St Edmunds Terrace

Code for Sustainable Homes Report

Pre-assessment for Planning Application

Ref: 7348-St Edmunds Terrace/CHY/DCL

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1 Issue Register

Rev	Reason for Issue	Date	Issued By	Checked By
1.0	Draft for comments	28/01/11	CHY	DCL
2.0	Updated with the Architect's, Hydrological engineer's and Ecologist's comments	04/02/11	CHY	DCL
3.0	Planning issue	14/02/11	CHY	DCL

This document has been checked by

(Environmental Engineer)

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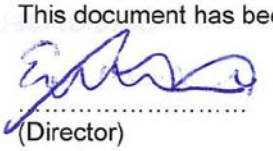

(Director)

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3 Introduction

3.1 Proposed Development

St Edmunds Terrace consists of 36 new build apartments and one detached house, located in Primrose Hill, London.

The design team's aspiration is to secure a Code Level 4 for the new build development of St Edmunds Terrace. However, based on the initial CSH Assessment Reports, the predicted score is 68.55% which represents a Code Level 4.

This score is at the very low end of the Code Level 4 bandwidth - which begins at score ≥ 68% and is unlikely to increase due to a combination of factors; such as site restrictions and energy strategy. Therefore, forfeiting compliance with any of the criteria will result in losing the Code Level 4. It is the experience of the assessor that securing the target rating requires achieving at least 4% to 5% score above the minimum requirements. This is to provide a safety buffer and leave room for typically inevitable impromptus.

3.2 Code for Sustainable Homes

The Code for Sustainable Homes was launched in November 2010 with the publication of 'Code for Sustainable Homes: A step change in sustainable home building practice" (DCLG 2006). This introduced a single national standard to be used in the design and construction of new homes in England, based on the BRE's EcoHomes© scheme. Adoption of the Code, is intended to encourage continuous improvement in sustainable home building.

The Code for Sustainable Homes is a set of sustainable design principles covering performance in nine key areas listed below:

- Energy and CO2;
- Water;
- Materials;
- Surface water run-off;
- Waste;
- Pollution;
- Heath and well being;
- Management;
- Ecology.

In each of these categories, performance targets are proposed via the Code which are in excess of the minimum needed to satisfy Building Regulations, but are considered to be sound best practice, technically feasible, and within the capability of the building industry to supply.

- The Code uses a rating system of one to six stars, and it differs from EcoHomes assessment in several key regards outlined below:

- The Code is assessed at the level of an individual 'Dwelling';

- The Code contains minimum mandatory standards for energy, water, materials, waste and surface water run-off, which must be met before even the lowest level of the Code can be achieved;

- The Code demands higher minimum standards for energy and water to be met before the higher levels of the Code can be achieved;

- The Code is performed in two stages with 'Final' Code certification taking place after a Post Construction Review has been carried out.

In addition to the mandatory requirements, each design category scores a number of percentage points. The total number of percentage points establishes the 'star rating' for the dwelling, and this sets the Code performance.

Formal assessment of dwellings using the Code for Sustainable Homes may only be carried out using licensed and registered individuals, who are qualified 'competent persons' for the purpose of carrying out Code assessments. Training, registration and licensing of these individuals is carried out by the Building Research Establishment according to a UKAS registered 'competent persons scheme' and under ISO 14001 and 9001. BRE also carry out quality assurance of the assessments and issue certificates on behalf of the department of Communities and Local Government.

3.3 Scoring System

Credits are available for each item meeting the specified levels of performance. The number of credits available in each category does not necessarily reflect the relative importance of the issues being assessed. Before the final score is calculated, each of the scores in the nine category areas has a weighting factor applied.

The Code uses a rating system of one to six stars, with six stars being the best. The final rating is determined by the Code assessor and quality assured/certified by BRE.

Before a dwelling can start to be awarded points under the Code it must achieve minimum standards in the following categories:

- Embodied impacts of construction materials;
- Surface water runoff;
- Construction site waste management; and
- Household waste storage space and facilities.

There are also targets for carbon dioxide emissions and potable water consumption for each Code Level.

Table 1 Code Scale

Rating	**Requirements (equal to or greater than)**
Level 1	36 Points
Level 2	48 Points
Level 3	57 Points
Level 4	**68 Points**
Level 5	84 Points
Level 6	90 Points

4 Mandatory Credits

Before a dwelling can start to be awarded points under the Code it must achieve minimum standards in the following categories. Specific requirements are detailed under the main headings below for the targeted Code Level.

4.1 Ene 1 - Carbon Dioxide Emissions

Carbon dioxide (CO_2) emissions resulting from operational energy consumption are calculated using SAP 2009). There are six levels of mandatory minimum standards – one for each Code Level.

Code Levels	Minimum Percentage reduction in Dwelling Emission Rate Over Target Emission rate
Level 1 (*)	0 % (compliance with Part L 2010 is required)
Level 2 (**)	0 % (compliance with Part L 2010 is required)
Level 3 (***)	0 % (compliance with Part L 2010 is required)
Level 4 (****)	**25 %**
Level 5 (*****)	100 %
Level 6 (******)	Zero carbon home

4.2 Wat 1 - Potable Water Consumption

This is from WCs, showers and baths, taps and appliances (detailed in section 5), and is calculated using the Code Water Calculator. There are three levels of mandatory standards:

Code Levels	Minimum Potable water Consumption in litres per person per day
Level 1 (*)	120
Level 2 (**)	120
Level 3 (***)	105
Level 4 (****)	**105**
Level 5 (*****)	80
Level 6 (******)	80

4.3 Mat 1 - Embodied Impacts of Construction Materials

At least three of the following five key elements must achieve a relevant Green Guide rating from the 2008 version of The Green Guide of A+ to D:

- Roof;
- External Walls;
- Internal Walls (including separating walls);
- Upper and Ground Floors (including separating floors); and
- Windows

Before a dwelling can start to be awarded points under the Code it must achieve the minimum standards above.

4.4 Sur 1 - Surface Water Run Off

The developer must ensure that peak run-off rates and annual volumes of run-off post development will be no greater than the previous conditions for the site (detailed in section 5).

Before a dwelling can start to be awarded points under the Code it must achieve the minimum standards above.

4.5 Was 1 - Household Waste Storage Space and Facilities

The space allowed for waste storage should be sized to hold the larger of the two (by volume) of the following (detailed in section 5):

EITHER:

- All external containers provided under the relevant Local Authority refuse collection/recycling schemes. Containers should not be stacked to ensure ease of access and use.

OR:

- The minimum capacity of waste storage as calculated from BS 5906 (Code of Practice for Storage and On-Site Treatment of Solid waste from Buildings (2005)

All containers must be accessible to disabled people, particularly wheelchair users and sited on a hard, level surface.

Before a dwelling can start to be awarded points under the Code it must achieve the minimum standards above.

5 The Pre-Assessment Results

The following table summarises the results based on the information available at the time of production and the indicative scores from previous assessments.

Categories	Description	Weighting	Max credit	Credit achieved	Comments
Energy and CO2 emissions					
ENE1	% DER improvement over TER Credits are awarded based on the percentage improvement of the Dwelling Emission Rate (DER) over the Target Emission Rate (TER) as calculated using SAP 9.9. Minimum standards for each Code level apply.	11.7 %	10	3	Mandatory requirement for level 4 to achieve 3 credits
ENE2	Fabric Energy Efficiency Credits are awarded based on the Fabric Energy Efficiency (kWh/m2/yr) of the dwelling. Minimum standard apply at Code level 5 & 6.	10.6 %	9	0	Not achieved
ENE3	Energy Display Devices Credits are awarded where a correctly specified Energy Display Device is installed monitoring electricity and/or primary heating fuel consumption. Electricity or primary heating fuel Electricity and primary heating fuel	2.5%	2	2	Energy Display Devices to be provided
ENE4	Drying space One credit is awarded for the provision of either internal or external drying space with posts and footings, or fixings capable of holding 4m+ of drying line for 1-2 bed dwellings and 6m+ for dwellings with 3 bedrooms or greater. Internal drying space must have ventilation complying with Building Regulations A D & F The minimum extract flow rate of 30l/s is required.	1.3%	1	1	Provide the drying space and devices
ENE5	Energy Labelled White Goods Credits are awarded where each dwelling is provided with either information about the EU Energy Labelling Scheme or White Goods with the required ratings.	2.5%	2	2	To be provided: A+ rating fridge/freezers A-rated laundry and dish washers, B-rated washers and dryers
ENE6	External Lighting Credits are awarded based on the provision of space lighting with dedicated energy efficient fittings and security lighting with appropriate control gear. Space Lighting – Code compliant Security Lighting – Code compliant	2.5%	2	2	To be specified: Dedicated light fittings for energy efficient lights (>40 lumens/circuit watt) Security lighting to include PIR and daylight sensors.
ENE7	Low or Zero Carbon Technologies Credits are awarded where there is a 10% or 15% reduction in CO2 emissions resulting from the use of low or zero carbon technologies.	2.5%	2	2	L&P Provide LZC technologies to achieve 15% CO2 reduction
ENE8	Cycle Storage Credits are awarded where safe, secure and weather proof cycle storage is provided according to the Code requirements. **Studios or 1 bedroom dwellings – storage for 1 cycle per dwelling** **2 and 3 bedroom dwellings – storage for 2 cycle per dwelling** **4 bedrooms and above – storage for 4 cycles per dwelling**	2.5%	2	2	Provide storage for 4 cycles

ENE9	Home Office One credit is awarded for the provision of space for a home office. The location, space and services provided must meet the Code requirements.	1.3%	1	1	One of the bedrooms to be provided as follows. Ensure minimum size (1.8m wall length) to allow a desk, chair and bookshelf to be installed, with space to move around the front and side of the desk, use the chair appropriately and operate the filing cabinet safely. Minimum Daylight factors of 1.5% to be exceeded as per compliance with BRE levels (2%.) To be provided: double sockets and telephone points
Water					
WAT1	105 l/p/day	7.5%	5	3	Ensure the design flow rate for taps and showers, the water usage of WCs and bath. Grey water recycling/ rainwater harvesting to be provided to meet the requirements
WAT2	External Potable Water Use One credit is awarded where a compliant system is specified for collecting rainwater for external irrigation purposes.	1.5%	1	1	Provide rainwater harvesting system in accordance with the requirements
Materials					
MAT1	Environmental Impact of Materials **Mandatory Requirement: At least three of the five key building elements (roof, external walls, internal walls, upper and ground floors and windows) must achieve a Green Guide 2008 Rating of A+ to D.** Tradable Credits: Points are awarded on a scale based on the Green Guide Rating of the specifications. The Code Materials Calculator can be used to predict a potential score	4.5%	15	9	Ensure highly rated Green Guide elements are specified for at least no.3 of the elements listed to the left. www.bre.co.uk/greenguide
MAT2	Responsible Sourcing of Materials – Basic Building Elements Credits are awarded where materials used in the key building elements are responsibly sourced. The Code Materials Calculator can be used to predict a potential score.	1.8%	6	4	Ensure the major materials used for basic building elements are responsibly sourced
MAT3	Responsible Sourcing of Materials – Finishing Elements Credits are awarded where materials used in the finishing elements are responsibly sourced. The Code Materials Calculator can be used to predict a potential score.	0.9%	3	2	Ensure the major materials used for finishing elements are responsibly sourced
Surface Water Run-off					
SUR1	Reduction of Surface Water Run-off from Site **Mandatory Requirement: Peak run-off rates and annual run-off volumes post development must not exceed the previous conditions for the site.** Tradable Credits: Where rainwater holding facilities/SUDs are used to provide attenuation of water run-off for the volumes required and in accordance with the Code criteria.	1.1%	2	1	Ensure the mandatory requirements to be achieved. And ensure runoff from hard surfaces will receive an appropriate level of treatment.
SUR2	Flood Risk Credits are awarded where developments are located in areas of low flood risk, or where in areas of medium or high flood risk appropriate measures are taken to prevent damage to the property and its contents in accordance with the Code criteria.	1.1%	2	2	Flood Risk Assessment required to confirm the development is on a low flood zone.

	For medium or high risk site, the finished ground floor level of all habitable parts of dwellings and access routes to the ground level and the site, are placed at least 600mm above the design flood level of the flood zone. The Flood Risk Assessment (FRA) accompanying the planning application must demonstrate to the satisfaction of the local planning authority and statutory body that the development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed.				
Waste					
WAS1	Household Waste Storage **Mandatory Requirement: The space provided for waste storage should be sized to hold the larger of either all external containers provided by the Local Authority or the minimum capacity calculated from BS 5906.** A combination of compliant internal storage capacity provided in an adequate internal space, with either: • A Local Authority collection scheme; or • No Local Authority collection scheme but adequate external storage capacity.	3.2%	4	4	Design team to ensure internal and external waste storage meet the minimum standards and information leaflet compiled for future occupants.
WAS2	Site Waste Management Plan (SWMP)/Construction Waste A credit is awarded where a compliant SWMP is provided with targets and procedures to minimise construction waste. Credits are available where the SWMP include procedures and commitments for diverting either 50% or 85% of waste generated from landfill.	2.4%	3	3	Contractor to ensure Site Waste Management Plan incorporates all criteria.
WAS3	Composting One credit is awarded where individual home composting facilities are provided, or where a community/communal composting service, either run by the Local Authority or overseen by a management plan is in operation.	0.8%	1	1	Ensure there is an on-site composting facility
Pollution					
POL1	Global Warming Potential (GWP) of Insulants One credit is awarded where all insulating materials have a Global Warming Potential (GWP) of less than 5.	0.7%	1	1	Ensure all insulants to have GWP less than 5.
POL2	NOx Emissions Credits are awarded on the basis of NOx emissions arising from the operation of the space heating system within the dwelling. Less than 100 mg/kWh Less than 70 mg/kWh Less than 40 mg/kWh	2.1%	3	1	Detailed calculations are required to confirm if the average NOx emission rate is less than 100 mg/kWh
Health and Well-being					
HEA1	Daylighting Credits are awarded for ensuring key rooms in the dwelling have high daylight factors (DF) and a view of the sky. Where the kitchen has an average DF greater than 2 % Where the living room, dining room and study have an average DF greater than 1.5 % Where all above rooms have a view of the sky	3.5%	3	2	The daylight and sunlight assessment confirms the living rooms, dining rooms and study rooms have an average DF greater than 1.5% and kitchens achieve an average DF greater than 2%
HEA2	Sound Insulation Credits are awarded where performance standards exceed those required in Building Regulations Part E. This can be demonstrated by carrying out pre-completion testing or through the use of Robust Details. Where airborne noise reduction is 3dB higher and impact noise is 3dB lower than Part E Where airborne noise reduction is 5dB higher	4.7%	4	3	Ensure the sound insulation to achieve 5 dB better than Part E

	and impact noise is 5dB lower than Part E Where airborne noise reduction is 8dB higher and impact noise is 8dB lower than Part E				
HEA3	Private Space One credit is awarded for the provision of an outdoor space that is at least partially private. The space must allow easy access to all occupants. 1.5 m2 balcony per bedroom	1.2%	1	1	Provide roof terraces/patios
HEA4	Lifetime Homes 4 credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme. 3 credits are awarded with exemption from LTH criteria 2/3 applied	4.7%	4	4	Design to meet the lifetime homes standards
Management					
MAN1	Home User Guide Credits are awarded where a simple guide is provided to each dwelling covering information relevant to the 'non-technical' home occupier, in accordance with the Code requirements. The guide must be available in alternative formats on request, and should cover the following topics: 1. Operational issues 2. Site and surroundings	3.3%	3	3	Provide a home user guide which covers the requested topics.
MAN2	Considerate Constructors Scheme Credits are awarded where there is a commitment to comply with best practice site management principles using either the Considerate Constructors Scheme or an alternative locally/nationally recognised scheme. Best Practice:- score between 24 and 31.5 Best Practice+:- score between 32 and 40	2.2%	2	2	Confirm there is a commitment of achieving a score at least 32 point in CCS.
MAN3	Construction Site Impacts Credits are awarded where procedures meeting the Code requirements are in place for the following: Monitor, report and set targets for CO2/energy use from site activities Monitor, report and set targets for CO2/energy use from site related transport Monitor, report and set targets for water consumption from site activities Adopt best practice policies in respect of air (dust) pollution from site activities Adopt best practice policies in respect of water (ground and surface) pollution At least 80 % of site timber is responsibly sourced Two credits are achieved for meeting four or more of the six procedures above.	2.2%	2	2	Confirm at least 4 out of the six procedures will meet the requirements.
MAN4	Security Credits are awarded for complying with Section 2 – Physical Security from Secured by Design – New Homes. An Architectural Liaison Officer (ALO), or Crime Prevention Design Advisor (CPDA) from the local police force, needs to be appointed early in the design process and their recommendations incorporated.	2.2%	2	2	Ensure consultation with an ALO or CPDA will be undertaken to design out the opportunity for crime.
Ecology					
ECO1	Ecological Value of Site One credit is awarded for developing land of inherently low value. As there are large trees in the existing site therefore the credit is not applicable.	1.3%	1	1	The ecology report issue no 1 (3/02/2011) confirms the site has low ecological value
ECO2	Ecological Enhancement One credit is awarded where there is a commitment to enhance the ecological value of the development site.	1.3%	1	1	Ensure all key recommendations and 30% of additional recommendations in the ecology report issue no 1 (3/02/2011) will be implemented.
ECO3	Protection of Ecological Features	1.3%	1	1	Ensure the trees/vegetation

	One credit is awarded where there is a commitment to maintain and adequately protect features of ecological value.				retained will be protected during the construction period.
ECO4	Change of Ecological Value of Site Credits are awarded where the change in ecological value has been calculated in accordance with the Code requirements and is calculated to be: Minor negative change: between -9 and -3 species Neutral: between -3 and +3 species Minor enhancement: between +3 and +9 species Major enhancement: greater than 9	5.3%	4	2	Ensure the ecological enhancement is in line with the recommendations in the ecology report issue no 1 (3/02/2011)
ECO5	Building Footprint Credits are awarded where the ratio of combined floor area of all dwellings on the site to their footprint is: Houses 2.5:1 OR Flats 3:1 Houses 3:1 OR Flats 4:1	2.7%	2	2	Achieved
Total		100 %	107	73	68.55%

It should be noted that evidence is required for each of the credits to achieve the score above. If the credits cannot be achieved for any reason, then the target rating may not be possible.

6 Water Consumption Calculations

Water consumption calculation – Code level 3/4 compliance example

Devices	Unit	Capacity/flow rate	Use factor	Fixed Use	Litres/Person/day
WC (fixed flush)	Capacity (litre)	0	4.42	0	0
WC (dual flush)	full flush (litre)	6	1.46	0	8.76
WC (dual flush)	part flush (litre)	4	2.96	0	11.84
Wash hand basin taps	Flow rate (l/min)	6	1.58	1.58	11.06
bath	Capacity to overflow (l)	200	0.11	0	22
shower	Flow rate (l/min)	9	4.37	0	39.33
kitchen sink taps	Flow rate (l/min)	6	0.44	10.36	13
washing machine	litres/kg dry load	8.17	2.1	0	17.157
dishwasher	litres/place setting	1.25	3.6	0	4.5
water disposal	litres/person/day	1	3.08	0	3.08
					130.7
Rainwater saving					-
Grey water saving					20.6
Normalisation factor					0.91
Total water consumption					99.5