12 Whidborne Street

Sustainability Statement

Issue 1

22nd February 2024

MAX FORDHA

MAX FORDHAM

Max Fordham LLP
42/43 Gloucester Crescent
London
NW1 7PE

T 020 7267 5161

maxfordham.com

ISSUE HISTORY

Issue	Date	Description
1	22/02/2024	For Information

MAX FORDHAM LLP TEAM CONTRIBUTORS

Engineer (Initials)	Role
MPN	Director
JB	Senior Engineer
JR	Engineer

MAX FORDHAM

CONTENTS

MAX FORDHAM

1.0 EXECUTIVE SUMMARY

This sustainability statement concerns the planning policies and regulations that apply to the development at 12 Whidborne Street.

The relevant targets are noted, and we show how we will comply with them. There are different documents that must be adhered to including Part L – Volume 2 of the Building Regulation, and local Camden planning policy.

The total floor area of the development falls below 1,000 m^2. The London Plan applies to all major developments (those with floor area of 1,000 m^2 or more). As such the development will not need to follow the London Plan requirements.

To meet the requirements of Part L, energy efficient building fabric with U-values that are better than the maximum criteria in the regulations are being proposed.

New building services will be such that they meet the requirements for energy efficiency as outlined in the *Non-Domestic Building Services Compliance Guide*.

The heating strategy will avoid the use of fossil fuels on site and be electrically based, using air source heat pumps (ASHPs).

2.0 PLANNING POLICY AND LEGISLATION

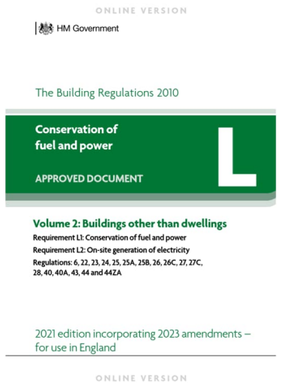
This section describes the planning policies and regulations that will affect the building at 12 Whidborne Street.

The building will primarily be required to comply with the requirements of Building Regulations Approved Document Part L – Volume 2. This document is concerned with minimising energy use and carbon emissions within new and existing non-domestic buildings.

The sustainability requirements are described and summarised below.

2.1 Building Regulations Part L

Part L – Volume 2 (2021) of the Building Regulations is concerned with the conservation of fuel and power in new and existing buildings other than dwellings. It sets out the requirements for limiting energy use and carbon emissions.



BER and TER
For new buildings, the Building Emissions Rate (BER) and Target Emissions Rate (TER) are defined measurements of carbon emissions for the actual and notional buildings respectively. Part L stipulates that for new buildings, calculations must be done to show that the BER is equal or less than the calculated TER.

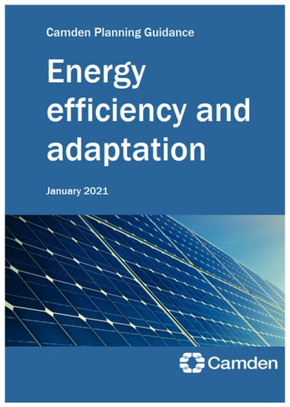
Building Fabric Performance
The regulations place limits on the thermal performance and the U-values of fabric properties for different building elements. This covers both new buildings and replacement fabric elements in existing buildings. No one element should exceed these.

The following table summarises the limiting fabric values for new or replacement elements in new and existing buildings.

Element	Max. performance values, W/(m^2.K)
Roof (flat)	0.18
Roof (pitched)	0.16
Wall	0.26
Floor	0.18
Windows	1.6
Rooflights	2.2
Pedestrian doors	1.6

2.2 Camden Planning Guidance

Local policy guidance is provided by the Camden Planning Guidance (CPG) series of documents. Relevant to sustainability at 12 Whidborne Street is 'Energy efficiency and adaptation'. This document sets out local policy requirements for energy use in new and refurbished buildings with the London Borough of Camden.



The policy outlines how the design of developments should follow the energy hierarchy: Be Lean, Be Clean, Be Green.

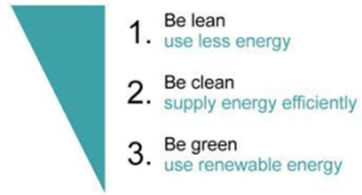
2. Energy Hierarchy

KEY MESSAGES

- All development in Camden is expected to reduce carbon dioxide emissions by following the energy hierarchy in accordance with Local Plan policy CC1.
- Energy strategies are to be designed following the steps set out in the energy hierarchy.

2.1 The energy hierarchy is a sequence of steps (see diagram below) that minimise the energy consumption of a building. Local Plan Policy CC1 requires all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy.

2.2 Buildings designed in line with the energy hierarchy prioritise lower cost passive design measures, such as improved fabric performance over higher cost active systems such as renewable energy technologies.



The policy states that developments are expected to exceed the requirements of Part L by using the energy hierarchy.

For developments of <500m2 the policy requires developments to achieve the "greatest possible reduction below Part L of 2013 Building Regulations (local plan CC1)". It also states for renewables to be incorporated "where feasible".

2.3 London Plan

The London Plan applies to all major developments within the greater London area. A major development is defined as being residential developments of more than 10 dwellings and commercial developments in excess of 1000m^2. Neither of these criteria means that the 12 Whidborne Street works are classified as a major development. As such the London plan is not applicable.

MAX FORDHAM

MAX FORDHAM

3.0 ENERGY STRATEGY

3.1 Proposed Strategy for Minimising Operational Energy/Carbon

A key objective for the project's energy strategy is to drive down the energy/carbon required to operate the building.

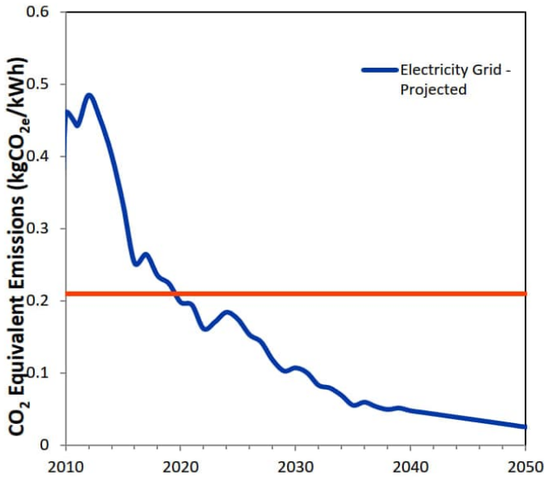
This will largely be achieved by the switch away from using fossil fuels for heating to an electrically based strategy of producing the required heat through heat pumps. In parallel we must also significantly reduce the amount of energy/carbon that is required to operate the building.

For Whidborne Street, we would propose that the following design hierarchy is adopted as the means to minimising the operational energy/carbon required to operate the building:

1. Fabric Improvements: By improving the thermal performance of the building fabric, the base heating load of the building can be significantly reduced.
2. An Electrical based Energy Strategy: Generating a building's required heat through the use of heat pumps, rather than traditional gas boilers, will significantly reduce the carbon emission of the building.
3. Energy Efficient Services: Installing low energy & energy efficient services wherever feasible with help minimising the energy/carbon required to operate the building.

Impact of the De-carbonisation of the UK Grid

With the continuing decarbonisation of the UK's national grid, the benefit of using electricity for heating, and where necessary cooling, is constantly increasing when compared to a more traditional natural gas solution. The high efficiency of heat pumps and the low (and decreasing) associated carbon emissions associated with electrical forms of heat generation, mean that they are likely to be the most appropriate choice for providing the required heating.



Projected De-carbonisation of the UK's Electricity Grid.

* *The blue line on the graph shows the projected decarbonisation of the electricity grid and the associated carbon emissions per kWh of energy. The red line shows the carbon emissions associated with using a natural gas fed system, again per kWh of energy demand.*

3.2 Upgrade of the Building Fabric

Upgrade of the existing building fabric, improving levels of thermal insulation & airtightness, are key elements to help reduce & minimises the operational energy/carbon of the building.

UPGRADE OF THE EXISTING BUILDING FABRIC

The opportunities for upgrading the existing/retained elements of the building fabric are as follows:

- The Existing Walls: The current proposals are to improve the thermal performance of the walls by adding internal insulation.
- The Windows: To make the building weathertight, all the windows are to be restored, and the existing rooflights replaced with double glazed units.
- Airtightness: Given the current dilapidated state of the building, all works will improve air tightness, and should aim to meet and better the minimum requirements of the building regulations.

NEW ELEMENTS OF BUILDING FABRIC

Where new elements are to be constructed as part of the project, e.g., the link building, there are greater opportunities to create elements with higher thermal performance.

New-build fabric parameters are to be agreed with the architect.

BUILDING FABRIC SUMMARY

The following table summarises both the minimum U Valves (weighted average), required by Building Regulations and the proposed targets *(to be agreed)* for all refurbished and new build elements.

Element	Building Regulations Part L2 2021 *weighted average*	Proposed Refurbished Elements Targets *weighted average*	Proposed New Build Elements Targets *weighted average*
Roof U-value (W/m^2K)	0.16	0.13	≤0.14
Wall U-value (W/m^2K)	0.26	0.27	≤0.18
Floor U-value (W/m^2K)	0.18	0.18	≤0.18
Roof Lights U-value (W/m^2K)	2.2	1.3	≤1.2
Windows U-value (W/m^2K)	1.6	1.6	≤1.2

Table 3.1: Proposed Refurbishment and New-Build U-Values

In addition, it is proposed that glazing with >70% light transmission and a g-value of <0.5 is used for all new windows & rooflights as this provides a good balance between maximising the daylight potential and minimising solar gains without the glazing looking too dark.

3.3 LZC Technologies

There are many Low and Zero Carbon (LZC) technologies that a building can use to either reduce energy use or lower associated carbon emissions. These range from technologies such as wind turbines, photovoltaic panels, and heat pumps.

The following table provides an assessment between different LZCs for Whidborne Street.

PREVIOUS SCHEME STAGE 1 ANALYSIS - 2019			
LZC Technology	Function	Suitability	
Photovoltaic Panels (PVs)	Electricity generation from solar energy.	Possible	*Viable but may be unsuitable due to overshading and limited suitable roof space.*
Solar Thermal	Direct hot water generation from solar energy.	Possible	*Viable but may be unsuitable due to overshading and limited suitable roof space.*
Air Source Heat Pump	Efficient space heating/cooling by extracting heat from the external air.	Good	*Suitable.*
Ground Source Heat Pump	Efficient space heating/cooling by exchanging energy with directly with the ground.	Poor	*Unsuitable as there is no external space on site for a borehole or ground array heat collector.*
Water Source Heat Pump	Efficient space heating by exchanging energy with a body of water above ground, (a lake or river etc)..	Poor	*Unsuitable as there is no local water source.*
Biomass	Combustion of biomass material for space and hot water heating.	Poor	*Unsuitable due to air quality issues, difficulty in sourcing fuel, plant space requirements.*
Wind	Electricity generation from wind.	Poor	*Unsuitable due site constraints & National/Local Planning Guidance*

Table 3.2 Comparison of the Suitability of LZC Technologies for the building.

PROPOSED STRATEGY

Air Source Heat Pumps: Air source heat pumps are a straightforward, proven, low cost strategy of providing the require heat for the building. These are the most feasible for Whidborne Street and offer the best potential improvements for carbon emissions.

The principal drawback of ASHPs are often acoustic considerations, although these can be addressed by locating the ASHPs away from sensitive areas and out of keys lines of sight.

3.4 Energy Efficient Services

To further reducing the operational energy/carbon used by the redeveloped Main House, the following systems/strategies are also proposed.

System/Service	Proposed Approach
Heat Recovery Ventilation	Mechanical ventilation with heat recovery (MVHR), will be used to provide the fresh air & limit the heat losses during winter.
Lighting & Lighting Controls	All the artificial lighting within the building will be of the most efficient light sources available using high efficiency LEDs. Dynamic lighting controls that respond to occupancy and available daylight levels are to be used, with local user override controls provided where appropriate.
Domestic Hot Water Generation	Use point of use hot electric water heaters for generating hot water.
Mechanical Controls	Efficient, responsive, and intuitive controls for the HVAC systems are to be provided, with local user override controls provided where appropriate.
Energy Metering	Submetering of energy use.

Table 3.3 Proposed Energy Efficient Systems/Services

New building services will meet the requirements of the *Non-Domestic Building Services Compliance Guide.*

To reduce the operational energy/carbon of the building to its absolute minimum level, it is important that the client also consider the energy use of all the equipment that is installed as part of the fitout. Fitout equipment, which can be a particular burden on the energy/carbon use of the building include:

- Kitchen equipment,
- IT hardware, and
- Office equipment.