BREEAM ECOHOMES

PRE-ASSESSMENT REPORT

CEDAR HOUSE, FAIRFIELD STREET

JANUARY 2012

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ELEMENT SUSTAINABILITY – ISSUE NOTES

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Client: **Mr. M. Dayeh**

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Authorised by:



Laurie Wills
Director

20th January 2012

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ELEMENT SUSTAINABILITY

phone: 0161 928 5396

email: info@elementsustainability.co.uk

www: www.elementsustanability.co.uk

CONTENTS

1. Introduction 1
2. Method 3
3. Results 4

Appendix A - EcoHomes Pre-Assessment Report, Credit Summary

1. INTRODUCTION

Building Research Establishment Environmental Assessment Method (BREEAM) EcoHomes is an environmental assessment method for rating and certifying the performance of homes. Although superseded in 2007 by the Code for Sustainable Homes for newly constructed dwellings, at the time of writing EcoHomes remains the appropriate methodology for refurbishment projects such as this.

This EcoHomes Pre-Assessment report has been prepared for the proposed refurbishment development at Cedar House, Fairfield Street by an independent, licensed assessor on behalf of Mr. M Dayeh at the request of MV Architects Ltd.

The development proposals comprise a number of existing offices and newly converted apartment dwellings which will be constructed within the refurbished mill building, providing accommodation on all floors of the building, as follows:

- Ground floor – apartments 1 – 6 and reception
- First floor – apartment 7 and existing office
- Second floor – existing office only
- Third floor – apartments 8 - 9 and existing office
- Fourth floor – existing office only

It is understood that a EcoHomes rating of 'Very Good' is targeted for this site. Figure 1.1 presents the Cobourg Street elevation from where the residential accommodation will be accessed.

Figure 1.1 – Cobourg Street Elevation

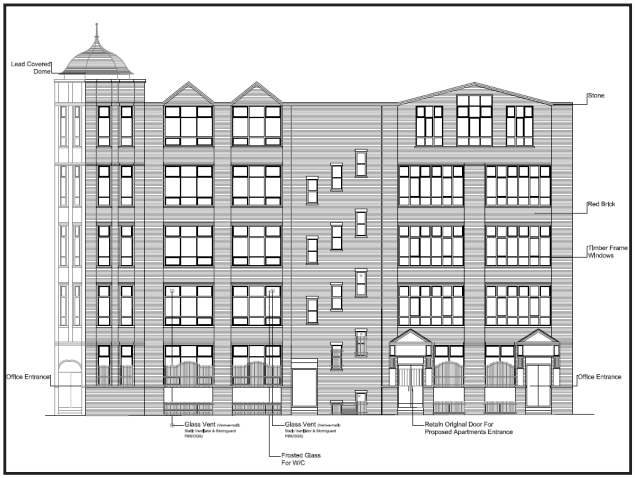
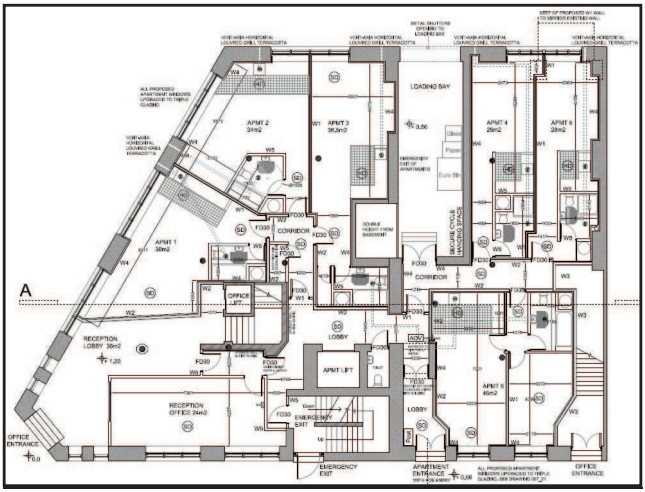


Figure 1.2 presents the ground floor plan of the buildings which will contain the majority of the residential accommodation.

Figure 1.2 – Ground Floor Plan



2. METHOD

The proposed development, along with site details and specifications have been considered and entered within the EcoHomes 2006 Pre-Assessment calculator tool.

This provides an initial estimation of the scheme's performance under the EcoHomes methodology.

A Pre-assessment report demonstrating how the requisite 'Very Good' target may be achieved by the apartments are presented within the Appendix of this report.



3. RESULTS

The EcoHomes assessment process appraises developments across eight categories of sustainable design including:

- Energy
- Transport
- Pollution
- Materials
- Water
- Land Use and Ecology
- Health and Wellbeing
- Management

Following an initial review of the proposed development site, the EcoHomes (2006) Pre-Assessment report demonstrates that the apartments are able, in principle, to meet the 'Very Good' target rating.

The Pre-Assessment report demonstrates how compliance with the **Very Good target may be achieved, scoring 59.58%** (above the target score of 58%). Please note that a number of assumptions have been made within this initial assessment process which will require confirmation by means of further technical input during the formal assessment.

An overview of the credits sought in each category is provided in Section 4. The Pre-Assessment report detailing the measures and design features necessary to achieve EcoHomes 'Very Good' are presented within the Appendix of this document.

4. REVIEW OF ECOHOMES CREDIT REQUIREMENTS

The following section provides an overview of the measures and design features necessary to gain credit award within each assessment of the eight assessment categories and demonstrates the commitments made by the developer to ensure the delivery of a sustainable refurbishment project.

Energy

Ene 1 – The scheme will be specified with electric heating. In order to achieve compliance with Building Regulations, Part L (2010) it is assumed that the scheme will achieve a dwelling emission rate of 34kgCO2/m2/yr (determined by indicative SAP calculations - please note that full compliance calculations will be required to confirm this).

Ene 2 – In order to achieve compliance with Building Regulations, Part L (2010) indicative SAP calculations show the dwellings will be specified to a high standard of insulation, resulting in an estimated Heat Loss Parameter of <1.75 (please note that full compliance calculations will be required to confirm this).

Ene 3 – Internal drying space will be provided in each of the bathrooms.

Ene 4 – A+ rated fridge/freezers and A rated washing machines will be installed in each dwelling.

Ene 5 – 100% low-energy lighting will be specified in each dwelling.

Ene 6 – 100% external lighting will be either CFLs or strip lighting and controlled by daylight sensors. Additionally, should burglar security lighting be specified it will be <150W and controlled by daylight and PIR sensors.

Transport

Tra 1 – All dwellings are within 500m of a 15 minute peak and a ½ hourly off peak public transport service (Piccadilly Station, Manchester).

Tra 2 – 1 EcoHomes compliant cycle space will be provided within the development for each apartment.

Tra 3 – The dwellings are within 500m to a food shop and post box. Additionally they are located within 1,000m of a cash point, pharmacy, postal facility and place of worship. Safe pedestrian access is available to all the aforementioned amenities.

Tra 4 – Compliant home office space will be provided in each dwelling.

Pollution

Pol 1 – All insulants specified will have GWP of <5 and zero ODP.

Pol 2 – Credit not sought.

Pol 3 – Credit not sought.

Pol 4 – It is intended that the carbon dioxide emissions from the dwellings be reduced through a fabric led approach to energy demand reduction.

Pol 5 – A review of the Environment Agency Flood Map shows the site to be located in an area of low probability of flooding (to be confirmed by Flood Risk Assessment).

Materials

Mat 1 – The external walls, ground and upper floors, roof and windows will be retained from the original structure and are therefore, awarded a default environmental impact rating of 'A' in the Green Guide. It is understood that the site does not comprise new or additional external surfacing nor boundary protection hence, these credits awarded by default.

The new internal walls will be constructed from galvanised studwork, plasterboard and paint and achieve a Green Guide environmental impact rating of 'A'.

In order to meet current building regulation requirements and to allow the original windows to be retained, secondary uPVC double glazing will be installed to each dwelling. This will also achieve environmental impact rating of 'A'.

All materials will therefore, score an 'A' rating for environmental impact based upon Life Cycle Assessments (LCA) by the BRE.

Mat 2 – Where feasible, the majority of new and re-used materials in the basic building elements will be responsibly sourced.

Mat 2 – Where feasible, the finishing elements will be responsibly sourced.

Mat 4 – All dwellings will be specified with three, dedicated internal recycling bins (minimum individual capcity of 7l., minimum total capacity 30.l.) combined with Local Authority collection of recyclate.

Water

Wat 1 – Dwellings will be specified to with low flow fixtures and dual flush WCs. On this basis calculated water demand = 32m^3/bedspace/year (87 litres/person/day).

Wat 2 – Dwellings do not have gardens. On this basis credit awarded by default.

Land Use and Ecology

Eco 1 – The entire site has been previously developed and is of no ecological value hence, credit awarded by default.

Eco 2 – Credit not sought.

Eco 3 – Default credit award as site is of no ecological value.

Eco 4 – No change in ecological value therefore, estimated change in ecological value for the site is between -3 and +3 natural species.

Eco 5 – Credit not sought.

Health and Wellbeing

Hea 1 - Assumed living room, dining room and study will benefit from average daylight factor of >1.5 (to be confirmed by daylight factor calculations for individual dwellings).

Hea 2 – Building Regulations, Part E compliance standards will be met and the developer will undertake a post completion acoustic testing regime in accordance with BREEAM EcoHomes enhanced testing regime requirements.

Hea 3 – Credit not sought.

Management

Man 1 - A non-technical Home User Guide will be issued to all units which will include details of the dwellings as well as the site and surroundings.

Man 2 – Credit not sought.

Man 3 – A commitment has been made to adopt best practice in respect to water and air pollution.

Man 4 – The site will meet Secured By Design award and external door and windows will be specified to meet LPS1175R1 or PAS24-1/BS7950.

Appendix A

EcoHomes (2006) Pre-Assessment Report, Credit Summary

EcoHomes

EcoHomes 2006 – The Environmental Rating for Homes

Credit Summary Table, Rating and Scoring sheet – 2006/ Issue 1.3

April 2006

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BREEAM Office
BRE
Garston
Watford WD25 9XX
Tel: 01923 664462
E-mail: ecohomes@bre.co.uk
Web site: www.ecohomes.org

EcoHomes 2006 Credit Summary Table

Issue		Credit	Dwelling Credits achieved	Location
Energy				
Ene1	**CO_2 emission** Credits are awarded to achieve SAP 2005 CO_2 emissions as follows: • Less than or equal to 40 kg/m²/yr OR • Less than or equal to 36 kg/m²/yr OR • Less than or equal to 32 kg/m²/yr OR • Less than or equal to 30 kg/m²/yr OR • Less than or equal to 28 kg/m²/yr OR • Less than or equal to 26 kg/m²/yr OR • Less than or equal to 24 kg/m²/yr OR • Less than or equal to 22 kg/m²/yr OR • Less than or equal to 20 kg/m²/yr OR • Less than or equal to 18 kg/m²/yr OR • Less than or equal to 15 kg/m²/yr OR • Less than or equal to 10 kg/m²/yr OR • Less than or equal to 5 kg/m²/yr OR • Less than or equal to 0 kg/m²/yr OR • Less than or equal to -10 kg/m²/yr Note: -10 kg CO_2/m²/yr allows for recognition of 'true zero' carbon solutions.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	2 max 15	
Ene2	**Building envelope performance** Up to 2 credits awarded where thermal performance based on the Heat Loss Parameter (HLP) method meets the following requirements: **For new build:** • where the HLP is less than or equal to 1.3 W/m²K OR • where the HLP is less than or equal to 1.1 W/m²K	 1 2	 2	

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	For refurbishment: • where the HLP is less than or equal to 2.2 W/m²K OR • where the HLP is less than or equal to 1.75 W/m²K	1 2	max 2	
Ene3	**Drying space** Provision of drying space	1	1 max 1	
Ene4	**Eco Labelled white goods** Provision of eco labelled white goods with the following energy ratings: • All fridges, freezers, fridge-freezers with an A* rating • All washing machines, and dishwashers where supplied, with an A rating and washer dryers and tumble dryers with a rating of B or higher OR • No white goods provided but info on Eco labelling	1 1 1	2 max 2	
Ene5	**Internal Lighting** • Where 40% dedicated low energy lights have been specified. OR • Where 75% dedicated low energy lights have been specified.	1 2	2 max 2	
Ene6	**External Lighting** **Space lighting** • all space lighting is specifically designed to accommodate energy efficient light bulbs and/or dedicated fitting **Security lighting** • all intruder lighting to be 150 watts maximum and be fitted with PIR and day light sensor and all other type of security lighting to accommodate CFLs or fluorescent strips only and be fitted with dawn to dusk sensors or timers	1 1	2 max 2	
Total Number of Energy Credits Achieved			11 max 24	

Transport

Tra1	**Public Transport** **Urban and suburban areas** 80% of the development within: • 1000m of a 30 min peak and an hourly off peak service OR	1 2		2

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	• 500m of a 15 min peak and half hourly off peak service **Rural areas** 80% of the development within: • 1000m of an hourly service OR • 500m of an hourly service OR a community bus service	1 2		max 2
Tra2	**Cycle storage** Provision of cycle storage for: • 50% of dwellings OR • 95 % of dwellings	1 2	2 max 2	
Tra3	**Local Amenities** Proximity to local amenities: • Within 500m of a food shop and post box • Within 1000m of 5 of the following: food shop* postal facility, bank/ cash machine, pharmacy, primary school, medical centre, leisure centre, community centre, public house, children's play area, place of worship, outdoor open access public area • Safe pedestrian routes to the local amenities * if not used for the 1st credit	1 1 1		3 max 3
Tra4	**Home office** Provision of space, and services, for a home office	1	1 max 1	
Total Number of Transport Credits Achieved			8 max 8	

Pollution

Pol1	**Insulation ODP and GWP** Specifying insulating materials, that avoid the use of ozone depleting substances and have a global warming potential (GWP) of less than 5 (and an ODP of zero), in either manufacture or composition, for the following elements: • Roof (incl. loft hatch) • Wall – internal and external (incl. all doors, lintels and all acoustic insulation). • Floor (incl. foundations) • Hot water cylinder (incl. pipe insulation and other thermal store)	• • • • • • • 1 •	1 max 1	

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Pol2	**NO_x emissions** 95% of dwellings throughout the development must be served by heating and hot water systems with an average NO_x emission rate of less than or equal to the levels listed below. • Less than or equal to 100 NO_x mg/kWh OR • Less than or equal to 70 NO_x mg/kWh OR • Less than or equal to 40 NO_x mg/kWh	 1 2 3	0 max 3	
Pol2	**Reduction of surface runoff** Where rainwater holding facilities and/or sustainable drainage techniques are used to provide attenuation of water run-off to either natural watercourses and/or municipal drainage systems, by 50%* in areas of low probability of flooding, 75%* in areas of medium flood risk and 100%* in areas of high flood risk, at peak times from: • Hard surface runoff • Roof runoff * Where a statutory body requires a greater attenuation then the higher requirement should be met in order to achieve these credits.	 1 1	0 max 2	
Pol4	**Renewable and Low Emission Energy Source** • Where evidence provided demonstrates that a feasibility study considering renewable and low emission energy has been carried out and the results implemented AND • Where evidence provided demonstrates that the first credit has been achieved and 10% of total energy demand for the development is supplied from local renewable, or low emission energy, sources* OR • Where evidence provided demonstrates that the first credit has been achieved and 15% of total energy demand for the development is supplied from local renewable, or low emission energy, sources*. * In line with the recommendations of the feasibility study.	 1 1 2	0 max 3	
Pol 5	**Flood Risk Mitigation** • Where evidence provided demonstrates that the assessed development is located in a zone defined as having a low annual probability of flooding. OR • Where evidence provided demonstrates that the	 2	2	

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	assessed development is located in a zone defined as having a medium annual probability of flooding and the ground level of the building, car parking and access is above the design flood level for the site's location.	1	max 2	
Total Number of Pollution Credits Achieved			3 max 11	

Materials

Mat1	**Environmental Impact of Materials** The following elements obtaining an A rating from the Green Guide for Housing: • Roof • External walls • Internal walls - party walls and internal partitions • Floors • Windows • External surfacing • Boundary protection	 3 3 3 3 2 1 1	16 max 16	
Mat2	**Responsible sourcing of Materials: Basic building elements** Where the majority of materials in the following basic building elements are responsibly sourced: 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)	 1-6	4 max 6	
Mat3	**Responsible sourcing of Materials: Finishing elements** Where the majority of materials in the following secondary building and finishing elements are responsibly sourced: 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.	 1-3	1 max 3	

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Mat4	**Recycling of Household waste** Storage of recyclable waste: • Provision of internal storage only OR • Provision of external storage (or LA collection) only OR • Provision of internal AND external (or LA collection) storage	 2 2 6	6 max 6	
Total Number of Materials Credits Achieved			27 max 31	

Water

Wat1	**Internal Potable Water Use** • Less than or 52 m^3 per bedspace per year OR • Less than or equal to 47 m^3 per bedspace per year OR • Less than or equal to 42 m^3 per bedspace per year OR • Less than or equal to 37 m^3 per bedspace per year OR • Less than or equal to 32 m^3 per bedspace per year	 1 2 3 4 5	5 max 5	
Wat2	**External Potable Water Use** Rain water collection system for watering gardens and landscaped areas	1	1 max 1	
Total Number of Water Credits Achieved			6 max 6	

Land Use and Ecology

Eco1	**Ecological value of site** • Building on land which is inherently of low ecological value	1		1 max 1
Eco2	**Ecological enhancement** • Enhancing the ecological value of the site through consultation with an accredited expert	1		0 max 1

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Eco3	**Protection of ecological features** • Ensuring the protection of any existing ecological features on the site	1		1 max 1
Eco4	**Change of ecological value of site** • A change of between –9 and –3 species OR • A change of between –3 and +3 species OR • A change between +3 and +9 species OR • A change of greater than +9 species	 1 2 3 4		2 max 4
Eco5	**Building footprint** • Where the total combined Floor area: Footprint ratio for all houses on the site is greater than 2.5:1 AND • Where the total combined Floor area: Footprint ratio for all flats on the site is greater than 3.5:1 OR • Where the total combined Floor area: Footprint ratio for all dwellings on the site is greater than 3.5:1	 1 2	0 max 2	
Total Number of Land Use and Ecology Credits Achieved			4 max 9	

Health and Well Being

Hea1	**Daylighting** Provision of adequate daylighting, according to BS 8206:pt2 in: • In the kitchen • In living rooms, dining rooms and studies • View of sky in all above rooms	 1 1 1	1 max 3	
Hea2	**Sound Insulation** Up to 4 credits where pre-completion testing is carried out to comply or improve on performance standards in Approved Document E (2003 Edition, Building Regulations England and Wales).	1-4	2 max 4	
Hea3	**Private space** Provision of private or semi private space	1	0 max 1	

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Total Number of Health and Well Being Credits Achieved			3	max 8
Management				
Man 1	**Home User Guide** Where evidence can be provided to demonstrate that there is provision, in a home, of a simple guide that covers information relevant to the 'non-technical' tenant/ occupant on: • The environmental performance of their home • Information relating to the site and surroundings.	2 1	3	max 3
Man 2	**Considerate Constructors** • Demonstrate a commitment to comply with best practice site management principles. OR • Demonstrate a commitment to go significantly beyond best practice site management principles.	1 2		0 max 2
Man 3	**Construction Site Impacts** • Evidence that demonstrates a commitment and a strategy to monitor, sort and recycle construction waste on site. AND • Evidence that demonstrates that 2 or more of a-f listed below are achieved. OR • Evidence that demonstrates that 4 or more of a-f are achieved: a) monitor and report CO_2 or energy arising from site activities b) monitor and report on CO_2 or energy arising from transport to and from site c) monitor water consumption from site activities d) adopt best practice policies in respect of air (dust) pollution arising from the site ✓ e) adopt best practice policies in respect of water (ground and surface) pollution occurring on the site ✓ f) 80% of site timber is reclaimed, reused or responsibly sourced.	1 1 2		1 max 3

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Man 4	**Security** • A commitment to work with an Architectural Liaison Officer and to achieve the Secured by Design award. • Security standards for external doors and windows, to achieve a minimum of either: - LPS1175 SR1 (All doors and windows) OR - PAS24-1 (All external pedestrian doorsets falling within scope of PAS24-1) AND BS7950 (All windows falling within the scope of BS7950)	1 1	2	max 2
Total Number of Management Credits Achieved			6	max 10
Total in all Sections			65	

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ISSUE CATEGORY	Issue credits: Credits available	Issue credits: No. achieved	Issue credits: % achieved	Weighting Factor	Credits score
	1	2	2/1 x100 =3	4	3x4 =5
Energy	24	11	45.83	0.22	10.08
Transport	8	8	100	0.08	8
Pollution	11	3	27.27	0.10	2.73
Materials	31	27	87.09	0.14	12.19
Water	6	6	100	0.10	10
Land Use and ecology	9	4	44.44	0.12	5.33
Health and well being	8	3	37.5	0.14	5.25
Management	10	6	60	0.10	6
Total				1.00	59.58

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	Rating	Score
	Pass	36
	Good	48
	Very Good	58
	Excellent	70

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