

Our Ref: 887BA003

Date: 12<sup>th</sup> January, 2010

## **SUSTAINABLE HOMES ASSESSMENT**

for

### **Demolition of existing dwelling house and Construction of 4 houses and 5 flats At 78 Adelaide Road, Camden**

### **Assessment Framework**

To achieve level 3 plus: The home will have to be 25% more energy efficient than one built to the 2006. The following identifies the design decisions that ensure that all proposed dwellings reach the target of level 3.

#### **A) Energy & CO2 Emissions**

##### **Building Fabric**

The building fabric is to be primarily rendered masonry. This has been chosen to balance the possible increasing needs (through Global warming) for building cooling as well as energy required for heating during the winter. The front of the building takes advantage of its southern orientation, to maximise the window sizes to ensure that Solar gain is achieved throughout the winter.

The U value of the external walls will be 0.25W/MsqK

The windows will all have Argon filled double glazed units

The U value of the roof will be 0.175W/Msq.

The West elevation has been designed to ensure that the Westerly aspect maximises any available solar gain with the "return elevation" of this adjacent to the Hutchinson House set back allowing the windows to be relevant from both an Urban Design and a Solar Gain perspective.

The deep plan of the development mass with restricted glazing areas on the side flanks takes full account of the overshadowing of the 21 storey tower block (to the south west of the site which eliminates a significant amount of solar gain on the west façade throughout the year).

The extensive Lower ground floor area has the additional benefit of creating a high thermal mass within the buildings core, to retain, the heat generated through natural solar gain on the south façade and that generated by supplemental heating within the proposed dwelling units.

The development has been planned around a central core atrium to minimise heat loss from the proposed dwellings. This atrium will also act as a “temperature control duct” to reduce the need for mechanical ventilation or air conditioning, through having an openable roof (dovetailing with the smoke vent facilities linked to the fire and smoke sensors) so that the whole atrium becomes a large natural ventilation stack (hence the reason that the atrium roof is sloped towards the north).

All floors will be made of concrete to ensure best practice is followed for both acoustic insulation dovetailing effectively with the retention of heat through a high thermal mass that is generated from the underfloor heating or solar gain.

Finally to control solar gain during the summer months we have repeated the large eaves overhangs of the existing building for the upper most floors windows. The balconies at 2<sup>nd</sup> floor level are formed with perforated metal plates and act as solar screens for the large 1<sup>st</sup> floor glazed areas below.

The demolition of the existing accommodation, by virtue of the considerable size of the site relative to the building mass already on the site, will ensure that all masonry materials can be crushed and recycled on the site, then stored for reuse in the new building works as hardcore. This will ensure that the landfill associated with the works will be minimised, together with eliminating the congestion and carbon emissions associated with transporting this demolished material off site.

#### **Air Permeability**

All dwellings will have air extract fans in the bathrooms kitchen and utility rooms. These will be linked to heat recovery units in each dwelling. This will ensure that no additional uncontrollable trickle vents will be required ensuring that air permeability will be controlled to the minimum designed levels.

NB all window frames are set back from the building façade by the depth of the render and external leaf of masonry. This allows the windows to be set back behind this external masonry leaf ensuring that this most vulnerable junction of air tightness is effectively sealed.

#### **Internal Lighting**

The building has a deep plan format which assists thermal mass (through the choice of fabrics noted above) and the retention of heat, however we have designed natural light canyons (on the flank walls) and introduced an atrium to ensure that we do not unbalance the thermal performance savings, with an over reliance on artificial lighting.

The large glazed areas on the south façade will of course reduce as far as possible reliance on artificial lighting for the rooms served by these windows.

All artificial lighting will be specified to ensure low energy bulbs are used throughout.

#### **Drying Space**

The 4 houses on the northern façade have large gardens suitable for external drying. The flats (which are south facing) could have their balconies used for external drying of clothes. All units will of course have space for a tumble dryer as the climate in London is not appropriate for external drying, due to the humidity that is associated with this island due to its proximity to the sea even in the summer months.

#### **Energy Labelled White Goods**

Energy efficient appliances, and lighting, specified and maintained in all units and common parts. All integrated white goods will be clearly marked with their energy performance rating.

### **External lighting**

The 3 houses on the north façade will have security lighting on movement sensors. These will have the ability to be overridden to provide external lighting in the rear gardens for “Health and Safety reasons”.

The remaining units will have external lighting only on their balconies, with the same controls.

All Internal & External common parts will have low energy lighting to meet minimum Health and Safety Standards.

All burglar security lighting is a maximum of 150W and as previously noted fitted with movement detecting and daylight shut-off devices. All other security lighting is provided with energy efficient fittings and daylight shut-off devices

### **Cycle Storage**

The proposal allows for 9 units to have a communal secure covered cycle store.

### **Home Office**

The 4 houses have adequate floor area and room layout flexibility for home working to be easily accommodated in these units.

The 4 flat units similarly have adequate floor area and room layout flexibility for home working to be easily accommodated in these units.

## **B). Water**

The Flats and Houses are designed to use no more than about 90 litres of water per person per day. This is achieved by fitting

- 1) 6/4 Dual Flush WC;
- 2) Flow Reducing/Aerating taps throughout
- 3) 6-9 litres per minute shower
- 4) 18ltr maximum volume dishwashers
- 5) 60ltr maximum volume washing machine

### **Internal Water use**

The whole development will store all surface water in a bund tank below the entrance path. This tank will have an overflow should it reach capacity to discharge into the mains system. This water generally though, will be filtered and re-used as brown water for all toilet flushing within the development.

### **Internal Water use**

The same water storage noted above will also be available for external use for irrigation to the gardens.

It will not be available at the front of the building, as it is the designers' intention to discourage the cleaning of cars on site and encourage car cleaning onto commercial sites that have regulated recycling of the waste water generated from the car washing.

### **External Water use**

The development will have external water butts located for all 4 houses in the rear gardens. These will have an overflow pipe to the on-site water storage of all surface water. It is only when the overflow from this on-site surface water storage reaches level that there will be any discharge into the Mains surface Water drainage.

## **C). Materials**

### **Environmental Impact of Materials**

By reclaiming and recycling all existing masonry materials on site this will ensure that the hardcore necessary for the development will have the lowest environmental impact possible for this material.

All materials specified will be assessed prior to ordering (where possible) to ensure they have acceptable levels of environmental impact compared to acceptable alternatives.

### **Responsible Sourcing**

All building materials and finishing elements will be appraised (where possible) to ensure they are sourced responsibly.

## **D). Surface Water Run Off**

### **Environmental Impact of Surface Water**

All surface water is to be collected and stored on site. By reusing the storm water and storing this on site will give valuable additional capacity to the mains system at exactly the time it is needed when the surge through heavy rain fall overloads the system leading to localised flooding.

## **E). Waste**

### **Waste Storage**

The proposal ensures that there is adequate storage for all non- recyclable and recyclable materials.

During construction the site is large enough to accommodate recycling of all masonry waste as hardcore.

## **F). Pollution**

### **Global Warming**

The proposal will be highlighting in their specification that all insulating materials must have a GWP rating greater than 5 (manufacture or Installation).

## **G). Health and wellbeing**

### **Day lighting**

The proposal ensures a balance through the use of day lighting thus maximising natural light to reduce as far as possible energy to light these new units.

### **Space Heating / Power Generation**

The units are all designed to have heat and power generation within the latest CHP domestic units that will be on the market at the commencement of building works. These units not only provide for the space heating but also generate 80 to 90% of all the electric required by the properties.

### **Sound Insulation**

The proposals will use largely solid masonry construction including concrete floors. This construction (whilst effective for airborne noise) will in addition have separation of these components through effective cavities and dampers (where practicable) at all points of connection to ensure that impact noise is also effectively suppressed.

### **Private Space**

Each unit of accommodation (excepting the 2<sup>nd</sup> floor maisonette) has external private space in the form of gardens or balconies. The only communal external space, is associated with the access way to the entrance. The main entrance has been designed as a unifying collector to ensure that the occupants perceive this area as being part of their private domain, but shared with only a small number of their neighbours. Due to our unpredictable climate this communal space protected from the external weather variations is an important facet of this proposal in developing a community within this development.

### **Lifetime Homes**

See separate document dedicated to this.

## **H). Ecology**

### **Ecological Value of Site**

The site has no specific ecological features.

Adjacent to the site lies a community garden, which the proposal has been designed to enhance by partly screening the tower block (that dominates the southwest skyline) whilst still retaining a significant garden area to adjoin this community garden.

By locating the development to the front of the site we avoid any possible disruption to the mature trees that are adjacent to the site on its northern boundary.

## **I). Management**

### **Considerate Construction Scheme**

The contract to construct the proposal will be let on the strict basis that the constructor undertakes to comply with these schemes requirements.

### **Security**

The proposal has a single point of access (garaging excepted) to not only encourage social interaction between occupants, but also to reduce security concerns.

### **Waste Management**

A site waste management plan will be in place during the home's construction, and adequate space has been allocated for waste storage during its use. This plan will ensure that all waste from the site will be stored in designated containers that identify where possible recycling of these grouped materials as opposed to the waste being put into landfill.

## **J). Home Office**

### **Home Working**

All Houses and Flats will have space suitable for a home office to be set up as noted in A) above.

**Donald Shearer**