SUSTAINABILITY PLAN

This report has been prepared in support of planning permission to convert an existing 4 storey residential property (including basement level) into 8 no. residential flats at 81 Fordwych Road London West Hampstead. The proposal will consist of 4 no. studio flats, 3 no. 1 bedroom flats and 1 no. 2 bedroom flat.

The objective is to make the existing property as energy efficient as possible by maximising the use of sunlight, thermal mass and natural lighting, heating and cooling of the property.

Cooling hierarchy

Minimising energy consumption before addressing energy supply is key part of low carbon design, this is achieved with the use of the best available building materials, methods and practices.

The existing external envelope of the entire building will be upgraded with high performance insulation fitted to the internal perimeter walls, with this, the building will retain the heat gained early in the day throughout the remainder of the day, thereby minimising the need for heating in the winter. This will also help buffer internal temperatures against rising external temperatures during the summer months. All the windows have been fitted with double glazing to enhance the fabric of the building.

Natural ventilation is proposed to minimise overheating, as such every habitable room is cross ventilated where possible. With existing high ceiling, the heat accumulation is further minimised. Mechanical ventilation will be installed within the kitchen (cooker hood), WC and bathrooms only, extractors will provide air exchange at the rate of 30 litres per second, 6 litres per second and 15 litres per second respectively. All lighting will be low energy LED.

Materials, sourcing and waste

Sustainably materials from manufacturers with proven records/certificates sourced from local builder's merchants will be used in construction. Where ever possible materials with low embodied carbon will be used, and construction waste will be prevented / minimised from the design stage onwards.

Materials	**Sustainable sourcing**	**Waste to Landfill**	**Sustainability after the life cycle of building is complete**
Timber	Well managed forests with FSC/PEFC Chain of Custody where requested. Manufacturing waste is kept to a minimal through finger jointing of log off-cuts. Collection of shavings for recycling and use of other factory waste as fuel.	Timber can be recycled in a variety of manners, but primarily as fuel. There are very few off-cuts on site due to the manner of production and use of materials on site, however any waste is offered to clients as fuel for wood burners.	Wood is the only 100 percent renewable, recyclable, reusable and biodegradable resource we have.
Insulation	Rockwool / Celotex has certification to the internationally recognized ISO14001 environmental management system standard to 100 percent of its major manufacturing sites.	All off cuts collected by supplier to recycle in the factory. Therefore, no waste to landfill.	Potential for recycling following demolition is being explored by the supplier as they seek to overcome any potential contamination issues.
Sheet timber materials	All sheet timbers can be sustainably sourced and COC available where required.	Careful planning reduces waste. Offcuts offered for wood burners where possible.	As above, all timbers can be recycled for fuel (timber pellets) after the life cycle of the building expire.
Windows and Doors	Timber frames so can be supplied with Chain of Custody where required.	All windows and doors are bespoke and designed for the individual building. There is no waste or excess product to landfill.	Both timber and glass are 100% recyclable.
Floor Finishes	Oak flooring is 100% recyclable. The manufacture already recycles industrial waste.	Careful material planning reduces waste.	100% renewable.
Roofing Finish	Natural slate is our standard finish. Slate is completely inert and natural, subject only to extraction and craft-working processes, without any need for additional treatment	Careful material planning reduces waste.	100% recyclable.

Water efficiency and SuDS (including rainwater and greywater harvesting)
Part G of the Building Regulations states that new dwellings must achieve a maximum water usage figure of 125 litres per person per day, however, the development will aim to achieve 110 litres per person per day (see attached water calculation). The specifications of the appendix water table are specified for this development.

This will be achieved with the installation of water efficient appliances like washing machines, and dishwasher which will get dishes and clothes just as clean but will use less water doing it. Flow restrictors, low flow showers heads and low flow W/S's will also use less water improving water efficiency in the property.

Building Management Systems, metering, monitoring and management
The inclusion of metering will allow energy consumption to be monitored, although this will not in itself reduce energy consumption, however, it will allow for efficient energy management of the development. The installation of individual smart monitors for both gas and electric with internet connectivity that enhances communication allows energy use to be monitored and recorded. The energy monitor provides the occupant with a standalone display, and reports on energy usage and projected billing.

The ease of access to regulate energy consumption will encourage building users to conserve energy. For gas monitoring, devices such as Nest and Hive remotely provides access to and control of energy usage via a mobile phone. For electricity, hand-held screens communicate with electricity meter and tells how much electricity is being used in real time.

There are a number of ways in which CO2 reduction can be met and exceeded, for this development, the fabric first approach forms the basis on which green technologies can be applied most efficiently and will provide future proofed and flexible approach to energy.