K	1 W/m ² K	1.6 W/m ² K/2.0 W/m ² K
Air Tightness	3 m3/m2/hr	-	3 m3/m2/hr	8m3/m2/hr
Thermal Bridging	Default	Default	ACD Bridges	Default

Table 3-1 Existing and proposed thermal fabric values – residential units

Material Change of Use.

As per the Part L1B material change of use criteria, all the minimum fabric standards for the existing units have been met. Where the glazing has been enlarged or relaced the glazing ratio has been calculated to ensure the to floor area ratio is more than 25%. No units exceed the 25% glazing ratio threshold so no further calculations are required.

District Energy Systems

The development is not located within 500m of any existing or proposed heat network and it is not in a Heat Network Priority Area but the development will still include a communal system for space and water heating.

As there are no additional savings to be made at the be clean stage no data is given in this section.

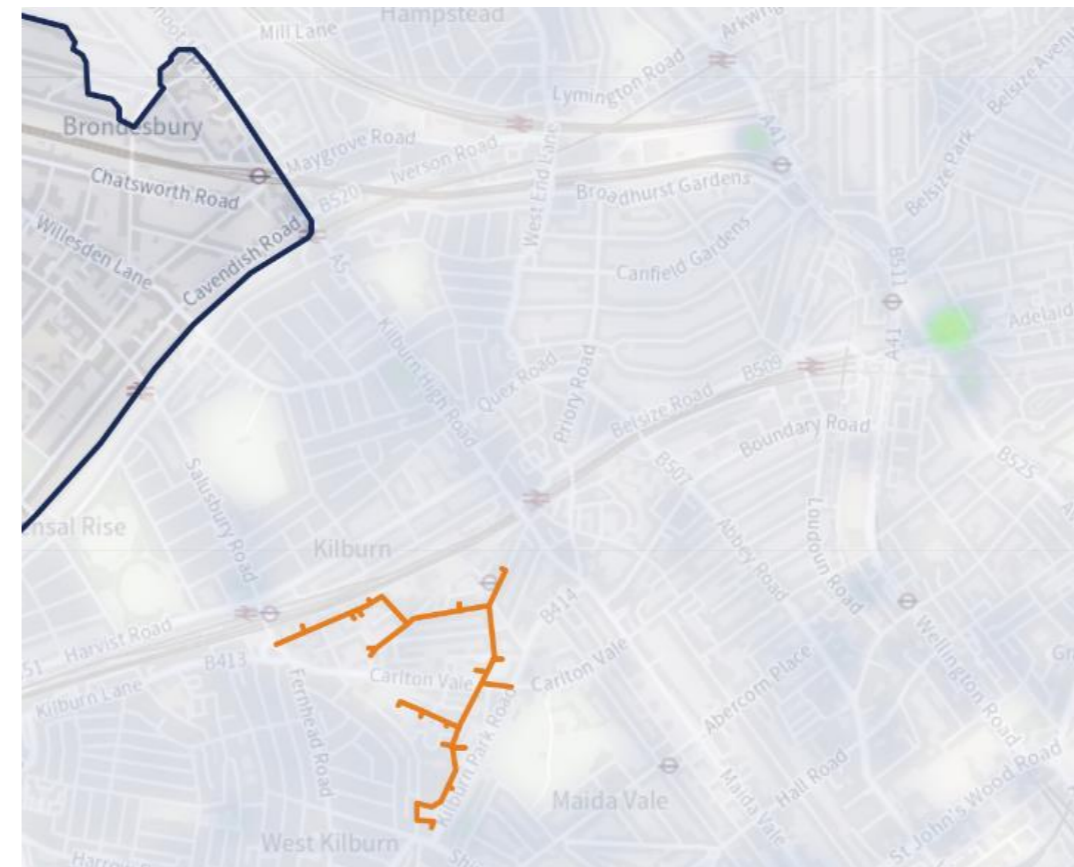


Figure 3-3 London Heat Map

Building Services

Individual systems have been identified as being the most appropriate for the site. These have been specified to maximise efficiency therefore reducing energy used to deliver services.



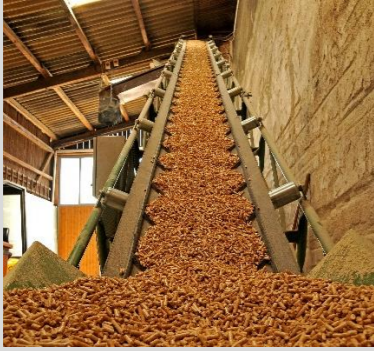
Table 3-2 shows the proposed services strategy and energy efficiency measures for the development.

Services Component	Efficient Specification
Space Heating & hot water	Communal Condensing Gas Boiler - 95% Efficiency Space heating delivered by: Radiators
Heating Controls	Time and temperature zone control
Ventilation	MVHR Efficiency: 89% SFP: 0.6
Lighting & Controls	100% low energy lighting

Table 3-2 Proposed energy efficient design measures

3.3 Be Green

At the Be Green stage, renewable technologies are investigated. Table 3-3 considers the feasibility of renewable energy technologies for the scheme.

LZC Technologies	Description	Noise	Visual impact	Internal Space	External Space	Capital Cost	Maintenance	Feasibility	
Solar Thermal Collectors 	<p>Solar thermal collectors can be used to provide hot water using the irradiation from the sun. They can generally provide approx. 50% of the hot water demand</p>	●	●	●	●	●	●	There are areas of flat roof that can incorporate solar technologies. However, carbon savings are quite low and it is quite a high cost technology.	✘
Solar Photovoltaic Panels 	<p>Solar PV panels generate electricity from the sun's energy. They should be installed within 90° of due south ideally at a 30° angle.</p> <p>The electricity can be used to supply the landlords load.</p>	●	●	●	●	●	●	There are areas of flat roof that can incorporate solar technologies. Solar PV is ideal for making carbon savings while being a simple technology.	✓
Biomass Heating 	<p>Solid, liquid or gaseous fuels derived from plant material can provide boiler heat for space and water heating</p> <p>A biomass boiler would supplement a standard gas heating system so some of the cost may be offset through money saved on using smaller traditional boilers reliability of fuel access/supply can be a problem</p>	●	●	●	●	●	●	Biomass is not considered feasible for this development due to issues with fuel storage, access for delivery vehicles and local NO _x emissions	✘




<p>Wind Turbines</p> 	<p>Vertical and horizontal axis wind turbines enable electricity to be generated using the power within the wind Not suitable for urban environments due to low wind conditions and obstructions</p>	●	●	●	●	●	●	<p>This development is in an urban environment and so a wind turbine will not generate much energy</p>	✘
<p>Ground Source Heat Pumps (GSHP)</p> 	<p>Utilising horizontal loops or vertical boreholes, GSHP make use of the grounds almost constant temperature to provide heating and/or cooling using a heat exchanger connected to a space/water heating delivery system</p> <p>Optimum efficiency with underfloor heating systems</p>	●	●	●	●	●	●	<p>GSHP are not a feasible technology for the site since there is no external space available for installation of boreholes</p>	✘
<p>Air Source Heat Pumps (ASHP)</p> 	<p>Air Source Heat Pumps extract latent energy from the external air in a manner similar to ground source heat pumps Optimum efficiency with underfloor heating systems</p>	●	●	●	●	●	●	<p>The use of ASHP is technically feasible for the development but is discounted due to noise issues and locating the unsightly units</p>	✘

Table 3-3 Feasibility of LZC technologies for the development

PV System

The feasibility study has identified solar PV as the most appropriate technology for the site. This will serve the landlord loads for the communal areas for the extension. The following system is proposed:

- Peak Power – 1kWp
- Orientation – S
- Angle of elevation – 30°
- Panel specification – Min 20% efficiency
- Approx no of panels – 4

3.4 Energy and Carbon Savings

Energy Use

The breakdown of carbon and energy use has been identified for the units assessed as a new build. Table 3-4 shows the breakdown of carbon and energy use once the strategies proposed in this report are incorporated.

	Gas (kWh/yr / kg/yr)			Electricity (kWh/yr / kg/yr)					Total Energy (kWh/yr)	Total CO2 (kg/yr)	
	Space Heating	Hot Water	Total	Gas CO2	Pumps & Fans	Lighting	PV	Total			Electricity CO2
New build	9,071	9,825	18,896	3,968	972	1,547	-822	1,697	395	20,594	4,364

Table 3-4 Estimated regulated energy demand and carbon emissions per energy source

Carbon Savings

Table 3-5 and Figure 3-5 demonstrate the percentage improvement over the notional baseline levels for the new build units.

Energy Hierarchy stage	CO ₂ Emissions (T/yr)	CO ₂ Savings (T/yr)	% Saving
Building Regulations 2013 Baseline	5.02		
New Units	4.36	0.65	13.00%

Table 3-5 improvements over Part L (New build units)

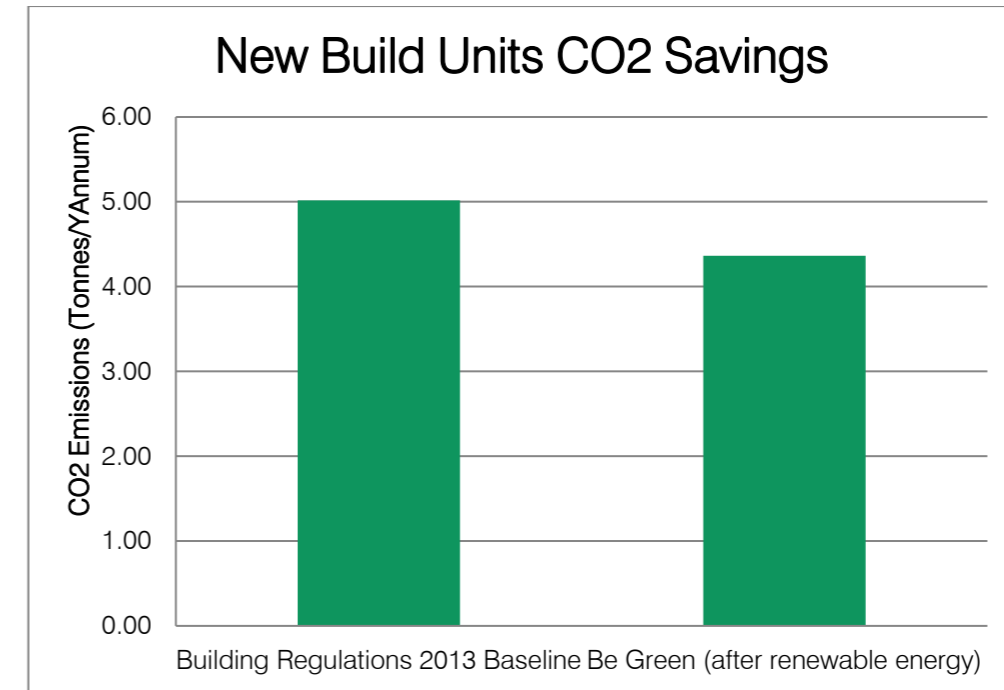


Figure 3-5 Improvement over Building Regulations Part L 2013

3.5 Be Seen

All major plant will be fitted with meters to allow remote monitoring of energy used by the heating systems and distribution boards. A contract will be put in place to monitor the readings so that they can be compared with the predicted energy performance, and this information will be reported, as details in the GLA 'Be Seen' guidance.

4 Sustainability

4.1 BREEAM

As the development contains only 2 refurbished and extended flats (with the remainder being new or existing), a BREEAM assessment is not required as it is below the 5 unit threshold.

4.2 Water efficiency

Water fittings will be specified with the following or similar flow rates to meet the target water consumption of 105 l/p/day for the residential aspect of the development:

- Wash basin taps – 6.5 l/min
- Showers – 7.5 l/min
- Bath – 120l to overflow
- Dishwasher - 1.2 l/place setting
- Washing machine - 9 l/kg load
- WC – 6/4 litre dual flush
- Kitchen taps – 6.5 l/min

Water meters will be installed to encourage residents to limit their consumption.

4.3 Materials

Materials will be specified to reduce the embodied carbon of the development, wherever possible.

Insulating materials will be specified to maximise thermal performance whilst still paying attention to the environmental impact of the materials used, by specifying mineral wool. If possible, materials with a high recycled content will be specified.

Responsible sourcing will also be pursued. All timber used on site during the construction phase and within the building will be from legal sources. Where possible, FSC or equivalent timber will be used. Sourcing of other materials will include products where the manufacturer employs an environmental management system such as ISO 14001 or BES 6001. Where possible, materials will be sourced locally.

Non-toxic materials will be used wherever possible, including the specification of products with low VOC content in line with European testing standards.

All the building elements will achieve high ratings on the BRE Green Guide to Specification. Materials will be specified to have a low embodied energy, taking into account whole life cycle analysis.

4.4 Climate Change Adaptation

4.4.1 Tackling Increased Temperature and Drought

Windows will incorporate low emissivity coatings to reduce solar gain. Other than mandatory ventilation to meet AD Part F, the development utilises mechanical ventilation along with openable windows.

As described above in water consumption, measures have been put in place to reduce potable water use internally.

4.4.2 Flooding and Surface Water Management

The development is in flood Zone 1 and is at no risk of flooding.

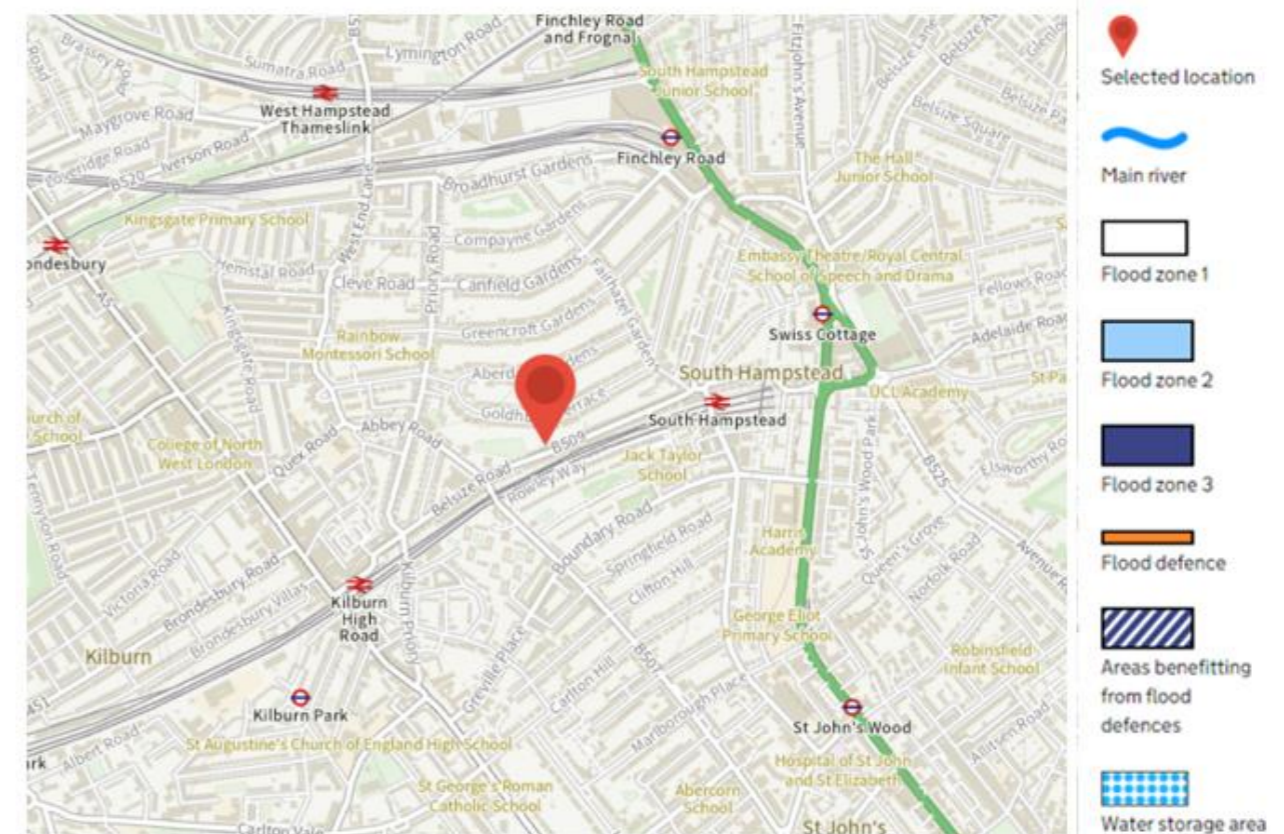


Figure 4-1 254 Belsize Road Flood Risk Map

4.5 Waste Management and Construction

Construction site waste will be managed in such a way to reduce the amount of waste produced as much as possible, and the waste hierarchy will be followed. In addition, at least 85% of waste that does arise will be recycled using an external waste contractor.

Regular waste and recycling bins will be provided for separation of waste to facilitate recycling.

The contractor will enrol in the Considerate Contractors Scheme to ensure best practice construction standards are met during the build of the development.

4.6 Nature Conservation and Biodiversity

The development is considered to be of low-moderate ecological value within the local context. Measures will be taken during construction in order to minimise impact on ecology by timing works appropriately, following best practice guidance, and through the soft landscape design.

5 Conclusion

The development at 254 & 256 Belsize Road consists of the extension and remodel of an existing residential apartment building to create 8 no. additional apartments.

The units being converted, meet the U-Value and glazing ratio targets of a material change of use for Part L1B. 4³ of the units are a majority new construction and have thus been assessed under Part L1A. As required by the London Plan and the London Borough of Camden, the development follows the energy hierarchy, incorporating passive design measures, energy efficient equipment and renewable energy. The new build section of the development achieves a 13% saving over Part L 1A Building Regulations Baseline.

The development employs an efficient building fabric, including well insulated walls and highly efficient glazing, utilising the existing efficient communal gas system and a PV Array are specified to maximise carbon savings for the site.

The figures within this report are based on preliminary analysis only and further detailed studies will be required at the detailed design stage before specifying any of the proposed systems.

³ Although there are 3 New Build Apartments in the proposed development for the purposes of the SAP model and in accordance with Part L of the Building Regulations apartment 3.14 is also

considered as new build in terms of these new regulations given the extent of remodelling to the external fabric.