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Sustainability Statement

Project: 44 Hatton Garden, EC1N 8ER	Our job no: 3260
Date of note: 18th July 2007	Our file ref: A34.01

44 Hatton Garden Application 2006/5841/P
Condition 4

This condition requires an appraisal at design stage to achieve a 'very good' Ecohome rating including the use of 10% renewables for energy provision and measures to enhance biodiversity. The following studies have been carried out and on the basis of the following we seek a discharge of the condition. It is noted that a post construction review is requested prior to occupation and we confirm that this will be undertaken.

Biodiversity.

It is proposed to use a brown roof at the top level of the building. A brown roof makes use of thin layer of crushed rubble and gravel to create an habitat which is ideal for colonisation by spiders and other insects which in turn provide a feeding site for insectivorous birds including the Black Redstart which is a 'fully protected species' and is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). It is particularly under threat in London and the Laban Dance Centre which won the 2003 RIBA Stirling Prize has a brown roof specifically to encourage this species.

Ecohomes Very Good Standard

The objective of the Ecohomes 'very good' standard has been accepted and at the design stage the project is on course to achieve this standard. The current assessment is attached and from this it can be seen that the design is rated 'good' at 51.10%, to achieve 'very good' (58%) a further 6.9 points will be necessary. It is anticipated that this will be achieved through actions by the contractor including waste management, dust control and similar measures. The short list of contractors have been interviewed and have confirmed familiarity with this procedure and agreement to take the required measures. The design team will continue to seek improvements in the rating and it is considered that the objective of an assessment of the design with the objective of achieving very good standard has been undertaken as required by condition 4.

Renewable sources of energy and sustainability.

With regard to sources of energy the approach adopted has been to reduce the energy requirement of the building by a factor far in excess of the 10% of the energy requirement of the building conversion.

Not all sites lend themselves to the application of broad energy conservation standards. This applies particularly to retained structures where it is argued in Context (Quarterly publication of the Institute of Historic Building Conservation) 99 May 2007 that the embodied energy used in the construction of a building should be taken into account in determining its future. The publication states that the benefit of the retention of energy in a retained structure must be taken into account in assessing its energy profile.

An assessment of renewable sources of energy has been undertaken in accordance with the requirements of the Ecohome scoring system and it has been shown that with the existing building these are not viable.

Within the city wind turbines and pv(photo voltaic) panels are either non productive or can only provide a limited assistance with energy supplies due to air flow conditions and limited space for pv panels. With an existing building particularly where the lower floors are retained in current occupancy and use it is usually not feasible to adopt geothermal sources of energy and thus the ability to meet 10% renewable sources of energy is limited.

An holistic view of sustainability and energy conservation in particular will take account of a wider range of issues including embodied energy.

Detail calculations of the embodied energy in a building is possible but would require a very detailed analysis of either the existing or the replacement building. A simpler assessment is to take account of the embodied CO_2. Howard's paper Embodied Energy and consequent CO_2 in Construction 1996 as reported in Building Sustainability in the Balance 2004 provides a general standard where an existing office building would produce Kg CO_2/m^2 of 500-1000. Thus a building of 850 sq m could represent between 425,000 and 850,000 Kg of carbon dioxide. Based on the SAP (Standard Assessment Procedure) ratings the residential conversion has a Carbon Dioxide footprint of 17,239 Kg per annum. Thus the energy savings achieved by retaining the existing structure substantially exceed 10% of the energy requirements of the residential units even if amortised over 100 years.

The building has been found to be constructed of mass concrete. In practice this would have a significantly higher disposal cost in terms of energy used then a simple masonry building and it will require significant insulation. However in the longer term it has significant benefits as with higher daily temperatures the additional thermal mass will enable it to even out extreme temperatures and provide the possibility of night time cooling dependent on the occupants' management of the premises.

Locality and transport also makes a significant impact on the energy consumption of the building and its occupants. Lovelock has argued that this must be taken into account in considering the overall energy picture. In this instance the building is in a central area and well located to minimise transport requirements. The absence of parking related to the building will encourage the use of public transport and the change of use will reduce the number of daily journeys for employment. Thus there is a reduction in the total energy consumption. Calculations in Sustainability in the Balance indicate that per 10sq m the transport energy use from a commercial building would be in the order of 3,792 Kg CO_2 over a ten year period while that of a building converted to apartments would be 525 Kg CO_2. For a 850 sq.m. building the saving in energy used for transport is 3570 Kg CO_2 per annum representing 20% of the annual energy consumption.

Thus the combined effect of the change of use and retention of the existing structure has a dramatic effect in reducing energy and carbon dioxide footprint far in excess of any potential for renewable energy sources.

Apart from direct energy consumption there are other related matters where environmental sustainability can be enhanced.

Water run off
With a limited roof area and no open space for soakaways or Sustainable Urban Drainage systems there is only limited opportunity for managing water run off. Equally it is not a major item in the building profile but the use of a brown roof will slow down water run off and this will be supplemented by the introduction of water butts at the upper balcony levels.

Water usage
Water will be managed to reduce use by the specification of spray taps and similar fixtures.

Waste management. Apart from the segregation of waste by the users the change of use provides some benefits in the types of waste produced. Natural Step has identified the pollution arising from the disposal of electronic equipment in particular computer key boards. The existing office use will, by its nature, produce considerably more of this type of waste than the residential use proposed.

Construction waste can also be managed and the contractor will wherever possible be instructed to manage his waste production and make use of recycling of materials. All the contractors interviewed have confirmed their intention to use a skip company which provides a waste sorting and recycling service. In addition by ordering to size and where ever possible reducing cut offs the amount of waste produced will be reduced.

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