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Brendan Versluys Date: 22 March 2023

Camden Council

Our Ref: M22/PJ081.04

Your Ref: 2022/4791/P

**By email only:** [**brendan.versluys@camden.gov.uk**](mailto:brendan.versluys@camden.gov.uk)

Dear Brendan

**RE: DEMOLITION OF THE EXISTING HOUSE AND CONSTRUCTION OF A NEW HOUSE.**

**4 OAK HILL PARK LONDON CAMDEN NW3 7LG**

**OVERHEATING AND COOLING HIERARCHY**

This document is prepared in support of planning application 2022/4791/P relating to “*Demolition of the existing house and construction of a new house*.”

It is to be read in conjunction with the other supporting statements for the application. This report seeks to primarily address compliance of the proposals with Local Plan policy CC2 ‘Adapting to Climate Change’ and the supporting planning guidance ‘Energy efficiency and adaptation’. The planning guidance effectively identifies 6 stages to address cooling, as listed in bold italics below, with our design considerations on each of these measures noted as follows:

* ***Minimise internal heat generation through energy efficient design:***

Internal heat generation has been minimised in our designs by:

* Incorporation of low energy lighting throughout the building, greatly reducing heat gains.
* All hot pipework will be highly insulated.
* Openable fenestration has been greatly increase in the layout and elevational design to maximise natural ventilation.
* Ceiling heights have been increased on both levels to further promote natural ventilation.
* ***Reduce the amount of heat entering a building in summer:***

Solar gains are a passive form of heating from the sun’s radiation and are beneficial to a building during winter months as they provide an effective source of heat and reduce internal heating requirements. However, during warmer periods, solar gain needs to be controlled in order to mitigate the risk of overheating. This has been addressed in the proposed designs as follows:

* The angle of the sun has been considered in the design to optimise daylight whilst also largely cutting out solar gain. External louvers have been added on the south face of all glazing on the Front (South) Façade and a fixed brise soleil has been added above the staircase glazed enclosure and double height space windows to the courtyard on the North Elevation. The louvers are in some cases fixed and in other cases sliding or folding in front of fenestration to the South Façade to cut out all direct sunlight from entering the building when required. The louvers on the fixed brise soleil will be set to an angle which ensures that no direct sunlight enters the staircase. The design of the building’s fenestration has carefully considered orientation and window size in order to maximise daylight while still controlling excessive solar gain from direct sunlight.
* All fenestration will incorporate double glazing and low emissivity coatings with low “g” values to limit overheating without compromising light transmittance.
* The external walls are highly insulated, in part to mitigate the requirement for heating, but also to mitigate the amount of heat entering the building.
* The walls will have a light colour, in effect reflecting the suns rays.
* All roofs are highly insulated “green roofs” This serves to mitigate solar gain and to regulate internal temperatures. They will also serve to reduce the temperature of the surrounding external air.
* The design incorporates and internal courtyard, which provides optimal daylight with minimal direct sunlight.
* ***Manage the heat within the building through exposed internal thermal mass and high ceilings:***

This has been addressed in the proposed designs as follows:

* Greatly increase ceiling heights, combined with the proposed much larger, mainly full height openable fenestration, will provide for greatly improved natural ventilation.
* The ground floor level has been significantly lowered, which has enabled the internal floor-to-ceiling heights to be greatly increased. The existing Ground Floor Kitchen ceiling height is currently 2.58m, and the proposed is 3m.
* Similarly, the First Floor is largely around 2.29m, and the proposed is 2.8m.
* The benefits of thermal performance through increased thermal mass to regulated indoor temperatures and to aid internal cooling during the day has been considered in the design. The existing building envelope has a significant amount of lightweight construction – thin pot and beam floors, timber roof rafters and lightweight external wall cladding. The replacement design has increased thermal massing incorporating thicker in-situ concrete floor slabs, roof slabs and masonry walls.
* ***Passive ventilation:***

The design proposes greatly improved natural ventilation and higher ceiling heights as explained above.

* ***Mechanical Ventilation***

Essential mechanical ventilation has been addressed in the proposed designs as follows:

* It is proposed that the Kitchen has an extract fan to free air to the roof.
* Since the building envelope is in effect sealed - with a high degree of air tightness, the building regulation ventilation requirements for all spaces has been provided by means of a highly efficient Whole House Heat Exchange ventilation system, which will provide evenly distributed fresh internal air whilst ensuring that heat is efficiently exchanged from outgoing air to incoming air.
* The necessary bathroom a WC air extracts as required by building regulations have been combined with the above system.
* ***Active cooling:***

Passive heat gain reduction and cooling measures have been maximised in the proposed designs, as described above, and there is no current proposal for active cooling. However, further design development in due course may identify a residual need for some active cooling units in some of the spaces. In this event this will include:

* Modern, energy efficient Air Source Heat pumps.
* Modern, highly energy, low carbon efficient comfort cooling units (replacement the existing inefficient units).
* Highly insulated distribution pipework.
* The system will be controlled by smart thermostats and a Building Management System, which will intelligently optimise the energy use vs cooling benefit of the system.

Adding to the above we would also note the following:

The proposed design has an efficient thermal envelope which greatly reduces the need for space heating and cooling as heat transmittance through the thermal elements is reduced. Low air permeability rates will also reduce heating and cooling energy demand by reducing the volume of air that can penetrate the building. As part of a ‘fabric first’ approach, the building fabric has been carefully considered and specified to meet or exceed current Building Regulations minimum requirements. The building also adopts the use of Air Source Heat pumps and PV panels as part of the green strategy.

I trust that this explanation assists in considering the compliance of the scheme against the requirements of policy CC2 and the accompanying planning guidance document.

Yours sincerely



**IAIN WARNER BSc (Hons) DipTP MRTPI**

**SENIOR DIRECTOR**

For and On Behalf Of

TETLOW KING PLANNING