Sustainability Statement

106-109 Saffron Hill

For CIWEM

December 2011

XCO2 energy

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About us:
XCO2 Energy are a low-carbon consultancy working in the built environment. We are a multi-disciplinary company consisting of both architects and engineers, with specialists including CIBSE low carbon consultants, Code for Sustainable Homes, EcoHomes and BREEAM assessors and LEED accredited professionals.

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Executive Summary

This report outlines the sustainability strategy for the proposed development at Saffron Hill, in line with the requirements set out by the London Plan and the London Borough of Camden.

This sustainability statement is divided into three parts:

- Policy and Sustainability Standards
- Code for Sustainable Homes
- BREEAM

The first part provides an overview of the site and planning policies applicable to this development in the Camden Local Development Framework and the London Plan. The report then demonstrates how the policies have been met. In accordance with the Camden Planning Guidance - Sustainability CPG3 - 2011 the sustainability requirements have also been addressed.

The body of this report outlines the sustainability measures that have been adopted to surpass Code for Sustainable Homes level 3 and BREEAM 'Excellent'. A summary of the pre-assessment credits for the Code for Sustainable Homes and BREEAM is provided at the end of the report.

In summary, the proposed Saffron Hill development meets the targets set out by Camden Council and the Greater London Authority (GLA).

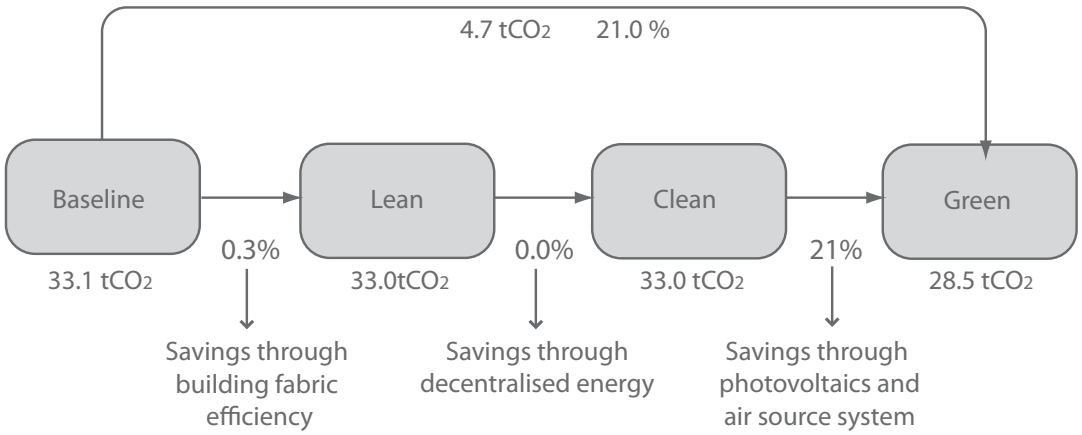
The residential component achieves 69.9 credits, which exceeds the required 57 credits for Code for Sustainable Homes level 3 and aspires to Code Level 4. The commercial component achieves 71.9 credits meeting BRREAM 'Excellent'.

In addition, mandatory Code level 3 and BREEAM 'Excellent' credits in the Energy and Water categories have also been satisfied.

The number of credits obtained in the Code and BREEAM pre-assessment reflects the client and design team's aspirations in incorporating as appropriate sustainability measures. It also demonstrates that the project is designed to exceed the planning policy sustainability requirements.

The diagram below provides a summary of the CO_2 savings achieved over Part L Building Regulations (2010) for the residential and commercial spaces combined. The 21% reduction in CO_2 emissions reflects regulated energy use only, in accordance with Part L Building Regulations. Unregulated energy use is not taken into account in the calculation of Code or BREEAM credits (e.g. plug-in load and appliances).

Total savings over Part L 2010 Building Regulations
(savings is based on regulated energy only in accordance with Part L)



Site

The Saffron Hill development is located between a short distance from Farringdon train Station on a small side street called Saffron Hill. The development is located within the London Borough of Camden.

The proposed development contains 4 residential units of 1-2 bedrooms and a large office space. The dwellings are distributed over the third and forth floors with commercial space on the basement, ground, first and second floors. The development will replace a disused unit whilst retaining the facade and bring additional residential accommodation to the area.

In total, the development comprises approximately 220m^2 of residential floor area and 860m^2 of commercial space.

106-109 Saffron Hill Development Site

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106-109 Saffron Hill

Planning Policies

The development at Saffron Hill is in line with the requirements set out by the London Plan and the London Borough of Camden.

Camden Core Strategy 2010

The Camden Core Strategy sets out the key elements or the borough and is a central part of their Local Development Framework (LDF). The recommendations for the sustainability policy is inserted below:

CS13 – Tackling climate change through promoting higher environmental standards

Reducing the effects of and adapting to climate change

The Council will require all development to take measures to minimise the effects of, and adapt to, climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation by:

a) Ensuring patterns of land use that minimise the need to travel by car and help support local energy networks;

b) Promoting the efficient use of land and buildings;

c) Minimising carbon emissions from the redevelopment, construction and occupation of buildings by implementing, in order, all of the elements of the following energy hierarchy:

1. *Ensuring developments use less energy,*
2. *Making use of energy from efficient sources, such as the King's Cross, Gower Street, Bloomsbury and proposed Euston Road decentralised energy networks;*
3. *Generating renewable energy on-site; and*

d) Ensuring buildings and spaces are designed to cope with, and minimise the effects of, climate change.

The Council will have regard to the cost of installing measures to tackle climate change as well as the cumulative future costs of delaying reductions in carbon dioxide emissions

Local energy generation

The Council will promote local energy generation and networks by:

e) Working with our partners and developers to implement local energy networks in the parts of Camden most likely to support them, i.e. in the vicinity of:

- *Housing estates with community heating or the potential for community heating and other uses with large heating loads;*
- *The growth areas of King's Cross; Euston; Tottenham Court Road; West Hampstead Interchange and Holborn;*
- *Schools to be redeveloped as part of Building Schools for the Future programme;*
- *Existing or approved combined heat and power/local energy networks;*

and other locations where land ownership would facilitate their implementation.

f) protecting existing local energy networks where possible (e.g. at Gower Street and Bloomsbury) and safeguarding potential network routes (e.g. Euston Road);

Water and surface water flooding
We will make Camden a water efficient borough and minimise the potential for surface water flooding by:

g) protecting our existing drinking water and foul water infrastructure, including Barrow Hill Reservoir, Hampstead Heath Reservoir, Highgate Reservoir and Kidderpore Reservoir;

h) making sure development incorporates efficient water and foul water infrastructure;

i) requiring development to avoid harm to the water environment, water quality or drainage systems and prevents or mitigates local surface water and downstream flooding, especially in areas up-hill from, and in, areas known to be at risk from surface water flooding such as South and West Hampstead, Gospel Oak and King's Cross.

Camden Development Policies 2010
In addition to the Core Strategy Document the Camden Development Policies also forms part of the LDF. The policy relating to sustainability is listed below:

DP22 – Promoting sustainable design and construction
The Council will require development to incorporate sustainable design and construction measures. Schemes must:

a) demonstrate how sustainable development principles, including the relevant measures set out in paragraph 22.5 below, have been incorporated into the design and proposed implementation; and

b) incorporate green or brown roofs and green walls wherever suitable.

The Council will promote and measure sustainable design and construction by:

c) expecting new build housing to meet Code for Sustainable Homes Level 3 by 2010 and Code Level 4 by 2013 and encouraging Code Level 6 (zero carbon) by 2016.;

d) expecting developments (except new build) of 500 sq m of residential floorspace or above or 5 or more dwellings to achieve "very good" in EcoHomes assessments prior to 2013 and encouraging "excellent" from 2013;

e) expecting non-domestic developments of 500sqm of floorspace or above to achieve "very good" in BREEAM assessments and "excellent" from 2016 and encouraging zero carbon from 2019.

The Council will require development to be resilient to climate change by ensuring schemes include appropriate climate change adaptation measures, such as:

f) summer shading and planting;
g) limiting run-off;
h) reducing water consumption;
i) reducing air pollution; and
j) not locating vulnerable uses in basements in flood-prone areas.

Camden Development Policies
2010-2025
Local Development Framework

Camden

Camden Planning Guidance - Sustainability CPG3 - 2011

Whilst the Camden LDF contains policies relating to sustainability in their Core Strategy and Development Policies documents, the Council also has a separate planning guidance specific to sustainability. The sections that will covered by a combination of the Sustainability Statement and accompanying Energy Statement are listed below:

- The energy hierarchy
- Energy efficiency: new buildings
- Decentralised energy networks and combined heat and power
- Renewable Energy
- Water Efficiency
- Sustainable use of materials
- Sustainability assessment tools
- Brown roofs, green roofs and green walls
- Flooding
- Adapting to climate change
- Biodiversity

The London Plan 2011

In addition to the Camden requirements the London Plan 2011 requires compliance with the following policies relating to climate change:

- Policy 5.2 Minimising Carbon Dioxide Emissions (refer to the supplementary Energy Report)
- Policy 5.3 Sustainable Design and Construction
- Policy 5.5 Decentralised Energy Networks (refer to the supplementary Energy Report)
- Policy 5.6 Decentralised Energy in Development Proposals (refer to the supplementary Energy Report)
- Policy 5.7 Renewable Energy (refer to the supplementary Energy Report for more details)
- Policy 5.9 Overheating and Cooling
- Policy 5.10 Urban Greening
- Policy 5.11 Green Roofs
- Policy 5.12 Flood Risk Management
- Policy 5.13 Sustainable Drainage
- Policy 5.15 Water use and Supplies
- Policy 5.16 Waste Self-Sufficiency
- Policy 5.18 Construction, Excavation and Demolition Waste
- Policy 5.19 Hazardous Waste
- Policy 5.20 Aggregates

This scheme is not classed as a 'major development' under the definition of the London plan and therefore is designed to comply with only the applicable sub sections of each London Plan policy.

Response to Planning Policies

The relevant sections of the CPG3- Sustainability planning guidance have been addressed below:

Energy efficiency: new buildings

Sunlight and Daylight

The development has been designed to provide good levels of daylight whilst also ensuring excessive solar gain does not cause overheating. This will help to avoid the use of energy-intensive artificial lighting. The street facade including window sizes is to be retained and will be the main source of daylight for the office spaces. The residential units will benefit from large patio sized windows as part of the new facade. One of the daylighting initiatives is the light colouring of interior walls to reflect light into rooms.

Preventing Overheating

Overheating will be prevented through the location of the building and overshadowing of neighbouring buildings. The constrained site has meant that the windows will predominantly face north-east.

Ventilation

Natural ventilation is to be used for the residential apartments with mechanical extract for bathrooms and kitchen hobs. Mechanical ventilation with heat recovery is to be used for the office spaces.

Water efficiency

The Code for Sustainable Homes and BREEAM covers water efficiency. The use of low flow fixtures and fittings will be incorporated to reduce water consumption.

There are no areas of landscaping that will require maintenance therefore, water butts will not be specified. Green roofs will also cover a substantial amount of the roof area and therefore will absorb a portion of the rain water.

Sustainable use of materials

The development will aim to re-use materials from the demolition of the existing building on-site as part of the new development. This will primarily include the use of the demolition material as hard core.

Construction waste will be managed through the Code for Sustainable Homes and BREEAM assessment and been minimised where possible.

Daylighting

Elevation showing areas of glazing

Brown roofs, green roofs and green walls

Where feasible brown roofs have been included on as much of the roof space as possible. The brown roof will require minimum maintenance and little or no irrigation. As the site was previously developed the brown roof will improve the biodiversity on site. Extensive green/brown roofs are designed to be light in weight adding little structural load to the roof. The roof space is also likely to be used for photovoltaic panels.

Flooding

There will be no increase in surface water run off on the development as the new development will cover 100% of the existing building footprint. There will be a marginally smaller volume of run-off on site due to the inclusion of the absorbent brown roof.

The map from the Environment Agency below shows that there is a low risk of flooding, based on historical data.

Adapting to climate change

The development has used the following measures to mitigate against climate change:

- The building is orientated to prevent excessive solar gains from the sun
- Green roofs have been used to soak up excess rainwater and cool the surrounding air trough transpiration.

Biodiversity

The biodiversity will be significantly improved on site in comparison with the existing building. The improvements will come from the installation of a brown roof. The site currently has low ecological value and there are also no ecological features to protect on site.

Flood Map - Environment Agency flood map showing a low risk of flooding

Approximate site location

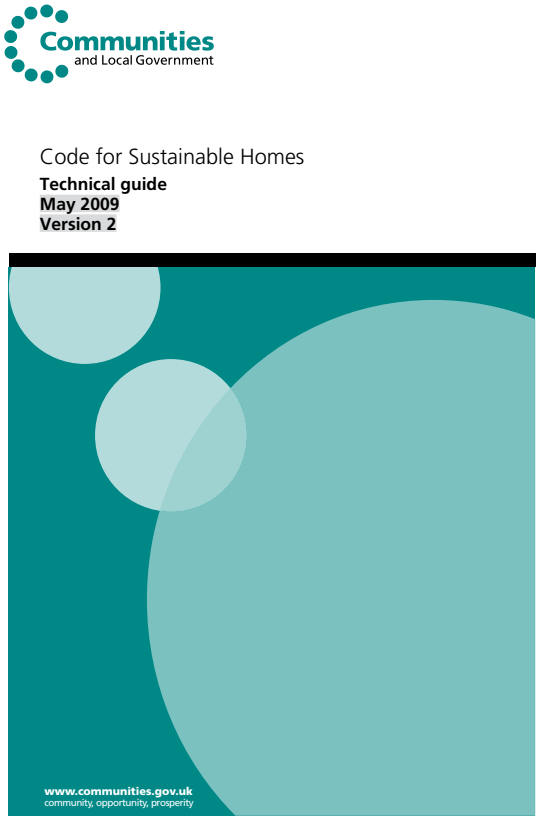
Sustainability Assessment Tools

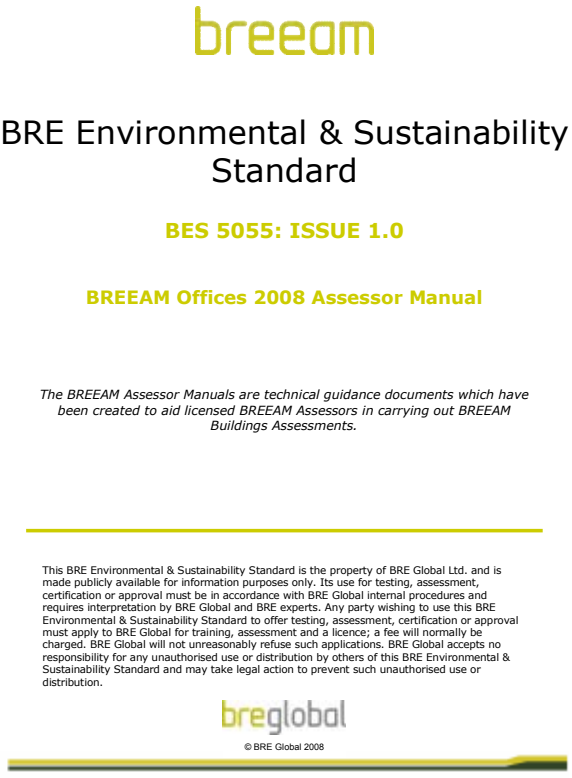
Sustainability Standards

The residential component of this development will be assessed using Code for Sustainable Homes 2009 as required by planning Policy DP22.

The commercial component has been designed to meet BREEAM Offices 2008 'Excellent' where feasible. This goes beyond policy DP22 which states that any commercial development 500m^2 or above is to meet BREAM 'Very Good'.

The following sections provide an overview of the Code for Sustainable Homes and BREEAM assessment tools and the pre-assessment scores.





Code for Sustainable Homes

The Code for Sustainable Homes (also referred to as 'Code') is the national standard for the design and construction of sustainable homes for new residential developments. It was established by the Government in close working consultation with the Building Research Establishment (BRE) and Construction Industry Research and Information Association (CIRIA). The Code measures the sustainability of a development against design categories, rating the entire development as a complete package.

Although the Code is currently voluntary, many councils are now setting Code levels as mandatory targets and it is likely to become a national requirement in the future.

Each standard requires new developments to gain credits by meeting sustainable design principles over nine key areas:

- Energy
- Water
- Materials
- Surface Water Run-Off
- Waste
- Pollution
- Health and Wellbeing
- Management
- Ecology

In order to meet Camden's planning policy DP22- Promoting Sustainable Design and Construction, the development will meet Code Level 3 by implementing the measures detailed.

Energy

ENE 1 Dwelling Emission Rate

The Dwelling Emission Rate (DER) is the estimated CO_2 emissions per m^2 per year ($kgCO_2/m^2/year$) for a development. It accounts for energy used in heating, fixed cooling, hot water and lighting. To achieve Code Level 3 2009, the Code stipulates that CO_2 emissions must meet Part L 2006 Building Regulations i.e the Dwelling Emission Rate (DER) should be at least the same or better than the Target Emission Rate (TER).

In addition to Code requirements Camden stipulate in the CPG3- Sustainability planning guidance that dwellings should achieve at least 50% of un-weighted credits in this category.

The methodology set out by the Department of Energy and Climate Change (DECC) for assessing the energy use of dwellings is the Standard Assessment Procedure (SAP). The current version is SAP 2009 but for the purposes of Code 2009 we will also be using SAP 2005.

Preliminary SAP calculations were carried out to assess the potential CO_2 savings achieved through

- energy efficiency measures
- the efficient supply of energy through air source heat pumps

The preliminary calculations showed a significant improvement in CO_2 emissions over Part L Building Regulations 2006, amounting to at least 25% and therefore compliant with Code Level 3. This meets Building Regulations 2010.

Given the improvement in DER over TER, the development at Saffron Hill satisfies the mandatory credits within the Energy category in order to meet Code Level 3 and Camden's requirement.

ENE 2 Heat Loss Parameter
The energy demand of the dwellings will be reduced through the adoption of high levels of insulation and good levels of air tightness to improve the buildings fabric efficiency. SAP calculations were based on a building fabric with low U-values and an air permeability rate of 5m^3/m^2 at 50 Pa, thereby achieving an average Heat Loss Parameter (HLP) of 1.38

ENE 3 Internal Lighting
At least 75% of fixed internal fittings will be fitted with low energy bulbs to reduce their electrical consumption.

ENE 4 Drying Space
The proposed development will include provisions for internal clothes drying, thereby reducing the amount of electricity consumed through the use of tumble dryers. Each dwelling will include at least 4m of retractable drying lines within well-ventilated bathrooms.

ENE 5 Eco Labelled White Goods
All residential units within this development will be supplied with an EU Energy Efficiency Labelling Scheme Leaflet, which provides guidance on the purchase on energy efficient white goods.

ENE 6 External Lighting
Energy efficient light bulbs in standard fittings will be installed throughout the development. In addition, external lights will be fitted with controls to reduce the energy consumption of the building during periods of infrequent use:

- external space lighting will include energy efficient fittings
- security lighting will include daylight cut-off devices, with a maximum wattage of 150W and PIR

ENE 7 Contribution of Low or Zero Carbon Technologies
A feasibility study was carried out to determine the Energy Strategy for the proposed development. Air Source Heat Pumps were considered to be the most feasible zero carbon solution and high efficiency gas boilers to be the most suitable low carbon solution. The low and zero carbon reductions from these measures is expected to be at least 15%.

ENE 8 Cycle Storage
Cycle spaces will be provided within the development for use by users of the residential units to reduce the frequency of short car journeys. Additionally cycle storage spaces will be made available for the users of the commercial space. The cycle storage will be adequately sized, secure and accessible to all occupants, thereby achieving some credits in this category. One cycle space per one bed dwelling and two cycle spaces per two bed dwelling will be supplied.

ENE 9 Home Office
The proposed residential units will allow for a home office space comprising:

- sufficient space for a chair, desk and bookshelf
- adequate ventilation
- an average daylight factor of 1.5%
- 2 No. double power sockets and
- 2 No. telephone sockets (or one telephone socket where broadband is provided)

Water

WAT 1 Indoor Water Use

The water category aims to reduce the consumption of potable water in the home from all sources. These are mandatory credits within Code for Sustainable Homes, with Level 3 setting an upper limit of 105 litres per person per day.

The development at Saffron Hill aims to reduce water consumption through the use of water efficient fittings, and these are listed below.

It is estimated that the proposed residential development will achieve a water consumption rate of 104.6 litres/person/day, exceeding the mandatory target for Code Level 3 and 4.

Possible method for meeting Code level 3 and 4 water target

	Residential Units	
Fitting	**Consumption per Use**	**Consumption (l/person/day)**
WC (full flush)	6 litres per flush	
WC (half flush)	3 litres per flush	
All WCs		17.64
Kitchen sink tap	6 litres per min	13
Wash basin tap	4 litres per min	7.9
Bath	140 litres capacity	15.4
Shower	9 litres per min	39.33
Washing machine	8.17 litres per kg	17.16
Dishwasher	1.25 litres per place setting	4.5
Net internal water consumption		114.9
Normalisation factor		0.91
Total		104.6

Materials

MAT 1 Environmental Impact of Materials

Embodied energy is the energy that is used in the manufacture, processing and the transportation of the materials to site.

The construction build-ups for each of the main building elements are rated from A+ to E. Each element to be used in the building has been rated according to the BRE Green Guide to Specification whereby:

- A+ rated elements are least likely to affect the environment
- E rated elements are most likely to affect the environment

It is assumed that most of the main building elements within this development will achieve between an A+ to C rating.

MAT 2 and 3 Responsible Sourcing of Materials

At least 50% of the materials specified will be obtained from legally and responsible sources. This includes all basic building elements and finishing elements, comprising the building frame, floors, roof, external walls, foundations and internal walls.

In addition, 100% of all timber used on site will be legally sourced, thereby satisfying the mandatory requirements set out in this category. Any timber used in the structural and finishing elements will be specified from certified sustainable sources such as FSC or PEFC.

Where possible, on-site materials will be reused and recycled to lower transport CO_2 emissions associated with off-site recycling. Where practicable, materials with a high recycled or waste content will be specified.

Where feasible aggregates from the demolition of any existing hard surfacing/landscaping on site will be crushed and used as substrate material for the building base.

SUR 1 Surface Water Run-off

The aim of this category is to avoid, reduce and delay the discharge of rainfall run-off to watercourses and public sewers using sustainable drainage systems (SuDS).

The development at Saffron Hill will meet all mandatory requirements. As the development footprint sits in the footprint of the existing building there will be no additional surface water run-off.

SUR 2 Flood Risk

The environment Agency flood map shows that there is a low risk of flooding on site. Precautions will be taken to reduce the risk of flooding on site.

Waste

WAS 1 Household Waste

- Non-recyclable: Internal space has been allocated for communal non-recyclable household waste, this will be collected by the Local Authority
- Recyclable: A Local Authority Collection Scheme will be in operation for the collection of recyclable household waste, and at least at least three separate bins will be provided with a total capacity of 30 litres. Each bin will have a capacity of at least 7 litres and be located in the kitchen.

WAS 2 Construction Site Waste Management

The development will minimise the impact of construction waste on the environment through a Site Waste Management Plan (SWMP). This plan will include:

- benchmarks for resource efficiency
- procedures and commitments to reduce hazardous and non-hazardous waste
- monitoring hazardous and non-hazardous waste

Non-hazardous waste will be diverted from landfill where possible. Details of the SWMP will be developed at a later stage, prior to construction.

Internal waste storage and separation

Pollution

POL 1 Global Warming Potential (GWP) of Insulants

Global warming potential (GWP) is a measure of how effective a gas is at preventing the passage of infra-red radiation. Blowing agents, used in the production of insulation, are a common source of gases with high GWPs.

The development will specify insulation materials that have a Global Warming Potential (GWP) of less than 5 to achieve the maximum credits in this category.

POL 2 NOx Emissions

This section aims to reduce the release of nitrogen oxide (NOx) into the atmosphere.

The use of air source heat pumps means that credits for this section cannot be awarded.

Health and Wellbeing

HEA 1 Daylighting

The dwellings have been designed with daylight in mind and measures have been taken to maximise daylight where possible.

HEA 2 Sound Insulation

The development proposes that airborne sound insulation is at least 5dB higher and impact sound insulation at least 5dB lower than required by current Building Regulations. This will be determined through either robust details or a programme of pre-completion testing.

HEA 3 Private Space

Some occupants will have access to private balconies, with the aim of improving the quality of life of the occupants. The private space provided within this development will meet the minimum requirements set out in this category.

Management

MAN 1 Home User Guide

'Home User Guides' will be made available to each dwelling providing occupants with an understanding of the energy associated with the operation of their home. These non-technical guides will include operational instructions as well as information on the surrounding area (local amenities) to obtain full credits in this section.

MAN 2 Considerate Constructors Scheme

The tender specification will require contractors to be compliant with the Considerate Constructors Scheme (CCS). Additional credits have been awarded as it is expected that formal certification will be achieved and that contractors will go significantly beyond best practice.

MAN 3 Construction Site Impacts

To minimise the construction impacts of the site, contractors will be required to monitor, report and set targets for:

- the production of CO_2 arising from site activities
- energy use from commercial transport to and from site

In addition, contractors will be required to adopt best practice policies for air (dust) and water (ground and surface) pollution occurring on site. 80% of all timber used on site will also be reused and/or responsibly sourced.

Man 4 Secured By Design

Where feasible the development conforms to Secured By Design principles.

Ecology

ECO 1 and 3 Ecological Assessment

The development is currently located on a developed site. The site meets the Code criteria for low ecological value site as there is no existing ecological value to protect.

ECO 2 Ecological Enhancement

A brown roof will be included in the development which will enhance the ecology in the local area.

ECO 4 Change in Ecological Value of the Site

It is anticipated that there will be a minimal enhancement in ecological value due to the inclusion of the brown roof.

Code for Sustainable Homes Pre-Assessment Results

A Code for Sustainable Homes pre-assessment was carried out for Saffron Hill using the targets set by the client and project team.

The table below summarises the number of credits that could be achieved in each of the Code categories, using the Stroma Core software.

The proposed development could achieve a total of 69.91 credits, which is above the required Code level 3 and aspires to level 4, reflecting the client and project team's commitment in adopting a range of sustainability measures over the life-cycle of the development.

				Score Assessment		
		Credit Score	Credits Available	Sub Total	Weighting Factor	Points Score
Energy & CO2 Emissions	ENE 1 Dwelling Emission Rate	8	15	22	36.4	27.61
	ENE 2 Fabric Energy Efficiency	2	2			
	ENE 3 Energy Display Device	2	2			
	ENE 4 Drying Space	1	1			
	ENE 5 Energy Labelled White Goods	2	2			
	ENE 6 External Lighting	2	2			
	ENE 7 Low or Zero Carbon Energy Technologies	2	2			
	ENE 8 Cycle Storage	2	2			
	ENE 9 Home Office	1	1			
Water	WAT 1 Internal Water Use	3	5	3	9	4.5
	WAT 2 External Water Use	0	1			
Materials	MAT 1 Environmental Impact of Materials	13	15	20	7.2	6.0
	MAT 2 Responsible Sourcing (Basic Building Elements)	5	6			
	MAT 3 Responsible Sourcing (Finishing Elements)	2	3			
Surface Water Run-off	SUR 1 Management of Surface Water Run-Off from Site	2	2	4	2.2	2.2
	SUR 2 Flood Risk	2	2			
Waste	WAS 1 Household Waste Storage and Recycling Facilities	4	4	7	6.4	6.4
	WAS 2 Construction Site Waste Management	2	2			
	WAS 3 Composting	1	1			
Pollution	POL 1 Global Warming Potential of Insulants	1	1	1	2.8	0.7
	POL 2 NOx Emissions	0	3			
Health & Wellbeing	HEA 1 Daylighting	2	3	5	14	5.83
	HEA 2 Sound Insulation	3	4			
	HEA 3 Private Space	0	1			
	HEA 4 Lifetime Homes	0	4			
Management	MAN 1 Home User Guide	3	3	9	10	10.0
	MAN 2 Considerate Constructors Scheme	2	2			
	MAN 3 Construction Site Impacts	2	2			
	MAN 4 Security	2	2			
Ecology	ECO 1 Ecological Value of Site	1	1	5	12	6.67
	ECO 2 Ecological Enhancement	1	1			
	ECO 3 Protection of Ecological Features	1	1			
	ECO 4 Change of Ecological Value of Site	2	4			
	ECO 5 Building Footprint	0	2			
				Total Points Scored:		**69.91**

BREEAM

A BREEAM Offices Pre-Assessment was carried out for the development at Saffron Hill. This report discusses how the development addresses broad sustainability issues to meet the BREEAM rating 'Excellent'.

The BREEAM Pre-Assessment shows that the building design exceeds Camden Council's Policy DP22 to meet BREEAM 'Very Good'. The following criteria were met in the assessment to achieve an 'Excellent' rating:

- Achieve all 'Excellent' mandatory credits
- Achieve 70% of the total credits available

Saffron Hill has exceeded the Camden BREEAM 'Very Good' target of 55% and the BREEAM 'Excellent' target of 70% with a possible score of 71.9% on the pre-assessment.

The results are listed in table below. Indicative scores for each section are shown to provide a break down.

Methodology

The BREEAM Offices Pre-Assessment Estimator (2008) was used to determine the credits for each of the following categories:

- Management
- Health & Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land use & Ecology
- Innovation

The following pages detail the categories that have been met in order to achieve a BREEAM 'Excellent' rating.

BREEAM Categories	Indicative Scores Available	Indicative Scores Achieved
Management	12.%	11%
Health & Wellbeing	15%	10%
Energy	19%	10%
Transport	8%	8%
Water	6%	5%
Materials	12.5%	9%
Waste	7.5%	8%
Land use & Ecology	10%	5%
Pollution	10%	7%
Total	100%	71.9%

Management

Commissioning

An appropriate team member is to be appointed to monitor commissioning on behalf of the client to ensure that the project will be carried out in line with current best practice. In addition seasonal commissioning is likely to be carried out during the first year of occupation to ensure the building systems are working efficiently.

Considerate Constructors

The specifications will require constructors to be compliant with the Considerate Constructors Scheme, achieve formal certification under it and to go beyond best practice site management principles.

Monitoring and Best Practice Techniques

Constructors will be required to monitor, report and set targets for:

- CO_2 or energy use from site related activities
- Water consumption from site activities

Implement best practice policies for:

- Air (dust) pollution
- Water (ground and surface) pollution

User Guide

A guide is to be provided which will cover information relevant to the occupants on the operation and environmental performance of the building.

Health & Wellbeing

Glare Control

An occupant controlled shading system will be fitted in relevant building areas to reduce the impact of glare.

High Frequency Lighting

High frequency ballasts will be fitted to all CFL and fluorescent lamps and appropriately maintained illuminance levels will be achieved in line with the CIBSE Code for Lighting.

Lighting will be zoned and controllable to give occupants flexibility in lighting choices, to ensure that the desired illuminance level can be achieved without excessive energy use.

Volatile Organic Compounds

Emissions of VOCs and other substances from key internal finishes will comply with best practice where feasible.

Thermal Comfort and Zoning

Thermal comfort levels will be assessed at the design stage to ensure that appropriate thermal comfort levels are achieved.

Microbial Contamination

Contamination resulting from legionella will be minimised by avoiding the use of humidification systems and by ensuring appropriate precautions for hot water systems are abided by in accordance with HSG 70 and ACOP L8.

Acoustic performance

The building is to achieve appropriate indoor ambient noise levels in office areas through the reduction in airborne sound between acoustically sensitive spaces and occupied spaces to ensure privacy.

Energy

CO2 Emissions

The development is aiming to reduce regulated CO_2 emissions through improved building fabric and services. An SBEM calculation was carried out to determine the building's operational related CO_2 emissions. The building's resultant CO2 Index is less than 40.

Please refer to the energy report for the strategies proposed (low U-values, high air tightness, efficient systems and low/zero carbon technologies) to achieve this target.

Sub-metering

Sub-metering will be installed for the following systems in the building where present:

- Space heating
- Domestic hot water
- Humidification
- Cooling
- Fans
- Lighting
- Small power

Sub metering will also be installed for tenancy/ building function areas in the building.

External Lighting

All of the external luminaries are to be energy efficient and all light fittings are to be controlled for the presence of daylight. Daylight sensors will help to ensure that artificial lights are not used when daylight levels are sufficient.

Low and Zero Carbon Technologies

A feasibility study has been produced considering the low and zero carbon technologies appropriate for the site. Please see the energy statement for further details.

Lifts

Energy efficient lifts are being considered for use in the building.

Transport

Public Transport

The development is located close to Farringdon underground and overground train station as well as bus routes making the development very accessible by public transport.

Public Amenities

The development is situated in close proximity to all major and minor amenities.

Cycling Facilities

Cycle storage spaces are provided in the development for residents and employees. In addition, the cycle facilities will be designed in accordance with best practice to ensure safe and adequate pedestrian and cycle access. Cycle storage will be provided for 10% of building occupants and adequate changing and showering facilities will be provided.

Pedestrian and cycle safety

The building does not have any external areas and internal access is directly from the public footpath therefore credits in this section can be awarded by default.

Car Parking

This development is to be car free and therefore no car parking spaces will be provided.

Water

Consumption

The project intends to reduce potable water consumption through the specification of low flow taps, urinals, WCs and showers. The water consumption is to be reduced to between 1.5 - 4.4m^3 per person per year.

Metering and Leak Detection

Water metering with a pulsed output is being considered which will help to accurately monitor water use and identify systems that are not performing as expected. In addition, a leak detection system will be employed on the main water supply.

Materials

Building Elements

Green Guide ratings for the specification of major building elements will be determined to achieve credits in this section. The higher the Green Guide rating the lower the environmental impact of the material.

Reuse of Building Facade and Structure

The majority of the front building facade is to be reused and elements of the structure will also be reused where feasible.

Responsible Sourcing

At least 80% of building materials used for the main construction elements and finishing elements are to be responsibly sourced. Where timber is used, the contractor will specify it from sustainable sources.

Insulation

All insulation will have a low-embodied energy impact relative to their thermal performance.

Designing For Robustness

All internal and external areas of the building where trolley and pedestrian movement is high will be designed for robustness.

Waste

Construction Site Waste Management

A comprehensive Site Waste Management Plan (SWMP) will be employed at Saffron Hill. This will outline procedures to:

- reduce both hazardous and non-hazardous waste.
- monitor, measure and report hazardous and non-hazardous
- sort, reuse and recycle construction waste into defined waste groups.

Recycled aggregates

There will be significant use of recycled or secondary aggregates in 'high-grade' building aggregate uses.

Recyclable Waste Storage

Internal storage bins will be provided in dedicated, non-obtrusive positions. The refuse storage areas are to meet Camden Council's requirements.

Floor Finishes

The floor finishes are to be selected by the building occupant to avoid the unnecessary waste of materials.

Land Use & Ecology

Re-Use of Land

By refurbishing an exiting site, the developer is avoiding building on undeveloped 'green field' space. This means that the whole building footprint will fall within the boundary of previously developed land.

Ecological Value

Due to its urban location and absence of ecological features on the existing site, the site is considered to be of low or insignificant ecological value. There will be no ecological features to protect on this site.

Mitigating Ecological Impact

As the development is the redevelopment of an existing site it is likely that there will be no negative ecological impact as a result of the development.

Enhancing Site Ecology

The inclusion of the brown roof is expected to enhance site ecology when compared to the existing building

Pollution

Refrigerants

The building will only use refrigerants with a GWP of less than 5 where feasible. Equipment will be specified to detect refrigerant leaks and an automatic refrigerant pump down will be made to a heat exchanger with isolation valves.

Flood Risk

The development is located within a Low Flood Risk Zone.

A flood risk assessment has been carried out for the project, in line with local authority's requirements, confirming the suitability of the location for this development.

Minimising Watercourse Pollution

There are no external areas that present a pollution risk and therefore this credit can be awarded by default.

Light Pollution

The project team will ensure that the external lighting will be designed in consideration of the guidance from the Institution of Lighting Engineers - Guidance Notes for the Reduction of Obtrusive Light. In particular the lighting design will aim to reduce the Upward Light Ratio to below 15% and reduce vertical illuminance to less than 5 Lux.