THE CODE FOR SUSTAINABLE HOMES (PRELIMINARY ASSESSMENT)

11 Netherhall Gardens, London NW3

PREPARED ON BEHALF: PKS Architects JULY 2009 Rev.A

> PREPARED BY: DAN HILSDON HILSDON HOLMES LIMITED

Butterbee House, Launceston Road, Callington, Cornwall PL17 8DS Tel/Fax: 01579 382202 Mobile: 07748 761497 hilsdon.holmes@btinternet.com

Contents

1.0	Introduction	Page	3
2.0	Summary to achieve Code Level 3		
2.1	Energy & Carbon Dioxide Emissions	Page	4
2.2	Water	Page	6
2.3	Materials	Page	7
2.4	Surface Water Run-off	Page	8
2.5	Waste	Page	9
2.6	Pollution	Page	10
2.7	Health & Well-Being	Page	11
2.8	Management	Page	12
2.9	Ecology	Page	13
3.0	Conclusion	Page	14
4.0	Appendix A – CSH pre-assessment estimators		

Appendix B – EcoHomes pre-assessment estimator

1.0 Introduction

This report has been prepared for PKS Architects to identify the details to be met in achieving Level 3 under the Code for Sustainable Homes (May 2009 version) for the five new build dwellings and 'Excellent' under EcoHomes 2006 for the four refurbishment dwellings at their 11 Netherhall Gardens development in London NW3.

Since the Code assessments are for each dwelling type, Appendix A contains pre-assessment estimators for each flat type which make up the new-build flats within the building - this illustrates compliance across the range of property types present at the site. This report should be read in conjunction with these pre-assessment estimators, together with the CSH Technical Guidance and CSH Evidence requirement summary.

The Code for Sustainable Homes is not able to assess the four refurbishment flats and so these are to be assessed under EcoHomes. An EcoHomes pre-assessment estimator for the four refurbishment dwellings is therefore included in Appendix B to demonstrate that these refurbishment dwellings achieve an 'Excellent' rating under EcoHomes 2006. Many of the issues are common between the Code for Sustainable Homes and EcoHomes but the resultant scoring sometimes differ – the specification in most areas is common to all apartments within the block.

SAP 2005 assessment information is not available at present - when available, they must demonstrate the mandatory 25% improvement over Building Regulations Part L1a standards for each dwelling type. The energy consultant has advised that the four refurbishment flats will all achieve CO_2 emissions of 15kg/m²/yr and so these score accordingly under the EcoHomes assessment.

The following drawings were available and form the basis of the report: - 000-01 Rev.-, 001-001 Rev.-, 001-101 Rev.-, 001-102 Rev.-, 001-103 Rev.-, 001-104 Rev.-, 001-105 Rev.-, 001-110 Rev.-, 001-111 Rev.-, 001-112 Rev.-, 001-113 Rev.-, 001-114 Rev.-, 001-115 Rev.-, EX01 Rev.-, EX02 Rev.-, EX03 Rev.-, Basement Plan (No drawing no.).

The report has been carried out by Dan Hilsdon of Hilsdon Holmes Limited. Both company and assessor are accredited by the BRE to carry out such assessments.

2.0 Summary to achieve Code Level 3

2.1 Energy and Carbon Dioxide Emissions

This category considers features of the new homes which are aimed at reducing the energy consumption and therefore the CO₂ emissions from the dwelling either directly or indirectly:

- Ene 1 DER as defined by 2006 Building Regs.
- Ene 2 Building Fabric
- Ene 3 Internal Lighting
- Ene 4 Drying Space
- Ene 5 Energy Labelled White Goods
- Ene 6 External Lighting
- Ene 7 Zero or Low Carbon (ZLC) Energy Technologies
- Ene 8 Cycle Storage
- Ene 9 Home Office

ENE1 Dwelling Emission Rate – to limit emissions of carbon dioxide (CO_2) to the atmosphere arising from the operation of a dwelling and its services.

The improvement required for Level 3 is an improvement in energy efficiency of 25% over the notional 'just compliant' TER. The SAP 2005 assessments once available as the scheme evolves must demonstrate the mandatory 25% improvement over L1a for all dwelling types and so yields five of the fifteen credits under this section.

(5 / 15 credits)

ENE2 Building Fabric – to future proof the efficiency of dwellings over their whole life by limiting heat losses across the building envelope.

The SAP 2005 assessments once available provide the data for this section – it is highly likely that these will reflect an HLP of less than 1.1 for all flats which achieves both credits.

(2 / 2 credits)

ENE3 Internal Lighting – to encourage the provision of energy efficient internal lighting, thus reducing the CO₂ emissions from the dwelling.

At least 75% of internal lighting must be provided by dedicated low energy lighting within the homes. This must be detailed on the drawings and in the specification together with manufacturer confirmation of the dedicated light fittings. (2 / 2 credits) **ENE4 Drying Space** – to provide a reduced energy means of drying clothes.

Appropriate clothes drying facilities must be provided to all dwellings fully meeting the criteria. (1 / 1 credit)

ENE5 Energy Labelled White Goods – to encourage the provision or purchase of energy efficient white goods, thus reducing the CO_2 emissions from appliance use in the dwelling.

All white goods considered under this section where provided are to be fully compliant and guidance on purchasing white goods must be provided to the occupiers. (2 / 2 credits)

ENE6 External Lighting – to encourage the provision of energy efficient external lighting, thus reducing the CO₂ emissions associated with the dwelling.

External & communal space lighting must be dedicated energy efficient fittings with appropriate controls. Security lighting where fitted must also be compliant or if not provided the second credit is achieved by default. (2 / 2 credits)

ENE7 Low or Zero Carbon (LZC) Technologies – to reduce carbon emissions and atmospheric pollution by encouraging local energy generation from renewable sources to supply a significant proportion of the energy demand.

The energy consultant has confirmed that a compliant feasibility study will be provided to demonstrate that at least 15% of the overall energy consumption will come from Renewable / Low Emission technologies and this will be supported by the required SAP input. (2 / 2 credits)

ENE8 Cycle Storage – to encourage the wider use of bicycles as transport by providing adequate and secure cycle storage facilities, thus reducing the need for short car journeys.

Cycle storage is currently indicated in the basement plan and must provide one compliant space for the 1-bed flat, and two for each of the 2- and 3-bed flats. Two credits taken accordingly. (2 / 2 credits)

ENE9 Home Office – to reduce the need to commute to work by providing residents with the necessary space and services to be able to work from home.

Home office facilities should be provided to every dwelling. These would feature in the smallest bedroom for the two- & three-bed flats and in the living room for the one-bedroom flats. The facilities consist of a single BT point (the site benefits from broadband availability) together with two appropriately-placed double power sockets. (1 / 1 credit)

2.2 Water

This category considers water-saving features of the home both internally and externally:

- Wat 1 Internal Potable Water Consumption
- Wat 2 External Potable Water Consumption

WAT1 Indoor Water Use – to reduce consumption of potable water in the home from all sources, including borehole well water, through the use of water efficient fittings, appliances and water reducing systems.

This mandatory daily consumption level of less than 105 litres per person is required for Level 3. The following sanitaryware / brassware features meet this mandatory requirement and at less than 90 litres per person per day goes further to achieve four of the five credits: -4/2 litre wc cisterns, basin taps of 3 litres per minute flow rate, shower heads with a flow rate of 6 litres per minute flow rate, shaped bath with capacity to overflow of no more than 95 litres and kitchen tap with maximum flow rate of 5 litres per minute. The white goods provided must also be best practice for water consumption.

(4 / 5 credits)

WAT2 External Water Use – to encourage the recycling of rainwater and reduce the amount of mains potable water used for external water uses.

No credits are available under this section due to the presence of the indoor swimming pool. (0 / 1 credit)

2.3 Materials

This category focuses on features of the development which can reduce atmospheric pollution:

- Mat 1 Environmental Impact of Materials
- Mat 2 Responsible sourcing of Materials: Basic Building Elements
- Mat 3 Responsible sourcing of Materials: Finishing Elements

MAT1 Environmental Impact of Materials – *to encourage the use of materials with lower environmental impacts over their life cycle.* Wherever possible the key construction elements should achieve an 'A+ to D' rating under the 'Green Guide for Housing' specification. The proposed construction must achieve this for at least three of the key construction elements under this mandatory section. (7 / 15 credits)

MAT2 Responsible sourcing of Materials: Basic Building

Elements – to recognise and encourage the specification of responsibly sourced materials for the basic building elements. All materials used within the main construction elements are considered and as such must be demonstrated as being responsibly sourced. For timber materials these must be certified under a Chain of Custody scheme – preferably FSC scheme. Non-timber materials must have an Environmental Management System (EMS, e.g. ISO 14001) for both the manufacturing process and for the extraction of raw materials. Four of the six credits available have been taken to allow for the different tier weightings. (4 / 6 credits)

MAT3 Responsible sourcing of Materials: Finishing Elements –

to recognise and encourage the specification of responsibly sourced materials for the finishing elements.

Again all materials must be demonstrated as being responsibly sourced. Two of the three credits available taken. (2 / 3 credits)

2.4 Surface Water Runoff

This category considers the site proposals attenuation of surface rainwater run-off together with the risk of flooding present on the site:

- Sur 1 Reduction of Surface Water Runoff from site
- Sur 2 Flood Risk

SUR1 Management of Surface Water Run-off from

developments – to design housing development's which avoid, reduce and delay the discharge of rainfall to public sewers and watercourses. This will protect watercourses and reduce the risk of localised flooding, pollution and other environmental damage. In order to score under this mandatory section the storm water runoff must discharge via a compliant form of attenuation and engineer confirmation meeting the criteria must be provided – it is vital that compliance of the mandatory element is fully confirmed at design stage by the consulting engineer. Both credits have been taken accordingly. (2 / 2 credits)

SUR2 Flood Risk – to encourage developments in low flood risk areas, or to take measures to reduce the impact of flooding on houses built in areas with a medium or high risk of flooding.
The site's annual probability of flooding is assessed under this credit.
Engineer confirmation of this is to be provided. (2 / 2 credits)

2.5 Waste

This category considers the waste generated both when the house is occupied in use and during the construction phase. It seeks to recognise recycling and composting efforts and to minimise waste.

- Was 1 Household Waste Storage and Recycling Facilities
- Was 2 Construction Site Waste Management
- Was 3 Composting

WAS1 Storage of non-recyclable waste and recyclable

household waste – to recognise and reward the provision of adequate internal and external storage space for non-recyclable waste and recyclable household waste.

The local authority operates a compliant kerbside collection scheme for recyclable materials in this area. Appropriately-sized internal recycling bins should be provided within a dedicated location to each dwelling. Communal bin stores must include recycling bins in accordance with local authority requirements. These features combine to score all of the four credits available under this part-mandatory section.

(4 / 4 credits)

WAS2 Construction Site Waste Management – to promote

reduction and effective management of construction related waste through the use of a Site Waste Managment Plan (SWMP). A site waste management scheme must be operated on site which complies with the criteria to achieve both credits under this partmandatory section. (2 / 2 credits)

WAS3 Composting – to encourage developers to provide the facilities to compost household waste, reducing the amount of household waste sent to landfill.

To score under this section composting facilities must be provided to all dwellings – this is not easy for apartments. (**0 / 1 credit**)

2.6 Pollution

This section focuses on features of the development which can reduce atmospheric pollution:

- Pol 1 Global Warming Potential (GWP) of Insulants
- Pol 2 NO_x Emissions

POL1 Global Warming Potential (GWP) of Insulants – to reduce global warming from blowing agent emissions arising from the manufacture, installation, use and disposal of foamed thermal and acoustic insulating materials.

All insulation products used in the development (including their manufacturing process – e.g. blowing agents) must have a global warming potential of less than five. (1 / 1 credit)

POL2 NO_x Emissions – to reduce the emission of nitrogen oxides (NO_x) into the atmosphere.

The boilers should have dry NO_x emissions (@ 0% oxygen) of less than 40mg/kWh in order to achieve all three credits. (3 / 3 credits)

2.7 Health and Well-Being

This category considers aspects of the home and its' amenity that add to the quality of life for the residents of the development:

- Hea 1 Daylighting
- Hea 2 Sound Insulation
- Hea 3 Private Space
- Hea 4 Lifetime Homes

HEA1 Daylighting – to improve the quality of life in homes through good daylighting, and to reduce the need for energy to light the home. Good levels of natural daylighting together with a View of the Sky for all key rooms are required to score fully under this section. Daylighting calculations to be provided. (3 / 3 credits)

HEA2 Sound Insulation – to ensure the provision of improved sound insulation to reduce the likelihood of noise complaints from neighbours.

The development will use Robust Details or PCT sound testing to ensure that levels of sound insulation are achieved and residents' quality of life assured. (3 / 4 credits)

HEA3 Private Space – to improve the occupier's quality of life by providing an outdoor space for their use, which is at least partially private.

The flats without terraces will need to have semi-private gardens in compliance with the critieria to achieve the credit. (1 / 1 credit)

HEA4 Lifetime Homes – to encourage the construction of homes that are accessible to everybody and where the layout can easily be adapted to fit the needs of future occupants.

No credits have been taken under this section. If the dwellings are to be constructed in accordance with Lifetime Homes then the score can be amended accordingly but this is not required to meet Level 3.

(0 / 4 credits)

2.8 Management

All other aspects of the assessment consider the development's features 'in occupation' - once it has been constructed; this section gives focus to the developer's management of the project:

- Man 1 Home User Guide
- Man 2 Considerate Constructors Scheme
- Man 3 Construction Site Impacts
- Man 4 Security

MAN1 Home User Guide – to recognise and encourage the provision of guidance to enable home owners/occupiers to understand and operate their home efficiently and to make the best use of local facilities.

An information pack must be provided to all occupiers to explain in layman's terms how to operate their homes in the most efficient, economical and environmentally sound manner whilst achieving the level of comfort desired. Residents must also be provided with information on their local area such as public transport, local amenities, recycling & refuse arrangements together with emergency information to achieve the further credit – three credits taken (3 / 3 credits)

. . . .

MAN2 Considerate Constructors Scheme – to recognise and encourage construction sites managed in an environmentally and socially considerate and accountable manner.

The CCS scheme provides a measure to demonstrate this approach. Both credits have been taken under this section which equates to a CCS score of 32 or more. (2 / 2 credits)

MAN3 Construction Site Impacts – to recognise and encourage construction sites managed in a manner that mitigates environmental impacts.

Four of construction site impacts must be considered and actioned from the list of six to achieve both credits available under this section. (2 / 2 credits)

MAN4 Security – to encourage the design of developments where people feel safe and secure; where crime and disorder, or the fear of crime, does not undermine quality of life or community cohesion.
A Secured by Design award is to be sought by working with an Architectural Liaison officer, together with the enhanced security requirements recommended by the ALO. (2 / 2 credits)

2.9 Ecology

This section rewards use of land with low ecological value, efficient dense development of the land, protection of existing features and the addition of new ecological value:

- Eco 1 Ecological Value of Site
- Eco 2 Ecological Enhancement
- Eco 3 Protection of Ecological Features
- Eco 4 Change of Ecological Value of Site
- Eco 5 Building Footprint

ECO1 Ecological Value of Site – to encourage development on land that already has a limited value to wildlife and discourage the development of ecologically valuable sites.

An ecological assessment (in the BREEAM format) must be carried out to achieve credits taken under this section and the following three. One credit taken. (1 / 1 credit)

ECO2 Ecological Enhancement – to enhance the ecological value of a site.

An ecological assessment must be carried out and the recommendations followed. (1 / 1

(1 / 1 credit)

ECO3 Protection of Ecological Features – to protect existing

ecological features from substantial damage during the clearing of the site and the completion of construction works.

An ecological assessment must be carried out and the recommendations followed. (1

(1 / 1 credit)

ECO4 Change of Ecological Value of Site – to reward steps taken to minimise reductions and to encourage an improvement in ecological value.

An ecological assessment must be carried out and the recommendations followed. Three credits taken. (3 / 4 credits)

ECO5 Building Footprint – to promote the most efficient use of a building's footprint by ensuring that land and material use is optimised across the development.

Due to the nature of the development no credits have been achieved – since these four-storey flats do not meet the minimum density requirements. (0 / 2 credits)

3.0 Conclusion

The Code for Sustainable Homes considers many criteria across nine main categories. Having considered each category in turn the report clearly demonstrates how the new-build element of the scheme at 11 Netherhall Gardens might achieve the Level 3 rating under the Code for Sustainable Homes.

All mandatory features have been highlighted & must be addressed. Particularly all flats must achieve the 25% improvement in energy efficiency over that required under current building regulations Part L1a. The range of water-saving sanitaryware and brassware must ensure that water consumption is less than 90 litres per person per day in order to achieve 4 of the 5 credits available.

Whilst some items may require amendment as the scheme design evolves, these can be considered at each stage to ensure the mandatory sections are still achieved and the overall Level 3 rating is maintained.

The refurbishment flats have all been demonstrated to comfortably achieve an 'Excellent' rating under EcoHomes 2006 assessment – as detailed in the pre-assessment estimator included in Appendix B.

<u>4.0 Appendix A – CSH Pre-assessment</u> estimators (Plots 1 & 6-9)

<u>Appendix B – EcoHomes Pre-assessment</u> estimator (Plots 2-5)