

P /2014/0062  
**Eco Evolution Ltd**

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# **The Code for Sustainable Homes**

## **Grosvenor Road**

## **Pre-Assessment Report**

### **Prepared for**

### **Pendine Park Care Organisation (Bodlondeb) Ltd**

# **Eco Evolution Ltd**

## **CODE FOR SUSTAINABLE HOMES COMPLIANCE STATEMENT FOR RESIDENTIAL DEVELOPMENT OF**

**20 PLOTS**

**AT**

**16-18 Grosvenor Road  
Wrexham  
LL12 1BU**

**FOR**

**Pendine Park Care Organisation (Bodlondeb) Ltd  
Summerhill Road  
Wrexham  
LL11 4YE**

**Registration number: BRE-00022333-DS-001-00**

**Prepared by: T Bridgwood, Accredited BREEAM-Assessor-318**

**Signature:**



**Print Name: Tracey Bridgwood**

**Date of Report: 05/10/2013**

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## **Introduction**

The purpose of the document is to demonstrate the inclusions that have been specified for the development to comply with the criteria of the Code for Sustainable Homes Level 3 (1 credit under ENE 1), as required by the Welsh Assemblée Government.

The report summarises the relevance of each section of the Code Assessment, and the credits that are calculated accordingly.

The version of the Code for Sustainable Homes which the development has been considered against is November 2010, and the criteria together with the credits scored for each section is set out over the following pages.

The final pages of the report demonstrate the accrual of the credits to show that compliance to the current version of the Code for Sustainable Homes (level 3) has been achieved however; some assumptions have been made by the assessor.



## **What is the Code & scope of the report**

The Code measures the sustainability of a new home against categories of sustainable design, rating the 'whole home' as a complete package. The Code uses a 1 to 6 star rating system to communicate the overall sustainability performance of a new home. The Code sets minimum standards for energy and water use at each level and, within England, replaces the EcoHomes scheme, developed by the Building Research Establishment (BRE).

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/CO2**  
Operational Energy and the resulting emissions of carbon dioxide to the atmosphere  
(Mandatory compliance in this section)
- **Water**  
The consumption of potable water from the public supply systems or other ground water resources
- **Materials**  
The embodied environmental impacts of construction materials for key construction elements  
(Mandatory compliance in this section)
- **Surface water run-off**  
The change in surface water runoff patterns as a result of the development  
(Mandatory compliance in this section)
- **Waste**  
Waste generated as a result of the construction process and facilities encouraging recycling of domestic waste in the home  
(Mandatory compliance in this section)
- **Pollution**  
Pollution resulting from the operation of the dwelling
- **Health and well being**  
The effect that the dwellings design and indoor environment has on its occupants

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- **Management**  
Steps that have been taken to allow good management of environmental impacts in the construction and operation of the home.
- **Ecology**  
The impact of the dwelling on local eco-system, biodiversity and land use.

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 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 in several key regards outlined below:

- It is assessed at the level of an individual 'Dwelling'
- It 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.
- It demands higher minimum standards for energy and water to be met before the higher levels of the Code can be achieved.
- It can be performed in one or 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. 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 ISO 9001. BRE also carry out quality assurance of the assessments and issue certificates on behalf of Communities and Local Government.

## **Report Analysis**

### **ENERGY**

#### **Ene 1 Dwelling Emission Rate as defined by 2009 Building Regulations**

*To limit emissions of carbon dioxide (CO<sub>2</sub>) to the atmosphere arising from the operation of a dwelling and its services.*

|                   |    |
|-------------------|----|
| Credits available | 10 |
| Credits Achieved  | 1  |

It is mandatory for compliance to Code level 3 credits are based on the percentage improvement in the Dwelling Emission Rate (DER), (estimated carbon dioxide emissions in kg m<sup>2</sup> per annum arising from energy use for heating, hot water and lighting), over the Target Emission Rate (TER) (the maximum emission rate permitted BY Building Regulations) however; as part of a planning condition a 8% improvement is required over current regulations.

#### **Ene 2 Building Fabric**

*To future proof the energy efficiency of dwellings over their whole life by limiting heat losses across the building envelope.*

|                   |   |
|-------------------|---|
| Credits available | 9 |
| Credits achieved  | 3 |

FEE - The energy demand for space heating  
And cooling expressed in kilowatt –hours of energy demand per square metre per year (kWh/m<sup>2</sup>/year) a result of ≤ 48 is required for 3 credits.

#### **Ene 3 Energy Display Devices**

*To promote the specification of equipment to display energy consumption data, thus empowering dwelling occupants to reduce energy use.*

|                   |   |
|-------------------|---|
| Credits available | 2 |
| Credits achieved  | 1 |

The current electricity consumption data will be displayed to occupants by a correctly specified energy display device.

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## **Ene 4 Drying space**

*To minimise the amount of energy used to dry clothes.*

|                   |   |
|-------------------|---|
| Credits available | 1 |
| Credits achieved  | 0 |

This credit is not being sought

## **Ene 5 Energy labelled white goods**

*To encourage the provision or purchase of energy efficient white goods, thus reducing the CO<sub>2</sub> emissions from the dwelling.*

|                   |   |
|-------------------|---|
| Credits available | 2 |
| Credits achieved  | 1 |

No white goods are provided, but information on the EU Energy Efficiency Labelling Scheme of efficient white goods is provided to each dwelling.

## **Ene 6 External lighting**

*To encourage the provision of energy efficient external lighting, thus reducing CO<sub>2</sub> emissions from the dwelling.*

|                   |   |
|-------------------|---|
| Credits available | 2 |
| Credits achieved  | 2 |

All external space lighting, including lighting in internal communal areas is provided by dedicated energy efficient fittings. It will have efficacy greater than 40 lumens per circuit watt. It will be switched by Photocell and by internal switching to prevent it activating when not required.

## **Ene 7 Renewable energy sources**

*To reduce carbon emissions and atmospheric pollution by encouraging local energy generation from renewable sources to supply a significant proportion of the energy demand.*

|                   |   |
|-------------------|---|
| Credits available | 2 |
| Credits achieved  | 0 |

This credit is not being sought.

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## **Ene 8 Cycle Storage**

*To encourage the wider use of bicycles as transport by providing adequate and secure cycle storage facilities, thus reducing the need for short car journeys.*

|                   |   |
|-------------------|---|
| Credits available | 2 |
| Credits achieved  | 1 |

Suitable cycle storage for 1 cycle will be provided for both plots, which safe, secure and weather proof.

## **Ene 9 Home Office Space**

*To reduce the need to commute to work by providing residents with the necessary space and services to be able to work from home.*

|                   |   |
|-------------------|---|
| Credits available | 1 |
| Credits achieved  | 1 |

A home office facility shall have an area which can be utilised for a home office space should it be required. It shall include; 2no double electrical sockets; 2 telephone points (1 active, other wired to BT entry point but not connected) in addition to the specified sockets for the room; Window with daylight factor of 1.5%, 1.8m wall space & adequate ventilation (opening window etc).

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## **WATER**

### **Wat 1 Internal potable water use**

*To reduce the consumption of potable water in the home.*

Credits available        5  
Credits achieved        4

It is mandatory that Code level 3 can only be achieved by limiting water use to 105 litres per person per day, however 90 litres per person per day is required to secure enough credits

- 4 / 2.6litre dual flush toilets
- 2l/min wash hand basin taps
- 7l/min flow rate shower
- bath; 145 litre capacity to overflow
- 4l/min kitchen sink
- standard dish washer\*
- standard washing machine\*

**87.9 litres/person/day**

\* These items will not necessarily be supplied but need to be included within the CSH assessment.

NB The selection of specification should be by use of all of the above however; rainwater harvesting has been specification and once the exact figures have been given for volumes of rainwater collected I can revised the above flow rates.

### **Wat 2 External Water use**

*To encourage the recycling of rainwater and reduce the amount of mains potable water used in landscape / garden watering.*

Credits available        1  
Credits achieved        1

Examples of rainwater collector systems include water butts and central water collection systems.

The Water should meet the following criteria:

Childproof lid or no access at top  
Automatic overflow into the drainage system  
Easily detachable fittings for cleaning  
Fitted with a tap for drawing off water  
Opaque shell with UV resistance

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## **MATERIALS**

Mat 1 Environmental impact of materials

*To encourage the use of materials with lower environmental impacts over their life cycle.*

Credits available 15

Credits achieved 11

These credits awarded based upon discussions about the proposed specification, and are assessed against The Green Guide (BRE). The proposed measures include –

| Green guide rating | Credits | Specification |
|--------------------|---------|---------------|
| (A+ to D)          | (3 max) |               |

### **Roof**

Timber trussed rafters and joists with insulation, roofing underlay, counterbattens, battens and concrete plain tiles

Element – 812410017

Summary Rating A+

### **External Walls**

Brickwork outer leaf, insulation, lightweight solid block work inner leaf, cement mortar, plasterboard on battens, paint

Element - 806170616

Summary Rating A+

### **Internal Walls**

**Framed Partitions:** Timber stud, plasterboard, paint

Element Number 809760003

Summary Rating A+

### **Separating Walls**

Robust Detail E-WM-20: Twin leaf 100mm min. solid medium dense blocks (1350-1600kg/m<sup>3</sup>), with 100mm min. cavity including proprietary glass wool acoustic roll, type A wall ties, with gypsum-based board (9.8kg/m<sup>2</sup>) on dabs and paint to each side Robust Detail

Element Number 1118190007

Summary Rating C

### **Ground Floor Construction**

Structural topping on beam and expanded polystyrene flooring

Element Number 820140015

Summary Rating A+

### **Separating Floors**

Robust Detail E-FC-14: 40mm min. Proprietary Screed (80kg/m<sup>2</sup>) on polythene sheet on Proprietary Resilient Layer B on precast prestressed hollow planks (150mm min., 300kg/m<sup>2</sup> min) with Ceiling Treatment CT2 & proprietary ceiling quilt

Element Number 1229550006

Summary Rating C

### **Windows**

PVC-U window with steel reinforcement, double glazed

Element Number 813100009

Summary Rating A

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### **Mat 2 Responsible sourcing of materials - Basic Building Elements**

*To recognise and encourage the specification of responsibly sourced materials for the basic building elements.*

|                   |   |
|-------------------|---|
| Credits available | 6 |
| Credits achieved  | 0 |

No credits have been awarded for this section as the client does not yet know which suppliers he will use however; he will endeavour to try and use suppliers who have an environmentally accredited supply chain (FSC/PEFC/ISO14001/Accredited EMS)

### **MAT 3 Finishing materials**

*To recognise and encourage the specification of responsibly sourced materials for the basic building elements.*

|                   |   |
|-------------------|---|
| Credits available | 3 |
| Credits achieved  | 0 |

No credits have been awarded for this section as the client does not yet know which suppliers he will use however; he will endeavour to try and use suppliers who have an environmentally accredited supply chain (FSC/PEFC/ISO14001/Accredited EMS)

## **SURFACE WATER RUN OFF**

### **SUR 1 Reduction of surface water run off from site**

*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.*

|                   |   |
|-------------------|---|
| Credits available | 2 |
| Credits achieved  | 0 |

### **Compliance to mandatory requirement shall be satisfied**

The Engineer will confirmed the manmade impermeable surface drainage to the water course and sewers has decreased post development for the Grosvenor Road development therefore; the peak rate of run-off and volume of runoff requirements can be met by default.

### **SUR 2 Flood risk**

*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.*

|                   |   |
|-------------------|---|
| Credits available | 2 |
| Credits achieved  | 2 |

The site has been verified of being low flood risk, and the credits have been awarded (subject to engineer's verification-FRA Report).

## **WASTE**

### **Was 1 Household Waste Storage and Recycling Facilities**

*To recognise the importance of having adequate internal and external storage space for waste to enable its appropriate management.*

|                   |   |
|-------------------|---|
| Credits available | 4 |
| Credits achieved  | 4 |

Each dwelling will be supplied with an internal recycling bin facility (3no 10l bins), which shall be operated in accordance with the recycling scheme run by the local and will allow for storage of adequately sized wheelie bins. Adequate space shall be provided internally and externally for recycling bins with space for wheel chair users to gain access.

### **Was 2 Construction site waste management plan**

*To recognise the importance a Site Waste Management Plan has on the efficient use of resources during construction and demolition, and to promote the reduction and effective management of site waste.*

|                   |   |
|-------------------|---|
| Credits available | 3 |
| Credits achieved  | 2 |

An appropriately structured Site waste management plan shall be prepared and implemented to monitor target and reduce waste generated on site by 50%.

### **Was 3 Composting**

*To encourage developers to provide the facilities to compost household waste, reducing the amount of household waste sent to landfill.*

|                   |   |
|-------------------|---|
| Credits available | 1 |
| Credits achieved  | 1 |

The local Authority operates a kitchen/food waste collection scheme and a kitchen caddy will be provided.

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## **POLLUTION**

### **Pol 1 Global warming potential of insulants**

*To reduce global warming from blowing agent emissions arising from the manufacture, installation, use and disposal of foamed thermal and acoustic insulating materials.*

|                   |   |
|-------------------|---|
| Credits available | 1 |
| Credits achieved  | 1 |

The credit is allocated for demonstration that all insulation materials do not have a detrimental effect on the Ozone layer or contribute to Global warming

### **Pol 2 NO<sub>x</sub> Emissions**

*To reduce the emission of nitrogen oxides (NO<sub>x</sub>) into the atmosphere.*

|                   |   |
|-------------------|---|
| Credits available | 3 |
| Credits achieved  | 3 |

It is understood that space and water heating shall be by an high efficiency gas boiler and solar panels, therefore I can assumed a dry NO<sub>x</sub> output of no more than 40mg/gas kWh, and this equates to 3 credits.

## **HEALTH AND WELLBEING**

### **Hea 1 Daylighting**

*To improve the quality of life in homes through good daylighting and to reduce the need for energy to light the home.*

|                   |   |
|-------------------|---|
| Credits available | 3 |
| Credits achieved  | 0 |

The daylighting calculations were not possible; however an assumption has been made that each dwelling will not achieve the following criteria:

Kitchens will not achieve a minimum average daylight factor of at least 2%

Living & dining rooms will not achieve a minimum average daylight factor of at least 1.5%.

The study however; will achieve a minimum daylight factor of at least 1.5%

### **Hea 2 Sound Insulation**

*To ensure the provision of improved sound insulation to reduce the likelihood of noise complaints from neighbours.*

|                   |   |
|-------------------|---|
| Credits available | 4 |
| Credits achieved  | 3 |

This can be demonstrated through either pre-completion testing or robust details.

To use Robust Details: E-WM-20-Party Wall

To use Robust Details: E-FC-14-Party Floor

### **Hea 3 Private space**

*To improve the occupiers' quality of life by providing an outdoor space for their use, this is at least partially private.*

|                   |   |
|-------------------|---|
| Credits available | 1 |
| Credits achieved  | 1 |

A private garden with disabled access arrangements shall be provided.

### **Hea 4 Lifetime homes**

*To encourage the construction of homes that are accessible and easily adaptable to meet the changing needs of current and future occupants.*

|                   |   |
|-------------------|---|
| Credits available | 4 |
| Credits achieved  | 4 |

All 16 principles of the Lifetime Homes criteria will be complied with please refer to the BRE Life Homes checklist.

## **MANAGEMENT**

### **Man 1 Home user guide**

*To encourage and reward provision of guidance enabling occupants to understand and operate their home efficiently and make the best use of local facilities.*

Credits available        3  
Credits achieved        3

Each dwelling will be provided with a home user guide which includes information suitable with the criteria of The Code for Sustainable Homes which is to include information on following subjects;

Environmental strategy/ design and features, Energy Water Use, Recycling and Waste Sustainable DIY, Emergency Information (Smoke detectors), Links, References and Further Information,

And also

Statement of provision of information in alternative formats, Recycling and waste, public transport and local amenities, responsible purchasing, emergency information (hospitals, fire, ambulance etc), Links references and further information

### **Man2 Considerate Constructors scheme**

*To recognise and encourage construction sites managed in an environmentally and socially considerate and accountable manner.*

Credits available        2  
Credits achieved        0

This credit is not being sought.

### **Man3 Construction site impacts**

*To recognise and encourage construction sites managed in a manner that mitigates environmental impacts.*

Credits available        2  
Credits achieved        2

Where there are procedures that cover 4 or more of the following items;

Monitor and report CO<sub>2</sub> or energy arising from site activities;  
Monitor and report CO<sub>2</sub> or energy arising from transport to and from site;  
Monitor and report on water consumption from site activities;  
Adopt best practice policies in respect of air (dust) pollution arising from the site;  
Adopt best practice policies in respect of water (ground and surface) pollution occurring on the site.  
80% of site timber is reclaimed, reused or responsibly sourced.

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### **Man 4 Security**

*To encourage the design of developments where people feel safe and secure; where crime and disorder, or the fear of crime, does not undermine quality of life or community cohesion.*

|                   |   |
|-------------------|---|
| Credits available | 2 |
| Credits achieved  | 2 |

An Architectural Liaison Officer (ALO) will be appointed and Rofft Developments will adopt all the recommendations given.

CSH "Section 2 physical security".

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## **ECOLOGY**

### **Eco1 Ecological value of the site**

*To encourage development on land that already has a limited value to wildlife, and discourage the development of ecologically valuable sites.*

|                   |   |
|-------------------|---|
| Credits available | 1 |
| Credits achieved  | 1 |

The Grosvenor Road development has been verified has land being of Low Ecological Value; therefore this credit can be awarded.

### **Eco2 Ecological Enhancement**

*To enhance the ecological value of a site.*

|                   |   |
|-------------------|---|
| Credits available | 1 |
| Credits achieved  | 1 |

The inclusion of a Registered Ecological Consultant (and the implementation of their recommendations) would have been necessary for the compliance of this credit.

### **Eco3 Protection of Ecological features**

*To protect existing ecological features from substantial damage during the clearing of the site and the completion of construction works.*

|                   |   |
|-------------------|---|
| Credits available | 1 |
| Credits achieved  | 1 |

The Grosvenor Road development has been verified has land being of Low Ecological Value; therefore this credit can be awarded by default.

### **Eco 4 Change of Ecological value of the site**

*To reward steps taken to minimise reductions and to encourage an improvement in ecological value.*

|                   |   |
|-------------------|---|
| Credits available | 4 |
| Credits achieved  | 2 |

This development will be built on an existing footprint which will minimise reductions in ecological value.

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## Eco 5 Building Footprint

*To promote the most efficient use of a building's footprint by ensuring that land and material use is optimised across the development.*

Credits available      2  
Credits achieved      1

Credits are awarded where the ratio of combined internal floor area to the dwelling on site to their footprint is as follows:

For flats: where the Net Internal Floor Area: Net Internal Ground Floor Area ratio is greater than or equal to 3:1(**1 credit**) 4:1(**2 credits**)



## Results

|                              |                                                                       |
|------------------------------|-----------------------------------------------------------------------|
| <b>Development Name:</b>     | Grosvenor Road                                                        |
| <b>Dwelling Description:</b> | 2 Bed Apartment                                                       |
| <b>Name of Company:</b>      | Rofft Developments 2000 Ltd                                           |
| <b>Code Assessor's Name:</b> | Tracey Bridgwood                                                      |
| <b>Company Address:</b>      | 3 Andreas Drive<br>Muxton<br>Shropshire<br>TF2 8SF                    |
| <b>Notes/Comments:</b>       | To achieve Code Level 3 with 8% improvement over current regulations. |

## PREDICTED RATING - CODE LEVEL: 3

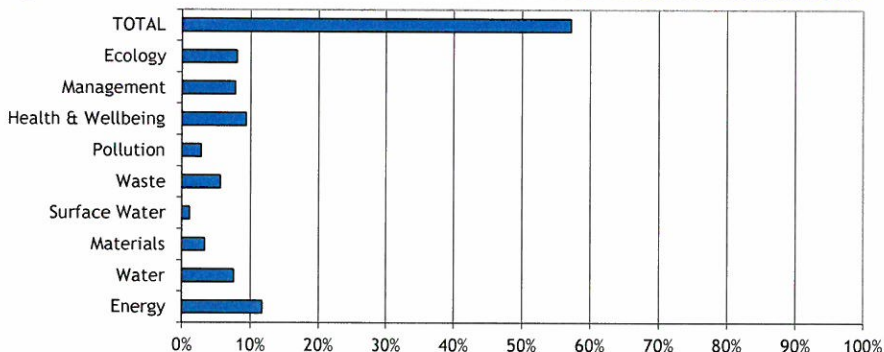
**Mandatory Requirements:** All Levels

**% Points:** 57.14% - Code Level: 3

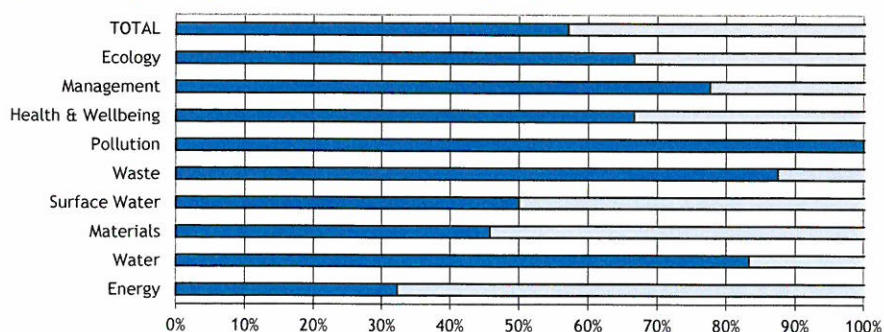
**Breakdown:** Energy - Code Level: 3

Water - Code Level: 4

Graph 1: Predicted contribution of individual sections to the total score and percentage of total achievable score



Graph 2: Predicted percentage of credits achievable: Total and by Category



**NOTE:** The rating obtained by using this Pre Assessment Estimator is for guidance only. Predicted ratings may differ from those obtained through a formal assessment, which must be carried out by a licensed Code assessor.

