

SUSTAINABILITY STATEMENT

Checklist	Comments
<p>Energy efficiency</p> <p>Have you maximised opportunities for natural solar gain and natural ventilation and minimised overheating risk through passive design and attention to building location, orientation and form?</p>	<p>Yes. The orientation of the building is fixed by the nature of the plot; however, a compact and efficiently optimized design is proposed with principal glazed areas restricted to the south-east facing façade only. The openings make best use of available direct daylight given the nature of the plot and take advantage of solar gain wherever possible.</p> <p>To prevent overheating, there are no glazed areas on the south / south-west facing elevation.</p> <p>Good levels of natural ventilation will be provided via windows and trickle ventilation to each of the consultancy rooms.</p> <p>Mechanical ventilation with heat recovery can add to the efficiency of the building throughout the year when opening windows is less desirable.</p>
<p>Have you designed the fabric of the building to be ultra-low in energy demand, achieving KPIs for space heating demand (kWh/m²/yr) and energy use intensity (kWh/m²/yr)?</p>	<p>The fabric of the building will fully comply with the requirements of the up-dated Building Regulations July 2022. The revised Building Regulations promote a 'fabric led' approach to technical design and detailing. The thermal efficiency of fabric elements is greatly improved, as are improved requirements in respect of thermal bridging and air leakage.</p> <p>The energy a building uses throughout the year can be assessed in relation to the space heating, water heating and on site green energy production. This can be measured by calculation as a design stage SAP calculation generally produced as a part of a detailed design for Building Regulations. This permits development of proposals in relation to achieving target values for a low energy house.</p>

CHELTENHAM 12 ROYAL CRESCENT GL50 3DA T: 01242 231575

GLOUCESTER 9 COLLEGE GREEN GL1 2LX T: 01452 527997

LONDON 19 EASTBOURNE TERRACE W2 6LG T: 020 3763 8005

<p>Low Carbon Heat</p> <p>Will the building be fossil-fuel free with low-carbon heat source independent of the gas network?</p>	<p>A low carbon heat source is intended and likely to be an air source heat pump however further investigation will be required to assess the most appropriate option.</p>
<p>Renewable Energy</p> <p>Has the design and shape of the roof been optimised for maximum output of a photovoltaic array?</p> <p>Does the building achieve a net zero-operational carbon balance and deliver 100% of its entire predicted energy consumption using renewables on-site?</p>	<p>The proposed house has a pitched roof with the front facing part within 35deg. of south; it is therefore suitable for the siting of solar panels.</p> <p>Although the building is to be highly energy efficient, designed to limit heat loss and air leakage, and be fitted with low energy lighting and fittings, potentially incorporate technologies such as mechanical ventilation with heat recovery and waste water heat recovery; it is highly unlikely that it will be possible to achieve net zero operational carbon balance on these stand-alone properties on a compact urban site.</p>
<p>Water</p> <p>For dwellings: have water-efficiency measures been incorporated and will fixtures and fittings be specified to achieve water consumption of less than 105l/p/d?</p>	<p>N/A</p>
<p>Transport & Travel</p> <p>Reduced travel: Have you made provision for home working in residential buildings?</p> <p>Is shared mobility encouraged within your transport plans for nondomestic buildings?</p> <p>Active travel: Have you enabled sustainable travel choices with connections for cycling, walking and public transport, providing cycle parking and facilities to levels that sufficiently meets the needs of building occupants irrespective of age or ability?</p>	<p>N/A</p> <p>N/A</p> <p>The site is situated in a highly sustainable location within ease of access to the town centre on foot or by cycle.</p> <p>The site is also within comfortable walking distance of public bus stops.</p> <p>The proposal includes secure private cycle storage to the front of the site which is accessible and benefits from good natural surveillance.</p>

<p>Low-carbon transport infrastructure: Have you provided active charging infrastructure for electric vehicles, meeting standards and sufficient for the needs of building occupants?</p>	<p>None proposed but can be incorporated if required.</p>
<p>Prevention of Flooding</p> <p>Have you carried out a flood risk assessment to ensure your development avoids areas at high risk of flooding?</p> <p>Have measures to reduce flood risk been included in your proposals and are these designed using nature-based solutions and methods of sustainable urban drainage?</p>	<p>The application site is in Flood Zone 1 so there is no need for an FRA.</p> <p>The existing hard surface areas are predominantly gravel and are unchanged.</p>
<p>Ecology & Biodiversity</p> <p>Do you know what ecology and biodiversity are on your site and beyond it, and have you taken steps to both preserve what is already there and enhance ecological value in the future?</p>	<p>The removal / pruning of some of the existing shrubs will be necessary however the proposed building is predominantly sited on previously developed land. Given the urban location, the site has limited ecological value as supported by the available environmental records on recent neighbouring planning applications.</p>

Embodied Carbon

Have you minimised embodied carbon in the design of the building and in the selection of materials for its construction?

The proposed building has been carefully configured to provide a highly efficient built form with a small footprint limiting impact on the site and therefore the extent of concrete use in foundations. Accommodation within the limited footprint is provided over two floors, all to maximise the GIFA / footprint ratio.

The majority of main structural and facing building materials are to be either category 1 Timber, or 2 Masonry.

Masonry has a higher initial carbon input than timber, but has significant advantages in respect of:

- a) thermal mass – providing thermal stability and limiting sudden heat losses or gains within the structure.
- b) structural stability.
- c) adaptability – easily adaptable in future to suit occupants changing needs.
- d) longevity – provides a building shell that will be long lasting and easily maintainable.
- e) high quality ground floor construction.

Significant elements of the building will be timber, including the framework, upper floors, partitions, roof structures, entrance doors, stairs and finishes. All timber elements will be from certified sources. Timber internal partitions allow a degree of flexibility internally to suit changing needs of occupants.

Limited elements will be in steel including structural beams and lintels etc., and some external cladding. Clad elements are used for their strength and limited weight where projecting or in over-build locations.

A high quality window system is proposed to limit heat loss, maximise glazed areas and light ingress through low profile sections, and reduce maintenance.

For aesthetic and finishing reasons it is unlikely that internal surfaces will be self-finishing

The buildings are of a bespoke structure and structural engineering will enable the design to be as efficient as possible.

Materials chosen as above are readily recyclable at end of life cycle.

<p>Do your assessments of embodied carbon meet LETI targets and take full account of all construction elements including substructure, superstructure, mechanical, electrical and plumbing, products and finishes?</p>	<p>This will be dealt with at the Building Regulations stage of this project.</p>
<p>Waste</p> <p>Do you provide adequate space, both inside and outside the building, for waste recycling and storage?</p> <p>Have you incorporated targets and site management processes to minimise water consumption through construction, and minimise and recycle waste, reducing waste going to landfill?</p>	<p>Yes. The existing storage arrangements will continue.</p> <p>This is to be discussed with the contractor when they have been appointed. The intention however is for separate storage containers to be available on site to aid the collection of recyclable and non-recyclable items.</p>