NimbusRose 70 Cowcross Street, London EC1M 6EL

CODE FOR SUSTAINABLE HOMES

PRE-ASSESSMENT

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SUSTAINABILITY REPORT

at

72 - 76 Eversholt Street, London. NW1 1BY

(Proposed Rear Residential Block for 6 Flats)

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1.0 Summary

(i) This report has reviewed the options to meet the Camden Councils Unitary Development Plan, part of the GLA London policy which asks for a development sustainability appraisal.

(ii) The report demonstrates the initiatives and proposals for this development to achieve a Level 3 rating in the Code for Sustainable Homes pre-assessment through sustainable design and improvement in Part L of the Building Regulations, by both carbon saving and the use of renewables.

(iii) The use of highly efficient boilers (which qualify for the ECA) and improved thermal performance of the building fabric has ensured that the design is carbon efficient.

(iv) A summary of the Carbon Performance is as follows:

- An estimated carbon emission to meet Building Regulations is 11.16 tonnes of carbon per annum.
- Carbon emissions that will be offset with renewables would be 1.12 tonnes of carbon per annum
- The estimated actual carbon emissions for the development is 10.04 tonnes, which helps achieve a Level 3.

2.0 Introduction

(i) A Detailed Planning Application is to be submitted by Charles Khoo Architects for the erection of 6 mixed, 1 to 3 bedroom residential apartments to rear of 72 – 76 Eversholt Street in Camden, London.

(ii) The development consists of a single adjoining, 5 storey residential block of 6 mixed 1 to 3 bedroom flats. The two Ground / Lower Ground units have access to individual courtyards, and the remaining flats have access to a communal roof terrace.

(iii) The development is to be built to comply with the 2006 Part L Building Regulations, achieving the minimum requirements for the energy usage / carbon emissions and Building Fabric U-values.

(iv) In accordance with Camden Council's requirement to implement sustainable measures within the development (as defined in the Unitary Development Plan), the proposed development has been assessed using the Communities and Local Government Code for Sustainable Homes Rating; aiming to achieve a minimum Level 3 rating.

(v) With regard to Renewable Energy and Sustainability; Camden Council expects major developments of 1000m^2 or 10 housing units or more to incorporate renewable energy production equipment to provide at least 10% of predicted energy requirements, by means of on-site renewable energy. The development consists of only 6 units and therefore does not apply.

(vi) For a full understanding of the scheme, it is essential that this report is read with the drawings provided by Charles Khoo Architects (Drawings number: 244/01 - 244/04, 244/01/A - 244/04/A, 244/P1A - 244/P11A). There are no changes to existing drawings.

(vii) By virtue of the Project being at Planning stage, the scheme is in the early parts of design. With this in mind there is the opportunity to further develop and detail the scheme with the sustainability issues.

(viii) One of the drivers of the design will be to implement sustainable options which are practical for the proposed development. Those elements that will either be implemented or considered have been described within this sustainability report.

(ix) As suggested by LBC Planners, the amended report covers an upgrading in the external walls construction by adopting external brick / masonry render, insulated cavity and internal structure of timber frame (max. 5 storeys) to achieve an A rating (Category 3 - Materials, page 13). This increases the total score achieved on the Code for Sustainable Pre Assessment from 61 to 63 points, as per Section 4.0, Item (xiv).

3.0 Renewable Energy Sources

(i) Camden Council's renewable energy policy (in accordance with the 'London Plan') states that for a new development of 1000m^2 floor area or 10 units or more; renewable energy technology is to offset a minimum 10% of the developments CO_2 emissions unless it can be demonstrated that this is not practical / viable for the development. The Eversholt Street development consists of 6 units' total, and is less than 1000m^2, therefore the 10% requirement will not apply to this project

(ii) Although not a requirement for 6 units, to demonstrate a firm commitment to Camden Council's sustainable development strategy this development aims to implement a renewable technology to offset 10% of the carbon emissions. A number of renewable technologies have been considered, based on the development's location and the practicality of the available technologies; the following describes examples that have been considered and rejected;

- Ground Source Heat Pump (GSHP) - would be difficult to physically implement as there isn't sufficient space / depth to dig a borehole or trenched system. Furthermore, GSHP's are not considered to be cost effective due to the high capital cost of drilling the boreholes and the respective long payback period
- Biofuel Heating / Hot Water - Biofuels have been currently precluded, due to problems associated in deliveries, fuel storage, reliability of fuel chain and fuel costs
- Wind Energy - with regard to wind turbines, the possible noise and aesthetical problems associated with them, do not currently make them suitable for this project

(iii) This development therefore aims to achieve Camden Councils Renewable Energy Policy target and incorporate solar thermal panels within the heating / hot water system to improve efficiency and reduce the developments CO_2 emissions by 10%

(iv) From CIBSE Part F Rule of Thumb values for residential dwellings, the following can be demonstrated for residential energy consumption:

	kWh/m²/yr	kgCO2/m²/yr
Hot Water Services	27	6.84
Heating & gas appliances	24	4.56
Electricity	36	11.61
TOTAL	87	23.01

(v) Achieving 10% renewable energy target would require 2.3kgCO_2/m^2/yr, equating to 1,012 kgCO_2/yr to be offset by the solar thermal panels

(vi) Solar Thermal panels generate on average 1250 kWh/m^2/yr. For a typical natural gas fired condensing boiler the emission rate is 0.192 kgCO_2/kWh of useful heat; therefore to offset 1,012 kgCO_2/yr (this would necessitate in 4.22 m^2 flat or south facing roof space to house the panels, in a location where there is minimal over shading).

(vii) At an estimated installed cost of £800 / m^2 , this solar thermal system would cost £3,375.00

4.0 Code for Sustainable Homes

(i) The Code for Sustainable Homes Assessment can be found in the Appendix at the end of this report

(ii) The Code for Sustainable Homes Assessment comprises of nine main categories where credits are awarded. The categories and percentage of total score are as follow:

• Energy and CO2 Emissions	29.00
• Water	6.00
• Materials	24.00
• Surface Water Run-off	4.00
• Waste	7.00
• Pollution	4.00
• Health and Wellbeing	12.00
• Management	9.00
• Ecology	9.00

(iii) In order for the proposed development to achieve Camden Councils Level 3 target of the Code for Sustainable Homes; it is required to obtain a minimum of 57 points total and achieve the mandatory minimum requirements for development CO_2 emissions and maximum indoor water consumption (litres per person per day)

(iv) Level 3 Mandatory Requirement for the development emission rate states that "a minimum 25% reduction in the dwelling emission rate (DER) over target emission rate (TER)". This can be achieved through:

- ✓ Improved Building Fabric U Values (for walls, windows (glazing), floor and roof) and Air Permeability;
- ✓ Highly efficient heating system technologies (which qualify for the Enhanced Capital Allowance scheme, ECA);
- ✓ Energy efficient fittings for lighting (compact fluorescents / Light Emitting diodes; LEDs) and appliances (energy efficient labelled fridge / freezer, washing machine, dish washer etc)

(v) Level 3 Mandatory Requirement for development maximum indoor water consumption rate states that no more than "105 litres per person per day" should be used. This target can be achieved through:

- ✓ Energy efficient taps / showers and appliances (washing machines / dish washers)
- ✓ Reducing water capacity of bathtub
- ✓ Rain water harvesting / Gray Water Recycling

(vi) The true carbon saving these initiatives will achieve can be concluded during detailed design stage using the government approved Standard Assessment Procedure (SAP)

(vii) The developer will aim to provide responsibly sourced materials with the proposed rating in order to achieve the required points. From experience it is understood that it very difficult to ensure that materials used are responsibly source and therefore the minimum score can be achieved in the responsible sourcing of materials code category

(viii) The development Surface Water Run-Off is to comply with the Interim Code of Practice for Sustainable Drainage System as mandatory requirement, however the development is to incorporate BUTTS for water harvesting instead of SUDS discharge prevention for rainfall depths of 5mm therefore no points are achieved for this section. The development is in Flood Zone 1, which achieves 2 credits

(ix) Maximum score has been achieved in the Waste category due to the mandatory elements that are to be developed (i.e. internal and external storage for recyclable and non recyclable waste). It is expected that the contractor will provide a Site Waste Management scheme. Individual lower ground units are to be provided with home composting, however this will be private and not organised with the local authority

(x) Particular consideration must be taken at detail design stage to ensure that the committed points are scored in the Pollution category

(xi) Health and Wellbeing is currently giving a fair score with the scheme not providing the average day lighting in the different rooms. On the other hand the dwelling has been assessed on lifetime homes principles and outdoor space is provided as required.

(xii) In order to achieve the average score in the Management category the developer will provide tenants with a home user guide. The employed contractor is to be part of the Considerate Constructors Scheme, who will also report and manage energy use / CO_2 emissions during construction stage. The architect is to appoint a crime prevention design advisor in order to provide physical security to the site.

(xiii) In the Ecology category, points can be scored by default due to the low ecological value of the existing land; however there is to be no ecological enhancement, or requirement for protection of ecological features or a change in ecological features. The building footprint however is to be improved greatly.

(xiv) The total score achieved on the Code for Sustainable Pre Assessment is 63 points which allows the apartments to be built to the Level 3 of the Code.

5.0 Conclusion

(i) The Code for Sustainable Homes pre-assessment has achieved the Level 3 requirement.

(ii) The development aims to incorporate a minimum of 4.22 m^2 solar thermal panels on the roof to achieve Camden council's renewable obligation.

(iii) Heating to the development is to be provided with highly efficient gas fired boilers which qualify for the Enhance Capital Allowance scheme. Together with improved building fabric and build, the development is expected to achieve a minimum CO_2 emission saving of 25%.

6.0 Appendix

CODE FOR SUSTAINABLE HOMES PRE-ASSESSMENT

Code for Sustainable Homes Pre-assessment

Categories of Environmental Impact	Credits in Category (% of Tot. Categories)	Code Categories	Available Credits	Credits Achieved	Code Criteria	Design Stage Evidence	Post Construction Stage Evidence
Category 1							
Energy and CO2 Emissions	29 (36.40%)	Dwelling Emission Rate	15	5	Mandatory Level 3 Requirement:- 25 % Improvement of DER over TER		
		Building Fabric	2	2	Heat Loss Parameter (HLP) ≤ 1.10		
		Internal Lighting	2	2	≥75 % Dedicated energy efficient internal fittings		
		Drying Space	1	1	Drying line availability		
		Energy Labelled White Goods	2	2	A+ & A rating EU Energy Efficiency Labelling Scheme		
		External Lighting	2	2	Dedicated energy efficient external fittings and adequately controlled		
		LZC Technologies	2	1	10-15% energy is supplied from LZC Technologies		
		Cycle Storage	2	2	2 Cycle storage for every two dwellings		
		Home Office	1	1	Sufficient space for Office room in home		
Category 2							
Water	6 (9.00%)	Indoor Water Use	5	3	Mandatory Level 3 Requirement:- Water consumption (≤ 105 litres/person/day)		
		External Water Use	1	1	Rainwater collection systems		

Category 3

Categories of Environmental Impact	Credits in Category (% of Tot. Categories)	Code Categories	Available Credits	Credits Achieved	Code Criteria	Design Stage Evidence	Post Construction Stage Evidence
Materials	24 (7.20%)	Environmental Impact of Materials	15	8.5	Mandatory Level 3 Requirement:- Material Green Guide B rating	• Roof – A Rating – 2 • External Walls – A rating – 2 • Internal Walls – A Rating – 2 • Floors – A Rating – 2 • Windows – C Rating – 0.5	
		Responsible Sourcing of Materials -->					
		Basic Building Elements	6	0	80% of materials responsibly sourced		
		Finishing Elements	3	0	80% of finishing elem. responsibly sourced		

Category 4

Surface Water Run-off	4 (2.20%)	Management of SWR from dev	2	0	2 credits available for using SUDS		
		Flood Risk	2	2	Flood Zones 1. TBC Environmental agency not able to advise the zone.		

Category 5

Waste	7 (6.40%)	Storage of non-recyclable waste and recyclable household waste	4	4	Mandatory Level 3 Requirement:- Internal and external storage for recyclable and non recyclable waste		

Categories of Environmental Impact	Credits in Category (% of Tot. Categories)	Code Categories	Available Credits	Credits Achieved	Code Criteria	Design Stage Evidence	Post Construction Stage Evidence
		Construction Site Waste Management	2	2	Mandatory Level 3 Requirement:- Monitoring + reporting of on-site waste		
		Composting	1	0	Home composting facilities need to be organised with the local authority		
Pollution	4 (2.80%)	Global Warming Potential of Insulants	1	1	All insulated Materials have GWP < 5		
		NOx Emissions	3	3	Heating - nitrogen oxides emissions ≤ 70 mg/kWh		
Category 7							
Health and Wellbeing	12 (14.00%)	Daylighting	3	2	Average daylighting factors for rooms		
		Sound Insulation	4	1	Airborne insulation 5dB higher /Impact sound insulation 5dB lower		
		Private Space	1	1	Private/semi private outdoor space provided		
		Lifetime Homes	4	4	Dwelling assessed on lifetime homes principles		
Category 8							
Management	9 (10.00%)	Home User Guide	3	3	Provision of user guide on efficient home operation		
		Considerate Constructors Scheme	2	2	Commitment to Best Practice CCS		

Categories of Environmental Impact	Credits in Category (% of Tot. Categories)	Code	Available	Credits	Code	Design Stage	Post Construction Stage
		Categories	Credits	Achieved	Criteria	Evidence	Evidence
		Construction Site Impacts	2	2	Monitor and report on energy use/CO2		
		Security	2	2	Crime Prevention Design Advisor		
Ecology	9 (12.00%)	Ecological value of site	1	1	Credits awarded for Low Ecological Value		
		Ecological enhancement	1	0	Appoint Qualified Ecologist to enhance site		
		Protection of ecological features	1	0	Existing features protected during site works		
		Change in ecological value of site	4	0	Overall change in species per hectare is neutral		
		Building footprint	2	2	Ratio of Internal Floor Area : Ground Floor Area		

	Credits Available	Credits Achieved
Total	104	63
%	100%	61%

Note: The Code for Sustainable Homes target of Level 3 is 57 credits, therefore Eversholt Street has bettered the requirement by 6 credits.