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7 Fitzroy Square: Apartments

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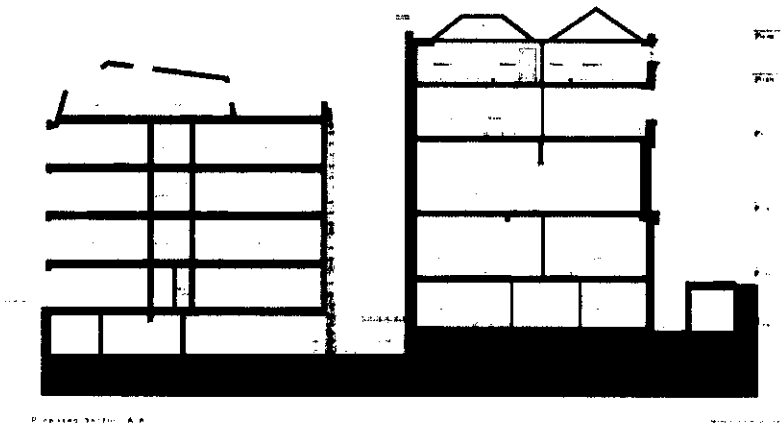

Issue Status

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First issue	26/08/2008	MF/DOR
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Executive Summary

Introduction

The Code for Sustainable Homes is an environmental rating system for new build homes. It forms part of the Building Research Establishment's (BRE) suite of environmental tools. Eight Associates have been appointed, as registered Code for Sustainable Homes assessors, to undertake an outline design stage assessment of the likely score for the development at the rear of 7 Fitzroy Square.

Building Summary

The proposed scheme is a new build development of seven apartments to the rear of a Grade 1 listed building. These will be developed to a high environmental standard with thoroughly insulated walls, good air tightness levels and water recycling, among other considerations.

The Grade 1 listed building is being assessed separately under EcoHomes due to it being a refurbishment.

Score Summary

This preliminary review outlines the rating for the site at present specification, including details of why the site scores certain credits and not others.

The site under assessment currently scores **68.90%**, which equates to **Code Level 4**. Certain mandatory requirements must be complied with to achieve this level of the Code, as detailed in the Rating Summary and Appendix 1. Please note that although credits are awarded in absolute figures, the rating is based on the weighted score (see appendix 1 for further details).

Camden Council require that the development achieve beyond the mandatory Code requirements in three sections, as follows:

- Materials (Mat1): at least 40% of all available credits must be achieved
- Energy (Ene1) and Water (Wat1): at least 60% of all available credits must be achieved

The developer has committed to achieving these targets, as set out in the relevant sections of this report.

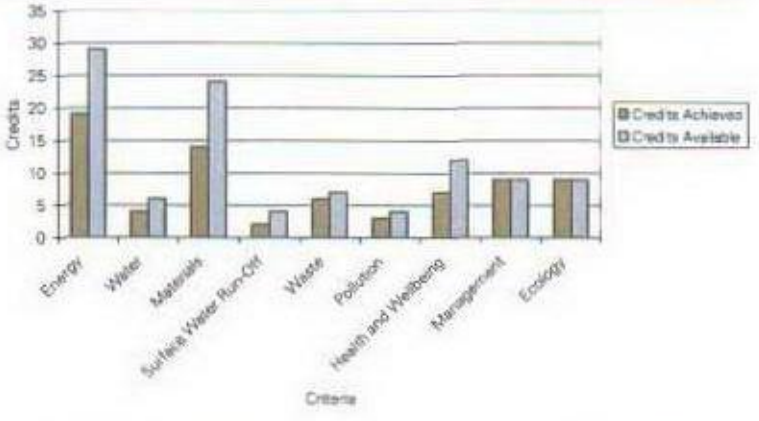
Rating Summary

Minimum Score Required

Code Level 1	36 points
Code Level 2	48 points
Code Level 3	57 points
Code Level 4	68 points
Code level 5	84 points
Code level 6	90 points

Rating Summary

Credit allocation	Available	Awarded	%	Weighting	Score
Energy	29	19	66	0.364	23.85
Water	6	4	67	0.090	6.00
Materials	24	14	58	0.072	4.20
Surface Water Run-Off	4	2	50	0.022	1.10
Waste	7	6	86	0.064	5.49
Pollution	4	3	75	0.028	2.10
Health and Wellbeing	12	7	58	0.14	8.17
Management	9	9	100	0.10	10.00
Ecology	9	9	100	0.12	10.00
Total	104	74			68.90%
Rating (also see below)				**Code Level**	4



Mandatory requirements

The Code for Sustainable Homes also has certain mandatory requirements that must be met to allow the development to be certified. Compliance with these is detailed below. Further information on the mandatory credits can be found in the Appendices.

Mandatory credits	Mandatory requirements achieved?	Code level achieved					
Carbon emissions (Ene1)	Yes	1	2	3	4	5	6
Indoor water use (Wat1)	Yes	1	2	3	4	5	6
Materials used (Mat1)	Yes	1	2	3	4	5	6
Surface water run off (Sur1)	Yes	1	2	3	4	5	6
Non-recycle waste storage (Was1)	Yes	1	2	3	4	5	6
Site waste management (Was2)	Yes	1	2	3	4	5	6
Lifetime Homes (Hea4)	Yes	1	2	3	4	5	6

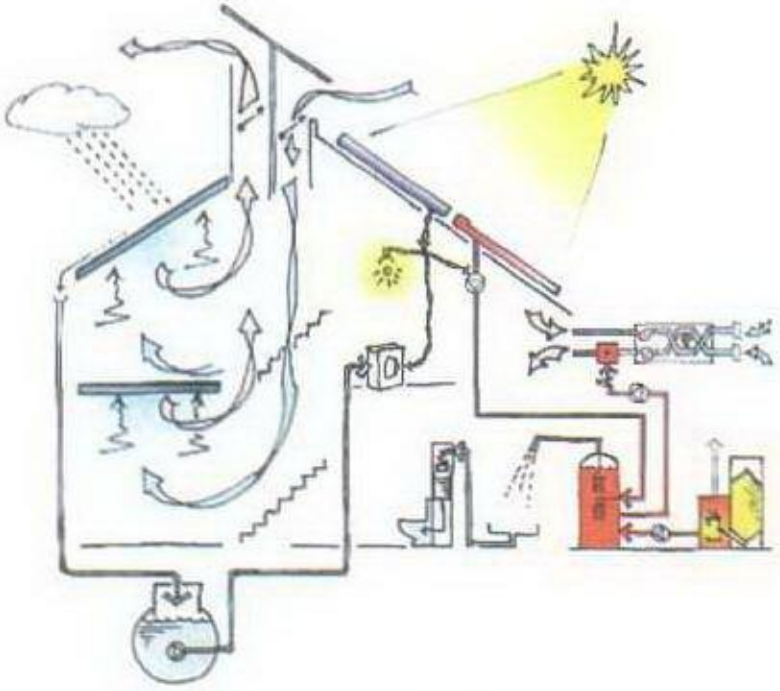
Energy

Energy

Current focus of attention has been placed on the role of carbon in provoking man-made climate change. Scientific reports such as from the International Panel on Climate Change (IPCC) and the analysis from the Stern Report on the economics of climate change provide foundations for swift actions at all levels to reduce the quantities of carbon we release into the atmosphere.

Reducing the carbon emissions of homes is possible through greater energy efficiency and substituting hydrocarbon-based fuels for renewable resources. Presently, energy efficiency measures, such as well insulated/air-tight buildings or energy efficient lighting/white goods, are the more cost effective option over replacing grid electricity/gas supply with on-site renewable energy generation. Compliant off-site renewable energy supplies may also be considered to reduce carbon emissions.

The Code for Sustainable Homes focuses on carbon emissions reductions through a mandatory requirement for individual dwelling carbon emission rates. The carbon emissions as a result of transport are also considered within these credits, with particular concentration being on reducing car usage through encouraging the use of bicycles and providing residents with opportunities and space to work from home.



Ene 1

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Aim	To minimise emissions of carbon dioxide (CO_2) to the atmosphere arising from the operation of a home and its services.
Explanation of Assessment	Credits are awarded based on the percentage improvement in the Dwelling Emission Rate (DER), below the Target Emission Rate (TER), for the dwelling where DER and TER are as defined in Part L. DER is the estimated emission rate calculated in CO_2kg per m^2 per annum arising from energy use for heating, hot water and lighting for the actual dwelling. TER is the maximum emission rate permitted by Building Regulations. Credits are awarded in accordance with the table below.

% improvement of DER over TER	Credits	Mandatory Levels (minimum required for rating)
≥ 10%	1	Level 1
≥ 14%	2	
≥ 18%	3	Level 2
≥ 22%	4	
≥ 25%	5	Level 3
≥ 31%	6	
≥ 37%	7	
≥ 44%	8	**Level 4**
≥ 52%	**9**	
≥ 60%	10	
≥ 69%	11	
≥ 79%	12	
≥ 89%	13	
≥ 100%	14	Level 5
'True Zero' Carbon	15	Level 6

Development Features relating to credit	The Design Team have committed to achieving an improvement in the DER over the TER of at least 52%. This meets the mandatory requirements to achieve a Code Level 4.
Credits Awarded	9
Level Awarded:	Level 4

Ene 2

eight

Aim	To future proof the efficiency of dwellings over their whole life and to encourage refurbished dwellings to improve their insulation standards through good fabric performance.
Explanation of Assessment	Credits are awarded (see table below) on the basis of the average heat loss across the whole site.

Average heat loss parameter (HLP) for each submission	
Credits	**HLP**
1	≥1.3
2	≥1.1

Development Features relating to credit	The average heat loss parameter (HLP) is expected to be less than 1.30 W/m²/K for all dwellings.
Credits Awarded	1

Ene 3

Aim	To encourage the provision of energy efficient internal lighting, thus reducing CO_2 emissions.
Explanation of Assessment	All dwellings in the development must meet the following criteria with light fittings having an efficacy of greater than 40 lumens per circuit watt.
Development Features relating to credit	A target of 75% low energy lighting will be met, as all internal lighting will be energy efficient. The fittings will be in accordance with Part L requirements.
Credits Awarded	2
Level Awarded	N/A

Credits	
1	40% of fixed internal light fittings are dedicated energy efficient fittings
2	75% of fixed internal light fittings are dedicated energy efficient fittings

Ene 4

Aim	To minimise the amount of energy used to dry clothes.
Explanation of Assessment	A credit is available for providing internal or external space and fixings for drying clothes. 4m of line required for 1 or 2 bed units, 6m for 3 bed or above units. Controlled ventilation (e.g. extract fan with humidistat, passive vent system or similar) is also required for internal facilities.

Credits	
1	Where space with posts and footings or fixings capable of holding 4m+ of drying line for 1-2 bed dwellings, and 6m+ of drying line for 3+ bed dwellings, is provided for drying clothes.

Development Features relating to credit	A compliant internal drying space will be provided in line with the above requirements for each dwelling. Humidistat controlled extract fans will also be fitted.
Credits Awarded	1

Ene 5

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Aim:	To encourage the provision or purchase of energy efficient white goods, thus reducing the CO_2 emissions from the dwelling.
Explanation of Assessment:	1 credit available where fridges and freezers and fridge/freezers are A+ rated under the EU energy efficiency labelling scheme. **AND** 1 credit available where all washing machines and dishwashers are A rated under the EU energy efficiency labelling scheme and where washer/dryers and tumble dryers have a B rating. **OR** 1 credit available if no white goods are provided but information on purchasing energy efficient white goods is provided to each dwelling.
Development Features relating to credit	All washing machines and dishwashers specified will be A rated under the EU energy efficiency labelling scheme and washer/dryers and tumble dryers will have a B rating.
Credits Awarded	2

Appliance	Min. Energy rating
Fridge / Freezer / Fridge-freezer	A+
Washing machine / Dishwasher	A
Tumble Dryer	B

Ene 6

Aim	The purpose of this credit is to encourage the provision of energy efficient external lighting.
Explanation of Assessment	These credits relate to lighting outside dwellings, including security lighting and internal communal areas. The development must meet the following criteria.

Credits	
1	**External & Communal Space lighting** Where all space lighting is specifically designed to accommodate only fluorescent lamps or other fittings with greater than 40 lumens per watt efficacy e.g. metal halide or sodium luminaries. If external, these must be fitted with dawn-to-dusk sensors or timers.
1	**Security lighting** Where all security light fittings are designed for energy efficiency and are adequately controlled such that: all burglar security lights have a maximum wattage of 150W, are fitted with movement detecting shut-off devices (PIR) AND daylight cut-off devices.

Development Features relating to credit	All external space lighting will comply with the above requirements.
Credits Awarded	2

Ene 7

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Aim	To reduce carbon emissions and atmospheric pollution by encouraging local energy demand.
Explanation of Assessment	Credits are awarded based on the percentage reduction in carbon emissions that result from using Zero or Low Carbon Technologies, for each dwelling using the calculation method detailed in *Calculation Procedures*, with credits awarded as detailed below:

Credits	
1	Where energy is supplied from local renewable or low carbon energy sources, or is designed and installed in a manner endorsed by a feasibility study prepared by an independent energy specialist. **AND** There is a **10%** reduction in carbon emission as a result of this.
2	There is a **15%** reduction in carbon emissions as a result of this method of supply.

Development Features relating to credit	A feasibility study has not been carried out therefore no credits can be awarded.
Credits Awarded	0

Ene 8

Aim	To encourage the wider use of bicycles as transport, and thus reduce the need for short car journeys, by providing adequate and secure cycle storage facilities.
Explanation of Assessment	The cycle spaces must be secure, weatherproof and must not be accessed through the dwellings. They must be provided in accordance with the following criteria:

Credits	Type of dwelling	Cycle spaces per dwelling required to gain credit
1	Studio or 1 bed 2 & 3 bedroom 4 bedrooms +	1 cycle space for every two dwellings 1 cycle space per dwelling 2 cycle spaces per dwelling
2	Studio or 1 bed 2 & 3 bedroom 4 bedrooms +	1 cycle space per dwelling 2 cycle spaces per dwelling 4 cycle spaces per dwelling

Development Features relating to credit	Eighteen covered, secure and well lit cycle racks shall be provided, one for each dwelling. Therefore, at least one credit is likely to be awarded.
Credits Awarded	1

Ene 9

Aim	To reduce the need to commute to work by providing residents with the necessary space and services to be able to work from home.
Explanation of Assessment	The following specifications are required to gain the credit. These can be located within the living room, one of the bedrooms or any other suitable areas. The space should include:

Credits	
1	• Two adjacent double sockets • Two telephone points or equivalent broadband connection • Window with adequate ventilation • 1.8m wall to allow occupant to install desk and filing cabinet/bookcase (2.5m wall if in living space of one bedroom flat) • Adequate ventilation in the room (e.g. openable window or passive stack etc)

Development Features relating to credit	It has been confirmed that the dwellings will incorporate the above facilities for a home office, located either in the living room or the second bedroom.
Credits Awarded	1

Water

Water

UK has less available water per person than most other European countries. Water supplies are coming under strain from a combination of increasing population density in low rainfall areas, increasing water usage trends, changing weather patterns and infrastructure depreciation. Furthermore, water transportation has an energy requirement that can be reduced through water efficiency measures.

Ensuring adequate water supply levels is a national issue that could be addressed through water supply measures such as building reservoirs, desalination plants and expanding water transport. However, reversing the current trend of increasing water usage over expanding water supply infrastructure is a more commercially viable and environmental cost-effective manner of minimizing the risk of prolonged water shortages.

Water saving devices available to reduce water usage include aerated showerheads, shower timers, ultra low flush toilets and cistern displacement devices.

The Code for Sustainable Homes strictly imposes mandatory requirements for potable water use within the home and encourages the use of rainwater for landscaping. The simplest and most cost effective system for rainwater collection is the water butt, but more complex central collection communal systems are also available.

Wat 1

Aim	To reduce the consumption of water in the home.
Explanation of Assessment	Credits are awarded based on the predicted average household water consumption.

Water consumption (litres/person/day)	Credits	Mandatory Levels required to achieve overall rating
≤ 120	1	Levels 1 & 2
≤ 110	2	
≤105	**3**	**Levels 3 & 4**
≤ 90	4	
≤ 80	5	Levels 5 & 6

Development Features relating to credit

The following specification is to be provided

- 4/2 litre dual flush WCs
- Aerated washbasin taps with a flow-rate of 4 litres/minute
- Showers with a maximum 9 litre/minute flow rate at supplied pressure (considered 3 bar).
- Small baths - 140 litres to overflow
- Kitchen taps with a flow-rate of 7 litres/minute
- No water softener is specified
- 40 litre washing machine
- 10 litre dishwasher
- Greywater recycling to be specified for flushing WC's

Estimated Code Calculation: 104.74 litres/person/day

Credits Awarded	3
Level Awarded	Level 3

Wat 2

Aim	To encourage the recycling of rainwater, and reduce the amount of water taken from the mains, for use in landscape/garden watering.
Explanation of Assessment	To gain the credit, a rainwater collection system must be installed for dwellings with a garden, patio or communal garden space. If no individual garden or communal space is specified or if only balconies are provided the credit can be awarded by default

Water butt volume requirements:	
Homes with individual gardens, patios and terraces (which can be halved if there is no planting provided and the whole of the external space is covered by a hard surface):	
Terrace and Patios	100 litres minimum
1-2 bedroom home with private garden	150 litres minimum
3+bedroom home with private garden	200 litres minimum

Development Features relating to credit	Water butts will be fitted in line with the above requirements.
Credits Awarded	1

Materials

Materials

The large volumes of UK-produced and foreign-imported materials used in the construction sector has a very large negative environmental impact. This can be a result of the energy used in the manufacture of the material, its 'embodied energy', or the waste and land destruction caused by the quarrying of the raw material inputs.

The harmful effects of building materials can be reduced through choosing materials with a relatively low environmental impact. In order to assess the environmental impact of materials, 'life-cycle' analysis can be used to assess materials in order to incorporate the actual cost versus the monetary cost of materials. In addition, care can be taken as to the sourcing of materials, referred to as 'responsible sourcing'.

This includes selecting and purchasing materials from local suppliers, using reused or recycled materials and using timber from temperate and sustainably managed woodlands. Building designs that incorporate the use of existing structure will have a relatively low environmental impact.

The Code for Sustainable Homes encourages sustainably sourcing materials from certified origins and the use of build-ups with lower environmental impacts as according to the BRE's 'Green Guide to Specifications'

Mat 1

Environmental impact of Materials

Aim	To encourage the use of materials that have less impact on the environment, taking account of the full life-cycle.
Explanation of Assessment	Credits are gained for each element. If at least 80% by area of each element scores an 'A rating' within the Green guide to Housing Specification, the credit allocation is attained.
Development Features relating to credit	

Table – Element specification

Element	Specification	Green Guide rating
Roof	Real slate with timber batons	A
External walls	Aerated brickblock work	A
Internal walls	Timber stud with plasterboard	A
Floor – upper and ground	Screeded beam and dense block	C
Windows	Timber framed	A

Credits Awarded	9

Mat 2

eight

Aim	To encourage the use of timber from sustainably managed sources, or reused timber In addition, to reward the use of suppliers with environmental management system.
Explanation of Assessment	Up to six credits are given on a sliding scale for the volume of materials used within the basic building elements that are from independently certified sources.

The majority of materials in the following basic building elements must be responsibly sourced:	For each of these elements the proportion of the following materials (by volume) that form part of the element must be determined:
1. Frame 2. Ground floor 3. Upper floors (including any loft boarding) 4. Roof (structure and cladding) 5. External walls (including external cladding) 6. Internal walls (including internal partitions) 7. Foundation/substructure 8. Staircase (includes the tread, rises and stringers)	1. Brick 2. Composites 3. Concrete (including blocks, tiles etc.) 4. Glass 5. Plastics 6. Metals (steel, aluminium etc.) 7. Stone 8. Timber

The number of credits awarded will depend on the volume of materials certified fewer than one of the following schemes, with more points being attained for the more rigorous certification schemes plus more points awarded for higher overall volumes of timber compared to other materials.

Level of recognition	Type of certification	
Tier 1	Timber only: Certified by FSC, PEFC, CSA or SFI with CoC	Most rigorous schemes
Tier 2		
Tier 3	Non-timber elements with ISO14001 or EMAS certification at both extraction and processing stages	
Tier 4	Timber elements: MTCC certified Non-timber elements with ISO14001, EMAS or BS8555 certification at either extraction or processing stage	Least rigorous schemes

Mat 2 (cont.)

Development Features relating to credit	The following clauses are to be incorporated within tender documents and specifications. ***All timber for use on the project is to be from approved well-managed sources.*** *For the avoidance of doubt, this is to mean that all solid timber and timber products supplied to the site or incorporated in joinery manufactured for the site are to be of known origin and accompanied by an FSC, CSA or SFI certificate with Chain of Custody (CoC) evidence. All Certificates are to be issued to the Client or the Client's representative in line with BRE ECOHOMES requirements.* ***All major materials for use on the project are to be from Manufacturers with Independently Audited Environmental Management Certification for Extraction and Processing Stages of Production.*** *For the avoidance of doubt, this is to mean that all brick, composite, concrete, glass, plastics, metal and stone products supplied to the site are to be sourced from extraction and manufacturing companies accredited under EMAS, ISO14001 or BS8555 (2003). All Certificates are to be issued to the Client or the Client's representative in line with BRE ECOHOMES requirements.* The volume of non-timber materials within the basic construction will likely limit the overall credits achieved to three out of six. The third credit may be achieved on detailed analysis of the scheme at formal assessment.
Credits Awarded	3

Mat 3

Responsible Sourcing of Materials

Aim	To encourage the use of timber from sustainably managed sources, or reused timber.
Explanation of Assessment	Up to three credits are given on a sliding scale for the volume of materials used within the basic building elements that are from independently certified sources.

The majority of materials in the following basic building elements must be responsibly sourced:	For each of these elements the proportion of the following materials (by volume) that form part of the element must be determined:
1. Stair (including handrails, balustrades, banisters, other guarding/rails (excluding staircase)) 2. Window (including sub-frames, frames, boards, sills) 3. External & internal door (including sub-frames, frames, linings, door) 4. Skirting (including architrave, skirting board & rails) 5. Panelling (including any other trim) 6. Furniture (including fitted; kitchen, bedroom and bathroom) 7. Facias (soffit boards, bargeboards, gutter boards, others) 8. Any other significant use.	1. Brick 2. Composites 3. Concrete (including blocks, tiles etc.) 4. Glass 5. Plastics 6. Metals (steel, aluminium etc.) 7. Stone 8. Timber

See Mat 2 for details of certification schemes recognised by the BRE.

Development Features relating to credit	The clause listed under Mat 2 will ensure that all credits here can be achieved.
Credits Awarded	2

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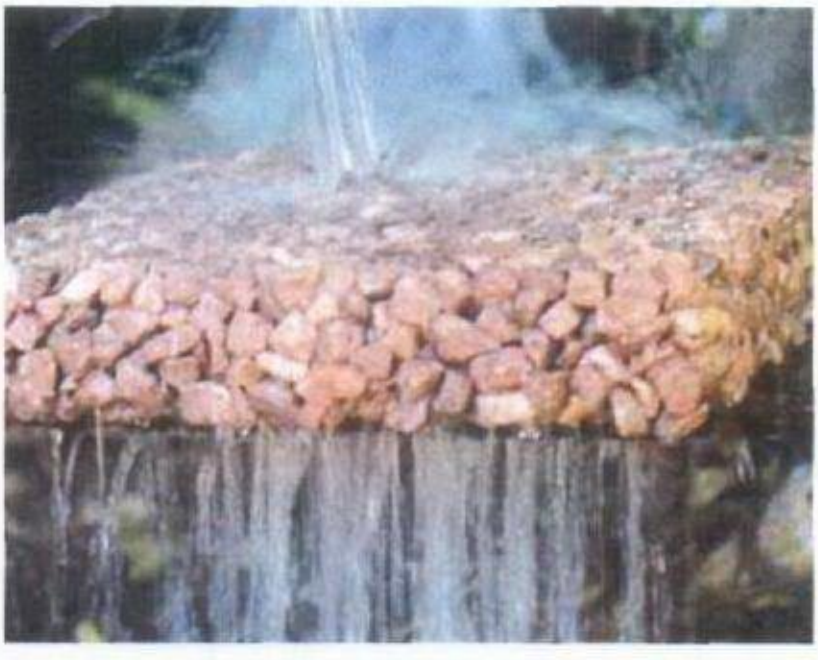
Surface Water Run-off & Flooding

Surface water Run-off and Flooding

According to the Environment Agency, around 5 million people in 2 million properties live in flood risk areas in England and Wales. Changes in our climate, such as wetter winters and more severe storms will increase the risk and impact of flooding in the future.

Flooding needs to be carefully managed to ensure the sustainability and viability of residential developments. In housing developments, this can be done through specifying permeable paving for all hard surfaces in the development or by the adoption of soak ways or other systems (including green roofs) that reduce peak run-off loads.

The Code for Sustainable Homes encourages the reduction of surface water run-off from hard surfaces and supports developments to be built in areas with low risk of flooding.



Sur 1

Reduction of surface run-off

Aim	To reduce and delay water run-off from the hard surfaces of a housing development to public sewers and watercourses, thus reducing the risk of localised flooding, pollution and other environmental damage.
Explanation of Assessment	

Mandatory	Ensure the peak rate of runoff into watercourses is no greater for the developed site than it was for the pre-development site.
2	Available for using SUDS to improve water quality of the rainwater discharged by either: Ensuring no discharge to the watercourse for rainfall depths up to 5mm. OR Establish agreements for the ownership, long term operation and maintenance of all sustainable drainage elements.

Development Features relating to credit	Peak runoff rates post construction will not be higher than preconstruction due to sedum roofs being specified; therefore the mandatory requirement will be met. No SUDS are currently specified.
Credits Awarded	0

Sur 2

Flood Risk

Aim	To encourage developments in areas with low risk of flooding or if developments are to be situated in areas with a medium risk of flooding, that appropriate measures are taken to reduce the impact in an eventual case of flooding.

Explanation of Assessment

2	Where evidence provided demonstrates that the assessed development is located in a zone defined as having a low annual probability of flooding (less than 1 in 1,000 chance)
	OR
1	Where evidence provided demonstrates that the assessed development is located in a zone defined as having a medium annual probability of flooding (less than 1 in 100 chance) and the ground level of the building, car parking and access is above the design flood level for the site's location. *

*Flood Risk can be identified from http://maps.environment-agency.gov.uk

Development Features relating to credit

The development is in a low flood risk zone as illustrated by the EA Flood Risk Map below.

Credits Awarded	2

Waste

Waste

Household and construction waste contribute to landfill issues and resource inefficiency. Current landfill sites are reaching saturation and prospective new sites bear a large cost in terms of replacing potentially productive land and causing environmental degradation. Many resources that are being buried in landfill also have a value if re-used or recycled for follow-on uses. In addition, the Landfill Tax escalator means it is becoming more expensive to send waste to landfill.

The burden is both on households' and the construction industry. According to DEFRA, in 2004 the construction and demolition industry contributed to 32% of the volume of waste arising in the UK. Whereas, households contribute only to 9% of the UK's total of 355 million tonnes of waste.

www.defra.gov.uk/environment/statistics/waste/kf/wrkf02.htm

In order to reduce the amount of waste that goes to landfill, the 'waste hierarchy' as set out in the government's Waste Strategy (2007), should be followed: waste prevention (as the more desirable option), reuse, recycle/compost, energy recovery and disposal (as the least desirable option).

The Code for Sustainable Homes aims to encourage the reduction and effective management of waste, as well as promoting the recycling and composting of materials both in construction works and in a household's daily activity. It also aims to reduce the amount of organic waste reaching landfill, primarily through promoting home or communal composting.

Was 1

Aim

To encourage developers to provide homeowners with the opportunity and facilities to recycle household waste.

Explanation of Assessment

Mandatory	The minimum capacity of waste storage as calculated from BS5906 (British Standards 2005) i.e. 100 litres volume for a single bedroom dwelling, with a further 70 litres volume for each additional bedroom. All containers must be accessible to disabled people, particularly wheelchair users and sited on a hard, level surface. To allow easy access, the containers must not be stacked.
2	Where there is no external storage for recyclable waste, and no Local Authority Collection Scheme, dedicated internal storage for recyclable waste is provided as detailed below: Three external bins with: A minimum total capacity of 60 litres No individual bin smaller than 15 litres Located in an adequate internal space.
4	Where there is a combination of adequate internal storage plus either a Local Authority Collection Scheme or external storage consisting of: Either three internal storage bins for recyclable waste: - with a minimum total capacity of 30 litres. Where no individual bin is smaller than 7 litres. OR a single 30 litre bin linked with a Local Authority service that collects at least 3 types of recyclable material in a single bin located in an adequate internal space. **AND** EITHER Provision of adequate external storage space for bins plus a Local Authority Scheme collecting at least 3 types of recyclable waste. OR For individual dwellings:- an adequate external space for storing three external bins (as specified below) for recyclable waste: - a minimum total capacity of 180 litres - no individual bin smaller than 40 litres - located within 10m of an external door OR For blocks of flats, a private recycling scheme operator is appointed to maintain the bins and collect recyclable waste on a regular basis. The recycling containers must: - be located in an adequate external space - be sized dependant on the frequency of collection, based on guidance from the recycling scheme operator - store at least 3 types of recyclable waste - be located within 50m of an external door.

Was 1 (cont.)

Development Features relating to credit	**Mandatory Requirement – Non-recyclable waste:** The design team have committed to complying with the above mandatory requirements. This means that there must be 100 litres volume for a single bedroom dwelling with a further 70 litres for each additional bedroom in line with BS5906. **Recyclable Waste**: A Local Authority collection scheme will operate, with recyclable household waste sorted after collection. A single bin for recyclables will be provided with 30 litres total capacity, located in dedicated kitchen cupboards. Camden collects recyclables weekly.
Credits Awarded	4

Was 2

eight

Aim	To promote reduction and effective management of construction related waste by improving on performance that meets the Site Waste Management Plans (SWMP) requirements.
Explanation of Assessment	A Site Waste Management Plan must be produced and implemented. This requires the monitoring of waste generated on site and the setting of targets to promote resource efficiency in accordance with relevant guidance. 1 credit is achieved when the Site Waste Management Plan includes procedures and a commitment to minimise waste generated on site in accordance with the relevant guidance. 2 credits are achieved if the plan also includes procedures and commitments to sort, reuse and recycle construction waste, either on site or through a licensed external contractor.
Development Features relating to credit	A site waste management plan will be produced and implemented on site as part of the tender requirements. This will focus on minimising and recycling at least 5 types of construction waste.
Credits Awarded	2

Was 3

Aim:	To encourage developers to provide the facilities to compost household waste, reducing the amount of household waste sent to landfill.
Explanation of Assessment:	The provision of individual home composting facilities will gain the credit. For dwellings without gardens a communal or community composting service is to be provided within 50m of the external door and a management plan should be in place. One credit is awarded by complying with one of the following:

1 Credit
Individual home compositing facilities **OR**
A local communal or community composting service, which the Local Authority runs or where there is a management plan in place **OR**
A Local Authority green/kitchen waste collection scheme, including an automated waste collected system.

Development Features relating to credit	A Local Authority composting facility is currently being piloted by Camden Council but is not yet borough wide, therefore this credit cannot be awarded at present.
Credits Awarded	0

Pollution

Pollution

Homes have an impact on the amount of damage that is happening to the biosphere from greenhouse gases and other pollutant gases. The main greenhouse gas being discharged from houses is carbon dioxide, emitted from the burning of fossil fuels.

Carbon dioxide and other detrimental substances are used in some insulating materials and/or are a by-product from heating a dwelling. In the long-term, the concentration of these substances in the atmosphere exacerbates global warming, contributing to significant climate change. Air pollutants also have known harmful effects to human health and the environment, as well as causing long-term damage to the Earth by exposing living organisms to acid rain.

The Code for Sustainable Homes encourages the use of alternative substances and products to reduce the effects of pollution.

Pol 1

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Aim	To minimise the quantity of greenhouse gases embodied in the insulation of the site.
Explanation of Assessment	One credit is awarded where all insulating materials have a Global Warming Potential (GWP) of less than 5. These include hot water cylinders, pipe lagging, wall and roof insulants.
Development Features relating to credit	Insulants with a global warming potential of less than 5 will be used throughout the development, to include the build ups, the building services and any soundproofing.
Credits Awarded	1

Pol 2

eight

Aim	To reduce the emission of nitrogen oxides (NOx) into the atmosphere.
Explanation of Assessment	Credits are awarded on the basis of NOx emissions arising from the operation of space heating and hot water systems for each dwelling, in accordance with the table below:

Credits	NO_x Emission
1	≤100mg/kWh
2	≤70mg/kWh
3	≤40 mg/kWh

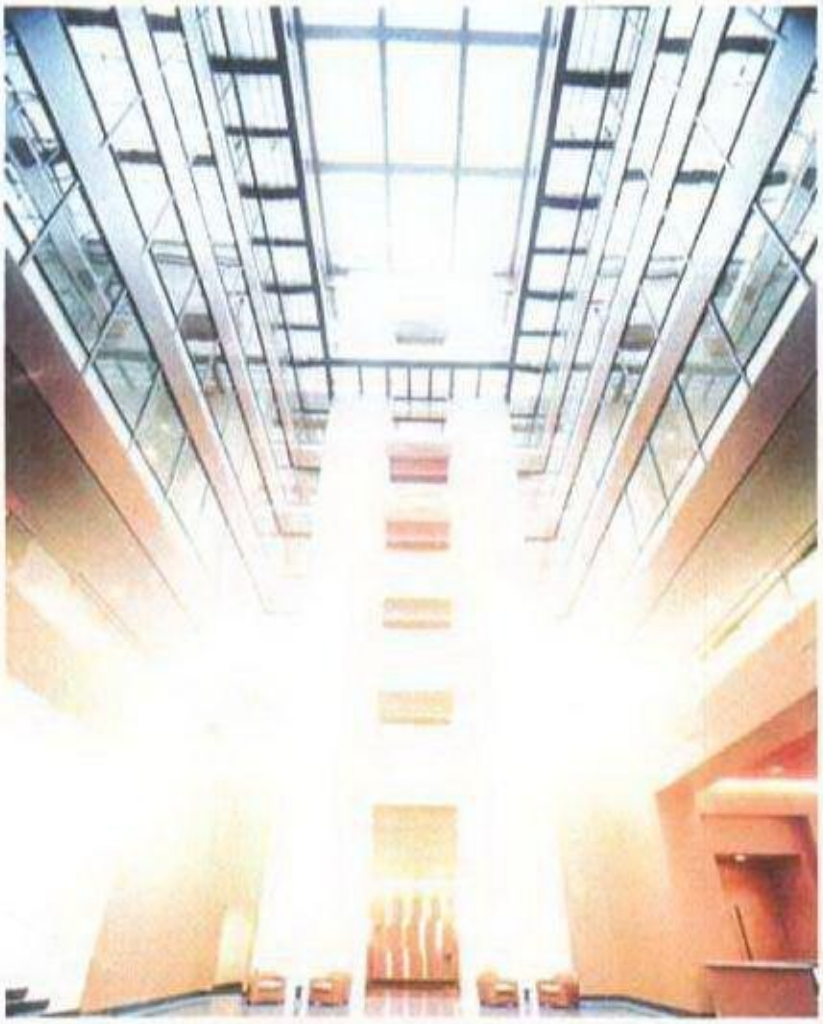
Development Features relating to credit	Efficient condensing boilers are being provided for all dwellings with NOx emissions of 70mg/kWh or less at 0% excess O_2.
Credits Awarded	2

Health & Well-being

Health & Well-being

In the UK people spend, on average, around 90% of their time in buildings or within the built environment. Buildings make a major contribution to our quality of life because of the environments they provide for our work, leisure and home life. They must provide a healthy and comfortable environment in which to live or work. Improved quality of environments within and around homes can impact on physical and mental health.

Key issues which the Code for Sustainable Homes addresses include lighting, noise, outdoor space and adaptable housing.



Hea 1

Aim	To improve the quality of life in homes through good daylighting, and to reduce the need for energy to light a home.
Explanation of Assessment	All dwellings in the development must meet the following criteria through daylighting calculations carried out by an independent daylighting consultant.

Credits	
1	Kitchen to meet the daylighting criteria set out in British Standard BS 8206: part 2 (Daylight Factor 2%)
1	Living rooms, dining rooms and studies to meet the daylighting criteria set out in British Standard BS 8206: part 2 (Daylight Factor 1.5%)
1	Kitchens, living rooms, dining rooms and studies to be designed to have a view of the sky according to criteria set out in British Standard BS 8206: Part 2

Development Features relating to credit	It is presumed that the rooms will not achieve the daylighting factors required by the Code and it will not be possible to have a view of the sky from all necessary rooms. Therefore no credits can be awarded.
Credits Awarded	0

Hea 2

Aim	To ensure the provision of sound insulation and reduce the likelihood of noise complaints from neighbours.
Explanation of Assessment	Credits are awarded for achieving higher standards of sound insulation than those given in Approved Document E of the Building Regulations and demonstrating it by using post completion testing or robust details. A commitment to carry out a programme of pre-completion testing based on normal programme of testing described in Part E for every group or sub-group of houses or flats and that the performance of each dwelling:

	Credits
Achieves airborne sound insulation values that are at least **3dB** higher, and impact sound insulation values are at least **3dB** lower, than the performance standards set out in Part E.	1
Achieves airborne sound insulation values that are at least **5dB** higher, and impact sound insulation values are at least **5dB** lower, than the performance standards set out in Part E.	3
Achieves airborne sound insulation values that are at least **8dB** higher, and impact sound insulation values are at least **8dB** lower, than the performance standards set out in Part E.	4

Development Features relating to credit	Sound insulation values will be at least **5dB** higher, and impact sound insulation values will be at least **5dB** lower, than the performance standards set out in Part E. Therefore, 3 credits can be awarded.
Credits Awarded	3

Hea 3

eight

Aim	To improve the occupiers quality of life by providing a private outdoor space.
Explanation of Assessment	A credit is achieved for an outdoor space which allows easy access to **all** occupants and which is only accessible to occupants of designated dwellings. This could be a private or communal garden, roof terrace or balcony (of sufficient size).
Development Features relating to credit	No private space is currently specified.
Credits Awarded	0

Hea 4

eight

Aim	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.
Explanation of Assessment	The credits are achieved when all the principles of Lifetime Homes have been complied with.
Development Features relating to credit	All lifetime homes criteria will be met.
Credits Awarded	4
Level Awarded	Sufficient to achieve Level 6.

Management

Management

The management and operation of a building and the construction process itself have a major impact on its environmental performance. Information can encourage the tenants running the building to have an integrated energy and environmental perspective in their daily business.

In addition, site management during construction works is important to ensure the optimum use of natural resources and to minimise impact on the local environment through control of pollution, waste production and energy consumption.

Man 1

Aim

To recognise and encourage the provision of guidance to enable home owners/ occupiers to understand and operate their home efficiently, in line with current good practice and in the manner envisaged by the developer, and to make best use of local facilities.

Explanation of Assessment

Up to three credits are available where the following is provided:

Credits	
2	Where evidence can be provided to demonstrate that there is provision, in each home, of a simple guide that covers information relevant to the 'non-technical' tenant/occupant on the operation and environmental performance of their home.
1	Where evidence can be provided to demonstrate that the guide also covers information relating to the site and its surroundings.

The following list of information will be provided in the Home User Guide:

2 credits	**3 credits (as for 2 credits plus:)**
1. Environmental Design Features (Including CODE certificate) 2. Energy - SAP Rating (SAP) - Details of renewable energy systems - Insulation & Draughting measures - Energy saving tips 3. Water Use - Internal & External water saving features 4. Recycling & Waste - Local Authority Scheme details - Location of Recycling Bins 5. Sustainable DIY tips 6. Emergency information - Smoke detector locations 7. Links, References & Further info	1. Recycling & Waste - Details of where to recycle materials not covered by LA weekly collection scheme 2. Public Transport - Maps & Timetables - Cycle storage & local cycle paths - Car parking & any local car sharing or park & ride schemes - How to get to local amenities by public transport 3. Local amenities - Location of amenities listed under credit Tra 3 4. Responsible Purchasing - White goods, light fittings, timber and local or organic food (farmers markets etc) 5. Emergency information - A&E department and emergency services 6. Links, Reference & Further info

Man 1 (cont.)

Development Features relating to credit	A full home user guide will be provided to include all BRE recommended contents, as detailed in the table above. The Guide will be available in alternative formats.
Credits Awarded	3

Man 2

Aim	To recognise and encourage construction sites managed in an environmentally and socially considerate and accountable manner.
Explanation of Assessment	

Credits	
1	Where evidence can be provided to demonstrate that there is a commitment to comply with the Considerate Constructors Scheme (CCS) and score between 24 to 31.5 points.
2	Where evidence provided demonstrates that there is a commitment to go significantly beyond best practice site management principles - a commitment to achieve at least 32 out of 40 points under CCS.

Development Features relating to credit	The site will be registered under the Considerate Constructors Scheme and a commitment has been made to pass the scheme, to achieve at least 32 out of 40 under the scheme.
Credits Awarded	2

Man 3

Aim	To recognise and encourage construction sites managed in a manner that mitigates environmental impacts.
Explanation of Assessment	Credits are awarded where this a commitment and strategy to operate site management procedures on site as follows:

Credits	
1	Where there are procedures that cover 2 or more of the following items: • Monitor, report and set targets for CO2 production or energy use arising from site activities. • Monitor and report CO2 or energy use arising from commercial transport to and from site. • Monitor, report and set targets for water consumption from site activities. • Adopt best practice policies in respect of air (dust) pollution arising from site activities. • Adopt best practices in respect on air and water (ground and surface) pollution occurring on the site. • 80% of site timber is reclaimed, re-used or responsibly sourced.
2	Where there are procedures that cover 4 or more of the items listed above.

Development Features relating to credit	The contractors tender will include requirements to: • Monitor, report and set targets for CO2 production or energy use arising from site activities. • Adopt best practice policies in respect of air (dust) and water pollution by complying with Environment Agency Pollution Prevention Guidelines 1, 5 and 6. • Ensure that any new temporary works timber is FSC certified.
Credits Awarded	2

Man 4

Aim	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.
Explanation of Assessment	Credits are awarded where the design team commit to working with an ALO in the early design stages as follows:

Credits	
2	These credits are awarded if a commitment to work with an Architectural Liaison Officer from the Local Police force and to follow their recommendations into the design of the dwelling.

Development Features relating to credit	There is a commitment to work with an Architectural Liaison Office and to follow their recommendations.
Credits Awarded	2

Ecology

Ecology

The preservation of biodiversity is an important concern in a country with a high population density such as the UK. Development is often linked with habitat destruction, but opportunities for habitat conservation and enhancement within new developments provide a chance to contribute to wildlife corridors within urban areas and to increase the ecological value of built land (the ecological value of a site is affected by previous uses and the presence of ecological features such as trees, hedges, watercourses, wetlands, meadows etc.).

The Code for Sustainable Homes encourages the use of land with a low existing ecological value and rewards measures taken to protect and to increase the biodiversity of the site.

Eco 1

Aim	To encourage development on land that already has a limited value to wildlife, and discourage the development of ecologically valuable sites.
Explanation of Assessment	A credit is awarded for developing land of inherently low ecological value (Code checklist) or providing an ecological report of the site prepared by a registered Ecological Consultant, which should state that the land being developed is of insignificant ecological value or will remain undisturbed by the construction works in areas of ecological value.
Development Features relating to credit	The site is currently occupied by an office building so can be assumed to be of low ecological value.
Credits Awarded	1

Eco 2

Aim	To enhance the ecological value of a site.
Explanation of Assessment	Appointment of a registered Consultant to review landscaping proposals, and a commitment to follow recommendations is required to gain the credit. A qualified Landscape/Ecological Consultant with at least 3 years experience and with AWTC, IEMA or IEEM or Landscape Institute professional membership should be able to review the proposed landscaping scheme to provide native, wildlife friendly planting amongst other recommendations.
Development Features relating to credit	Due to the minimal scope for increasing ecological value of the site, an ecologist will not being appointed.
Credits Awarded	0

Eco 3

Aim	To protect existing ecological features from substantial damage during the clearing of the site and the completion of construction works.
Explanation of Assessment	Where the contract specification ensures that all trees with over 100mm trunk diameter, hedges, ponds, streams etc are maintained and adequately protected from damage during clearing and construction works. Where none of the above features are present, the credit is achieved by default.
Development Features relating to credit	Because the site is currently occupied by an office building it has no ecological features to protect, therefore this credit can be awarded by default.
Credits Awarded	1

Eco 4

Aim	The aim of this credit is to reward steps taken to minimise reductions in ecological value and to encourage an improvement
Explanation of Assessment	Credits are awarded depending on the improvement of ecological value on site as follows:

Credits	Ecological Value (natural plant species per hectare)
1	For a change in value of between –9 and –3 natural plant species (per hectare)
2	For a change in value of between –3 and +3 natural plant species (per hectare)
3	For a change in value of between +3 and +9 natural plant species (per hectare)
4	For a change in value greater than +9 natural plant species (per hectare)

Development Features relating to credit	Two credits can be awarded by default as there are no plant species on site, therefore at the worst case scenario there will be a neutral change in number of plant species.
Credits Awarded	2

Eco 5

Aim	To promote the most efficient use of a building's footprint by ensuring land and material use is maximised for every dwelling on a development.
Explanation of Assessment	Credits are awarded where the ratio of combined net internal floor area of all dwellings on the site to their footprint (as measured by the total net internal ground floor area) as follows:

Credits	
1	For houses: Floor Area : Footprint ratio for all houses on the site is greater than 2.5:1 AND For flats : the total combined Floor Area : Footprint ratio for all flats on the site is greater than 3:1 OR For a combination of houses and flats: a ratio of total net internal floor area : total ground floor area greater than the area weighted average of the two ratios above (see calculator if required.
2	For houses: Floor Area : Footprint ratio for all houses on the site is greater than 3:1 AND For flats : the total combined Floor Area : Footprint ratio for all flats on the site is greater than 4:1 OR For a combination of houses and flats: a ratio of total net internal floor area : total ground floor area greater than the area weighted average of the two ratios above (see calculator if required.

Development Features relating to credit	The ratio of the building footprint to the total floor area is 4:1, therefore two credits will be awarded.
Credits Awarded	2

Appendix 1

Background

The Code for Sustainable Homes was launched in December 2006 with the publication of 'Code for Sustainable Homes: A step change in sustainable home building practice' (Department of Communities and Local Government 2006).

This introduced a single national standard to be used in design and construction of new homes in England, based on the BRE's EcoHomes scheme. Adoption of the Code is intended to encourage continuous improvements in sustainable home building.

Issues

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

Energy	Surface Water run-off	Health & well being
Water	Waste	Management
Materials	Pollution	Ecology

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

Mandatory Requirements

The Code for Sustainable Homes includes several mandatory requirements. Four of these consist of a single mandatory requirement that must be met regardless of the Code level aimed for. These are as follows:

Credit reference / title	**Mandatory Requirement**
Mat1: Environmental Impact of Materials	At least three of the following five elements must achieve a rating of D or better in the 2008 Green Guide: *Roof, external walls, internal walls, upper & ground floors and windows.*
Sur1: Management of Surface Water Run off	Ensure that the peak rate of run off is no greater for the developed site than it was for the pre-developed site.
Was1: Storage of Non-recyclable Waste	Provide sufficient space for waste storage to comply with BS5906 (2005); i.e. a volume of 100 litres for a single bedroom dwelling and another 70l for each additional bedroom.
Was2: Construction Site Waste Management	Develop and implement a *Site Waste Management Plan.* This must include setting targets, monitoring and reporting waste generated and complying with the legal requirements set in SWMP regulations, 2008.

Appendix 1 (cont.)

So long as these are achieved, two further issues have mandatory requirements. The minimum standards for these vary for each level of the Code, with more stringent benchmarks the higher the Code level sought. These are as follows:

Code level	1	2	3	4	5	6
Ene1: CO2 Emission rate % improvement in DER over TER	10	18	25	44	100	'True zero'
Wat1: Indoor water use Maximum litres/person/day	120	120	105	105	80	80

The final credits for which a mandatory requirement applies for Level 6 only are Ene 2, where a Heat Loss Parameter of maximum 0.8 must be achieved and Hea 4, Lifetime Homes, for which all of the credit requirements must be complied with

Scoring System

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

- It is assessed at the level of an individual 'Dwelling'.
- It contains a minimum mandatory standard for energy, water, materials, waste, surface water run-off, which must be met before even the lowest of the Code can be achieved.
- It demands higher minimum standards for energy and water to be met before the higher levels of the Code can be achieved.
- It is performed in two stages with 'Final' Code certification taking place after the 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 a 'star rating' for the dwelling.

Code Levels	Total Points Score (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