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Project:	42 Caversham Road London, NW5 2DS	NMA:	1217
Purpose:	Sustainability Statement	Date:	09/11/2015

Sustainability Statement

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Introduction:

This report has been prepared to outline the sustainable design principles included within the proposed development at 42 Caversham Road.

These measures demonstrate how the proposals meet the council's Policy DP22 on promoting sustainable design and construction.

Sustainable Design Principles:

1. The layout of uses

There is currently an 11-unit residential building on the site. The planning application seeks approval for the following:

- Demolition of the existing building (approx. 825 sq. m GEA).
- Erection of a new development of 18 residential apartments ranging from 1 to 3 bedroom units, set over 6 storeys (approx. 1785 sq. m GEA), including a basement across the majority of the site.

The residential units are arranged around a series of courtyards to ensure external amenity space is maximised as well as improving the aspect from each unit. Flats are accessed off a secure communal corridor, whilst the 2 houses to the rear of the site benefit from shared external access.

2. Floorplates size/depth

Floorplates meet minimum space requirements whilst also being no more than 2x floor-to-ceiling height, or 5.2m, deep, allowing natural daylighting and ventilation to be achieved.

3. Floor to ceiling heights

All units from basement to third floor benefit from generous floor to ceiling heights of 2.6m. The upper floor of U15, located on the 4th floor of the development has a floor to ceiling height of 2.4m but benefits from excellent natural daylight and aspect.

4. Location, size and depth of windows

All rooms benefit from a total window area of at least 17% of the floor area. Due to the constraints of the site the majority of windows are located on the north and south facades and are set back by a half brick reveal.

5. Limiting excessive solar gain

In order to limit excessive solar gain, all windows will have solar control glazing, such as Pilkington's Suncool double glazing. This type of product results in a very low total heat gain whilst allowing extremely high light transmission, maximising thermal comfort in addition to maintaining aesthetics through minimal tinting. Samples will be submitted for approval.

In addition to this, all south facing windows will be fitted with venetian blinds internally. Internal blinds can significantly reduce summer solar gains[1] whilst allowing the occupant more control over their environment. The horizontal slats of this type of blind can be angled so that they reflect sunlight, reducing solar gain, but still allow plentiful daylight to enter the rooms.

Large deciduous trees exist along the street frontage and which typically block 80% of summer sunlight but only 30% in winter, therefore providing solar shading during summer months whilst still allowing solar gain in the winter.

[1] Taken from *The Environmental Design Pocketbook 2nd Edition*

6. Reducing the need for artificial lighting

As stated previously, all rooms benefit from a total window area of at least 17% of the floor area providing plentiful daylight to the units.

In addition, Average Daylight Factor calculations all exceed the minimum requirements reducing the need for artificial lighting. Please refer to schedule nos. 1217-NMP-XX-ZZ-SH-A-00902 - 923 for ADF calculations.

7. Shading methods, both on or around the building

The general layout of the development, around a series of courtyards, provides varying degrees of shading and cooling at different times of the day & year.

Deciduous shrubs and planters are proposed along the south facing street frontage which provide shading particularly during summer months.

8. Optimising natural ventilation

Trickle ventilation is to be provided to windows in all habitable rooms and, as stated previously, this form of natural ventilation has been optimised by maintaining a shallow floor plan within rooms.

All units are at least dual aspect so that cross ventilation can be achieved. A number of the units are duplexes, meaning they will also benefit from the stack effect.

With the except of bathroom and kitchen extracts, the development does not require any mechanical ventilation.

9. Design for and inclusion of renewable energy technology

The development benefits from photovoltaic panels to the third floor roof and rainwater harvesting providing water for external use and wash down of external & bin storage areas.

10. Impact on existing renewable and low carbon technologies in the area

There are not currently any renewable technologies on or adjacent to the site.

11. Sustainable urban drainage, including provision of a green and brown roof

For sustainable urban drainage details please refer to separate Surface Water Drainage Pro-forma. The majority of the proposal's roofs are to be extensive green roofs and in addition, the building's surrounding landscaping includes a number of planters to make use of water on site.

12. Adequate storage space for recyclable material, composting where possible

Space has been provided for the storage of recyclable waste. In addition, units with private gardens will have provisions to allow for composting. Units 17 & 18 are to have separate shared recycling storage.

13. Bicycle Storage

Secure bicycle storage space has been provided for 30 bicycles. Of this total, 26 spaces are provided within the common parts of the main block for Units 01-16. Units 17 & 18 have separate shared cycle storage providing space for 4 bicycles.

14. Measures to adapt to climate change

A number of strategies have been adopted in order to allow the building to adapt to climate change, including:

- All units benefit from natural ventilation
- Shading is provided by deep reveals and deciduous trees lining the south facade, reducing solar gain during the summer months

- The proposed development increases the quantity of shrubs and vegetation on site helping reduce surface water run off.
- All rooms have openable windows to allow for purge ventilation should overheating occur
- All units have been provided with external amenity space
- Green roofs and planters provide surfaces that enable water filtration

15. Impact on microclimate

Proposals are of a similar scale to adjacent buildings and therefore are unlikely to heavily impact on the microclimate of the area.

16. Level of insulation

To achieve the council's requirement of securing a minimum 35% reduction in regulated CO_2 emissions below the maximum threshold allowed under Part L 2013, substantial levels of insulation will be provided. Please refer to SAP report for details.

17. Choice of materials including responsible sourcing, re-use and recycled content

The building is to be constructed using a concrete frame with Metsec infill inner leaf and brick outer leaf.

Bricks are a durable, low maintenance building material with a high thermal mass capacity. Although the proposed bricks are new, due to bricks having a longer lifespan than any building and with the use of lime mortar, there would be an opportunity for them to be re-used in the future.

An insitu concrete frame is proposed as the main load-bearing structure. This method of construction results in a lightweight internal structure that can provide flexibility for other uses in the future should residential or use demands change. The concrete used for the in-situ concrete frame structure is to contain recycled aggregate.

The Metsec frame to be used allows 20% re-used materials added during the manufacturing process, in addition to 100% of the material being recyclable after use.

18. Airtightness

In order to achieve the reduction in CO_2 emissions stated previously, the proposed development is to have air permeability of less than $5m^3/h.m^2$.

19. Efficient heating, cooling and lighting systems

All lighting is to be energy efficient. Due to the nature of the development and the adequate natural ventilation achieved, no cooling systems are required.

Gas powered underfloor heating is proposed within all units. This is a more efficient way of heating spaces as it operates at a lower temperature than radiators and heat is distributed more evenly. Boilers are to be A-rated condensing combi boilers.

20. Effective building management system

As this is a residential development, each unit is to be managed individually by its occupants. Therefore a building management system is not required.

21. The source of energy used

As stated previously, the development benefits from photovoltaic panels to the third floor roof which would provide some electricity to the units. All lighting is to be low energy lighting and electrical appliances supplied are to be A-rated.

Gas is to be used to heat water used within the home and the underfloor heating system. All gas appliances supplied are to be A-rated.

22. Metering

Meters are to be located in an accessible communal area. Smart meters are also to be provided within each unit to allow occupants to monitor their energy usage.

23. Counteracting the heat expelled from plant equipment

Due to the nature of the development no major plant is required.

24. Enhancement of/provision for biodiversity

The existing site is completely built up, providing no provision for biodiversity. The proposed development provides green roofs and planters. These measures, in addition to the provision of bat and bird boxes, increase the biodiversity on the site.

25. Efficient water use

The development achieves a maximum internal water use of 105 litres per day. Please refer to schedule no. 1217-NMP-XX-ZZ-SH-A-00930 for calculations.

26. Re-use of water

Rainwater is to be collected for external use and wash down of external & bin storage areas.

27. Educational elements, for example visible meters

Smart meters are to be provided within each unit. In addition a home user guide will be produced that simply explains the controls and services for occupants to refer to when necessary.

28. On-going management and review

Following completion on site, a post-occupancy questionnaire will be conducted.