# SUSTAINABILITY STATEMENT – 21 MARESFIELD GARDENS

19/06/2020

The proposed renovation works for 21 Maresfield Gardens aim to improve the existing building to offer attractive and comfortable spaces with a reduced environmental impact. Sustainable Design principles were applied throughout the design process. The following summary sets out the design strategy and how this is to be applied to the project:

Follow the Energy Hierarchy principle to minimise the environmental impact of the building:

*Be Lean; Be Clean; Be Green*

BE LEAN:

Incorporate good environmental design practices to reduce the energy demand of the building. The key points include:

A 'Fabric First' approach was followed. The performance of the existing building fabric is being improved as far as practically possible. Thermal insulation shall be retrofitted to all external walls, applied internally so as not to impact on the external appearance of the building and preserve the character of the neighbourhood. The ground floor slab will be rebuilt and the insulation levels brought up to modern standards. The same applies to the existing roof, with only a few localised areas where this may potentially not be feasible. All existing glazing shall be renovated to improve thermal performance and air-tightness. This improves the thermal performance of the fabric, whilst also improving the thermal comfort for the occupants.

All new building elements aim to perform to current insulation standards.

| | **U Value (W/m2K)** | |
|---|---|---|
| **Fabric Element** | **Refurbish Existing** | **New Fabric** |
| Roof | 0.16 | 0.16 |
| Wall | 0.28 | 0.18 |
| Floor | 0.16 | N/A |
| Window | 1.6 | 1.45 |
| Rooflight | 1.4 | N/A |
| G-value | - | 0.50 |

Robust solar design principles were incorporated from an early stage, especially relevant to the new building elements. The new glazing systems act to insulate the habitable spaces against heat loss, whilst reducing the risk of summer overheating by use of solar control glass (low G-value).

BE CLEAN:

Supply and use the required energy as efficiently as possible. The fixed building services are key to achieving a low energy building, with efficiency as the primary driver in the selection process. This is to make best use of the energy used.

The latest in Heat Pump technology shall be utilised to deliver low energy heating and hot water.

Artificial lighting will apply low-energy LED sources throughout.

Water use will be minimised by use of low-use appliances, including:

- 3/6 litre dual flush WCs as standard
- Taps designed to reduce hot water demand (e.g. aerated spray)

The controls operating the building services have been considered with view of the sustainability targets. These help operate the plant as efficiently as possible, whilst also being easy to operate effectively.

BE GREEN:

Make use of Renewable & Ultra Low Energy technologies. Air Source Heat Pump (ASHP) technology is well suited to Maresfield Gardens, capturing energy available in the surrounding air. The proposed plant retrieves low-grade heat from the ambient air and condenses it into high-grade heat, to be used for space heating and domestic hot water generation. All of the energy required for heating will be supplied by Air Source Heat Pumps, reducing the building's environmental impact.

Other renewable energy technologies were considered (PV, Wind Turbine, CHP), but were found to not be feasible. The possibility of connecting to a local District Heating Network (DHN) was explored, but currently none exist near the building. The building services shall be designed to allow for a connection to be made in the future, with minimal disruption, should an energy network become available.

The proposed heating system also negates particulate emissions associated with fossil fuel combustion. This minimises the development's impact on London's air quality.