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Design & Access Statement

project **25 Kings Mews,**
London
WC1N

job no. 398km

date 16 February, 2012.

DESIGN AND ACCESS

1. Introduction

The existing building at 25 Kings Mews occupies the entire property and was used as a warehouse/storage facility. It is proposed to convert this to a single family mews home.

It is proposed to partially demolish the existing building and reconfigure the structure for a residential family home. The massing of the building has been designed not to exceed the scale of the existing building and will be constructed to the Passivhaus standard. The intention is to carefully create a refined, low energy, 3 bedroom single family home that is sensitive to its surroundings and to the mews typology. The new house will be only the second house in London to achieve the advanced Passivhaus certification (we designed the first, also in Camden) and will demonstrate compliance with the government's proposed low energy, 2016 Zero Carbon definition. The house will incorporate green roofs with native planting for biodiversity. Renewables will also be incorporated for water harvesting, recycling and water heating. All these requirements, including the need for high levels of insulation, avoidance of cold-bridging, and draught-free triple-glazing with heavily insulated frames, demand a careful, contemporary approach to architectural design using the fabric-first energy saving principals of the Passivhaus methodology.

With a craftsman like approach to the detailing of this new house, and the use of natural and traditional materials, we aim to create an attractive and interesting addition to the street. It is these same design qualities that have resulted in bere:architects receiving awards for elegant contemporary houses that have quickly become much-loved additions to the character of several London neighbourhoods.

1.1 Planning Background

There has been a series of planning applications for the site. The last successful planning application was for a larger residential redevelopment scheme that incorporated no 22-30 King's Mews:

Application 2009/0710/P
The development was not carried through and the properties have been individually sold off.

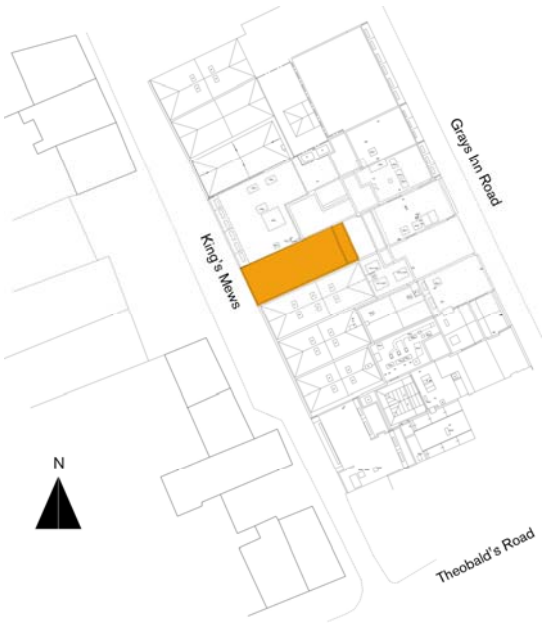
2. Description of site and context

King's Mews is located in the London Borough of Camden. The site is in the Bloomsbury Conservation Area but the property is not listed.

The site is 0.01 hectares. The site is currently fully occupied by a warehouse with a floor area of 174.8 m^2 spread over 2 storeys. The façade is constructed of machine made stock brick. The neighbouring buildings are predominantly low 2-3 storey mews buildings rising higher on both ends of the street. As is typical of mews, the neighbouring buildings are of varying style and construction. These buildings are predominantly storage buildings from the .mid 20th century also built of London stock. There are newer residential developments across the mews and at the corner of King's Mews and Northington Street.

The property is accessed directly from King's Mews. The building shares party walls on the sides and rear.

Existing Site highlighted in orange.



Site location highlighted in orange

3. Design Proposal and Planning Policy Context

3.1 Planning Policy Context

Throughout the design process we have been careful to design a house which is respectful of its context and adheres to local and national planning and development policies.

3.2 Proposed Use

The proposed use for the site residential accommodation.

3.3 Layouts

From an early stage in the design process the layouts were designed to create a home which would provide a sensitive street frontage while maintaining privacy for the occupants.

The floor plans have been developed to maximise natural day light. Economic use of space is central to the design with careful consideration of all the floor layouts.

3.4 Scale and massing

The scale and the massing of the house has been carefully considered to fit within the exsiting building mass and context of King's Mews.

3.5 Appearance

The proposed materials of London stock (precedent image below) have been selected for being sympathetic to the existing building fabric of the street and complement the brick of the adjacent buildings. While some contemporary design can be insensitive and even crude in the details, our delicately detailed approach delivers beautifully crafted buildings reflecting the craftsmanship of the surrounding building stock.

Camden council once wrote to us to say that it was this level of detailing in our previous work that convinced them that a contemporary building in our hands was acceptable for a site adjacent to a conservation area, where a different approach would not have been acceptable. Moreover in that particular case the same officer wrote to tell us that the very unusual quality of design would ensure that a precedent was not established, and upon completion, another officer announced that the result was even better than she expected. It is this careful and sympathetic approach which has enabled us to build some unusual but much-liked houses in sensitive locations.

It is proposed to use handmade London stock for the façade.

Proposed Elevation Within Street.

3.6 Roof Gardens

The new house includes for 30 m^2 of green space able to support substantial native plants and a native wild flower meadow roof. The proposal will include integrated bird and bat boxes.

The wild flower meadow roof will be covered with sufficient soil build up (at least 150mm) for wild flower planting. The extensive roof planting helps to improve microclimate and local ecology.

3.7 Structure

The intention is to work with the existing building structure, reinforced with a steel and timber frame to accommodate the changed floor layouts. Working with the existing structure will minimise the need for virgin construction material and reduce demolitions and time on site.

3.8 Energy and water conservation

As part of the design process we have completed an energy analysis for the property. The energy demand of the house has been calculated using PHPP (Passivhaus Planning Package) which is an advanced and highly accurate energy measurement software for buildings. This has allowed us to determine how much heat energy the dwelling will require once complete.

Primary heat demand (energy required to heat the house)

For the new house the primary heat demand has been calculated to be 15kWh/(m^2a). This tiny heat demand means that a traditional heating system can potentially be totally omitted from the design. The very small amount of heat required can be supplied through the fresh air supply making significant carbon savings.

To put this in context the Primary Heat Demand for some other building types are noted below:

a traditional Victorian Townhouse	= approx. 200-300 kWh/(m^2a)
a typical new build project	= approx. 100kWh/(m^2a)
a good new build project	= approx. 50kWh/(m^2a)
a Passivhaus project	= ≤15kWh/(m^2a)

3.9 Passivhaus Approach

Carbon emissions are the main cause of climate change (CLG, 2007), and have increased globally by 350% since 1960 (The World Bank CO^2 emissions, no date). A main source of carbon emissions is from housing, which was expected to account for 13% of all UK emissions in 2010 (CLG, 2008). Reducing this is a national priority, and the UK Government has now pledged that all new homes in the UK will be zero carbon by 2016 (CLG, 2006a). Central to implementing this are the Building Regulations, the Code for Sustainable Homes (the Code) and the government's proposed 2016 Zero Carbon definition . However, the Code only defines target energy use levels to be met, and does not specify the mechanisms to do this (CLG 2006b). Useful lessons can be learnt from the European PassivHaus standard which clearly defines design and construction principles (see Passivhaus Institut, no date) that have been proven to produce low energy buildings (Feist et al., 2005).

This house has been designed to the Passivhaus Standard. Passivhaus is a European approach, defined by physicist Wolfgang Feist, that requires a high level of insulation and a draft-free construction, and, to maintain a flow of fresh air in the winter when windows are closed, an efficient heat recovery ventilation system. This uses very little energy, whilst saving a lot of energy that would otherwise go to waste. Other forms of energy become viable alternatives to fossil fuels, meaning that a true **zero-carbon** building is achievable. It demands a particular approach to design and construction, and demands rigorous on-site testing during the building process.

The Passivhaus approach can be explained briefly under the following headings:

Insulation
Super-insulated walls, floors and roofs create an affordable, comfortable and healthy environment. In addition, low energy demands make the use of renewable energy supplies a realistic alternative to fossil fuels. Appropriately selected insulation will help to avoid over-heating in the summer months.

Avoiding thermal bridges
We are careful to avoid all thermal bridging in our designs, in accordance with the Passivhaus design standard. With attention to details, heat losses can be reduced by such a degree that a hot water boiler and conventional heating can be entirely eliminated.

Achieving draught free construction
We assist contractors to rigorously apply advanced construction techniques and testing.

Heat recovery ventilation
Our draught-free buildings improve air quality, firstly by using non-polluting natural materials, and secondly by using low-energy heat recovery ventilation systems to provide a continuous supply of fresh air warmed in winter by the air exhaled from the buildings.

Solar energy
The building will be able to derive a large proportion of its energy requirements from passive solar gain. In addition, a significant proportion of its water heating requirements will be derived from solar energy. PV mounted on the roof will also provide electrical energy.

Summer comfort
Automated solar shading will help avoid overheating in the summer. Night time fresh air circulation to cool thermal mass will further improve daytime comfort in summer months.

Water and health
We promote the advantages of the filtration of bathing and drinking water.

Rain water
Rain water will be stored in underground tanks for use in the building. This will reduce the risk of storm water flooding, and prevent contamination of the local ecology.

3.10 Passivhaus design

The form of the house has a direct relationship to the Passivhaus house requirements. We use the Passivhaus Planning Package (PHPP) from the very start of the design process to provide an energy parameter which can inform the decisions we make with regard to building form and orientation. For example, with Passivhaus dwellings a designer has to carefully manage all of the heat transmittance losses through the fabric of the house, with the useful solar gains and internal gains which can be harvested during the heating season. This is then carefully balanced with external shading devices to prevent over heating in summer, which have the added benefit of providing additional privacy.

3.11 Code for Sustainable Homes (CfSH)

This house will be designed to address the nine categories of sustainable design:

- Energy and CO2
- Emissions
- Water
- Materials
- Surface Water Run-off
- Waste
- Pollution
- Health and Well-being
- Management
- Ecology

The house has been designed to achieve a minimum of CfSH level 4 or 5 to be confirmed during detailed design.

The Passivhaus standard achieves an extremely energy efficient building fabric, able to meet the code level 6 building fabric performance criteria.

To comply with these high code levels, this design includes for solar thermal water heating, PV panels for onsite electricity generation, green roofs for biodiversity and to reduce rainwater run-off, low flow sanitary appliances for water conservation with a rainwater harvesting tank located under the lower ground floor, energy efficient lighting and highly environmentally friendly materials throughout. Natural day lighting has been carefully considered to limit the need for artificial lighting. In addition to these measures a bike store has been provided at the rear of the house and a separate bin and recycling store has been incorporated adjacent to the front door, for ease of use. It is the intention to fit highly visible smart meters within the entrance area to help the users manage the energy use of the house.

3.12 Zero Carbon

The house has been designed to demonstrate compliance with the government's proposed 2016 Zero Carbon definition.

3.13 Delivering Passivhaus and Zero Carbon

bere:architects successfully designed and built London's first Passivhaus in Camden; certified in April 2010. This contemporary house is surrounded by properties which date from the late 19th / early 20th century, in red brick with attractive Queen Anne revival details. This innovative, sustainable and progressive project was welcomed and encouraged by Camden councillors who felt that "...it complemented the character and appearance of the area." The project goes far beyond the required regulatory minimum standards exceeding part L 2006 by 70%. The house meets the carbon compliance limit for 2016 zero carbon homes. bere:architects are principally a design lead firm and the Camden Passivhaus has recently been shortlisted for the RIBA awards 2011 and is shortlisted for the British Home Awards 2011.

Street View of the Camden Passivhaus

Wild flower meadow, Camden Passivhaus

After completing London's first Passivhaus bere:architects went on to design two prototype Passivhaus dwellings funded by the Welsh Assembly Government, The Larch and the Lime Houses. The Larch house has recently also been certified as code for sustainable homes code level 6 and zero carbon. These houses have won numerous awards and short listings including the RICS awards 2011, Sustainable Housing Awards 2011, Exemplar Awards 2011, Sustain Magazine Awards 2011, Welsh Housing Awards 2010, Builder and Engineer Awards 2010 and Sustainability Awards 2010.

Garden View of the Larch Passivhaus

South elevation of the Larch and Lime Passivhaus dwellings

To enable us to deliver quality-assured low carbon buildings, we have developed in-house skills in building physics, and use software such as the Passivhaus Planning Package (PHPP), Heat 2, Therm and WUFI. These methods have enabled us, for example, to accurately predict the in-use energy consumption of our Camden Passivhaus; and design our zero carbon Welsh prototype to achieve overall negative energy costs.

Additionally we steadfastly carry out research to remain abreast of the latest European low carbon research and product developments. bere:architects are currently working on three government funded research case studies to monitor the in-use performance of the Camden Passivhaus, Welsh Passivhaus dwellings and our Mayville Community Centre, working in close collaboration with The University College London (UCL) and Cardiff University. Results obtained so far show that the buildings are all performing to their design targets.

As well as receiving training, we give free training to others in collaboration with organisations such as the RIBA and BRE, and also give numerous lectures around the UK to universities and other organisations.

4. Access

There will be level access to the property directly from King's Mews.

4.1 Statement of Intent

We fully intend to comply with all current regulation and good practice. The project aims to provide accommodation for all sectors of society by being equally accessible in terms of age, disability, ethnicity and social grouping. In achieving this goal, our proposals have been designed to successfully comply with Part M regulations and where possible we will comply with all of the lifetime homes requirements.

4.2 Specific Access Issues

Entrance:

There will be level access from the street.

Horizontal circulation:

The floors within the new house are level and the threshold between the building and front path are level, providing level access into the house.

All light switches will be positioned at 1200mm above floor level and door handles at 1000mm. Plug sockets will be located 450mm from the finished floor level

Vertical circulation:

Stairs will, where possible, comply with life time homes guidance.

Bike parking:

A bike store has been provided for two bikes at the rear of the house adjacent to the side access door to make it easily accessible for regular use.

Parking:

Due to the convenience of the location and abundant public transport, the client would like a car free home as encouraged in Camden Core Strategy 11.

4.3 Accepted Design Guidance

We do not foresee any deviation from the accepted design guidance.

5. Sources

We have referred to:

- Approved Document Part M
- www.lifetimehomes.org.uk
- National Planning Policy PPS1
- Camden Local Development Framework and Core Strategy
- CLG (2006a). *Building a Greener Future: Towards Zero Carbon Development.* Available at: http://www.communities.gov.uk/documents/planningandbuilding/pdf/153125.pdf (Accessed: 13 January 2011).
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- CLG (2008). *Housing and planning: The crucial role of the new local performance framework.* Available at: http://www.communities.gov.uk/documents/localgovernment/pdf/741935.pdf (Accessed: 13 January 2011).
- DECC (2011). The Carbon Plan. Available at: http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/carbon_plan/carbon_plan.aspx (Accessed 15 April 2011)
- The World Bank CO2 emissions. (no date). *CO2 emissions (kT).* Available at: http://data.worldbank.org/indicator/EN.ATM.CO2E.KT (Accessed: 19 November 2010).