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The Code for Sustainable Homes

Burton Hall Road

Pre-Assessment Report

Prepared for

Mytton Homes Ltd

Eco Evolution Ltd

CODE FOR SUSTAINABLE HOMES COMPLIANCE STATEMENT FOR RESIDENTIAL DEVELOPMENT OF

15 PLOTS

AT

**Burton Nurseries
Burton Hall Rd
Rossett
Wrexham
LL12 0LA**

FOR

**Mytton Homes Ltd
15 Dee Court
Bangor on Dee
Wrexham
LL13 0AQ**

Registration number: BRE-00024427-DS-001-00

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

Signature:

A handwritten signature in black ink, appearing to read 'T Bridgwood', written in a cursive style.

Print Name: Tracey Bridgwood

Date of Report: 29/04/2014

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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.

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Report Analysis

ENERGY

Ene 1 Dwelling Emission Rate as defined by 2009 Building Regulations

To limit emissions of carbon dioxide (CO₂) 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 m² 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

Based upon the fabric and construction of the building, credits will be achieved in this section.

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	2

The current electricity and primary heating fuel 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 1

Each dwelling will have an external drying line facility. The drying line length will be – a minimum of 6 metres in length.

External measures Mounted hooks for line to be added

Rotary Dryer

Internal measures Pullout clothes dryer over bath e.g. 'Minky' (www.minky.co.uk)

Ene 5 Energy labelled white goods

To encourage the provision or purchase of energy efficient white goods, thus reducing the CO₂ 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 CO₂ 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 0

This credit is not being sought.

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 5

It is mandatory that Code level 3 can only be achieved by limiting water use to 105 litres per person per day, and this can be achieved by a typical specification of

- Toilets to be provided must be a **4/2.6 litre flush**.
- Taps with flow regulars fitted to the wash hand basins to achieve a maximum flow rate of **2 (Litres/min)**.
- Showers-**5L/min flow rate**, which is the flow rate at the water pressure, normally 0.3MPa (at 37°C).
- Bath size – **130litres** (capacity to over flow).
- Kitchen sink– taps with flow regulars fitted to the taps to achieve a maximum flow rate of **3 (litres/min)**.
- Dishwasher rate as **0.72 litres** per place setting
- Washing machine rate as **6.3 litres**/kg dry load
- Outside Tap-**5L/min flow rate**

This will achieve a water consumption of 79.5 litres/person/day

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 size requirements are as follows:

5 bedroom homes with a private terrace require a minimum of 200 Litres.

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 13

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

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+

Masonry Partitions- Detached units

Dense solid block work, plasterboard, paint

Element Number 809180002

Summary Rating C

Separating Walls- Attached units

Robust Detail E-WM-20: Twin leaf 100mm min. solid medium dense blocks (1350-1600kg/m³), with 100mm min. cavity including proprietary glass wool acoustic roll, type A wall ties, with gypsum-based board (9.8kg/m²) on dabs and paint to each side

Element Number 1118190007

Summary Rating C

Ground Floor Construction

Structural topping on beam and expanded polystyrene flooring

Element Number 820140015

Summary Rating A+

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Upper Floors

Chipboard decking on timber joists

Element Number 807280081

Summary Rating A+

Windows

Element PVC-U window with steel reinforcement, double glazed

Element Number 813100009

Summary Rating A

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 5

The client to 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 2

The client to 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 by Soakaways- (Peak run off rates and annual run off volumes post development must not exceed the previous conditions of the site).

The man made impermeable surface drainage to the water course and sewers has decreased post development for Burton Hall Road, therefore the peak rate of run-off and volume of runoff requirements have been met by default. Provisionally (subject to engineer's verification)

SUR1 can be met by default, no credits can be awarded if the mandatory SUR 1 element is met using this method.

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, (subject to engineer's verification) credits can be awarded.

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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.

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	3

An appropriately structured Site waste management plan shall be prepared and implemented to monitor target and reduce waste generated on site by 80%.

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_x Emissions

To reduce the emission of nitrogen oxides (NO_x) 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_x 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	3

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

Kitchens to achieve a minimum average daylight factor of at least 2%

All living rooms, dining rooms and studies (**including any room designed as the home office**) to achieve a minimum daylight factor of at least 1.5%

80% of all working planes in the kitchen, living rooms, dining rooms, and studies will achieve view of the sky.

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	4-Detached units
Credits achieved	3- Attached units

Detached properties gain this credit by default as no party walls are required.

Semi-Detached units-3 credits are awarded for achieving higher standards of sound insulation than those given in Approved Document E of the Building Regulations and demonstrating by using **Party Walls -Robust Detail E-WM-20**.

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	0

This credit is not being sought.

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

Man 2 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 2 or more of the following items;

Monitor and report CO₂ or energy arising from site activities;
Monitor and report CO₂ 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 0

This credit is not being sought.

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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	0

This development is classed as Ecological Value; therefore this credit cannot 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

Trees & Hedgerow along the site Boundary will be protected in line with BS 5837 (2012).

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 small development will be built on an existing footprint which will minimise reductions in ecological value and therefore these credits can be achieved.

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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	0

No credits are awarded for this section due to the configuration of house types being only two storeys.



Results

Development Name:	Burton Hall Road
Dwelling Description:	3 & 4 Bed Semi-Detached
Name of Company:	Eco Evolution Ltd
Code Assessor's Name:	Tracey Bridgwood
Company Address:	3 Andreas Drive Muxton Shropshire TF2 8SF
Notes/Comments:	To achieve Code Level 3 with 8% improvement over current regulations

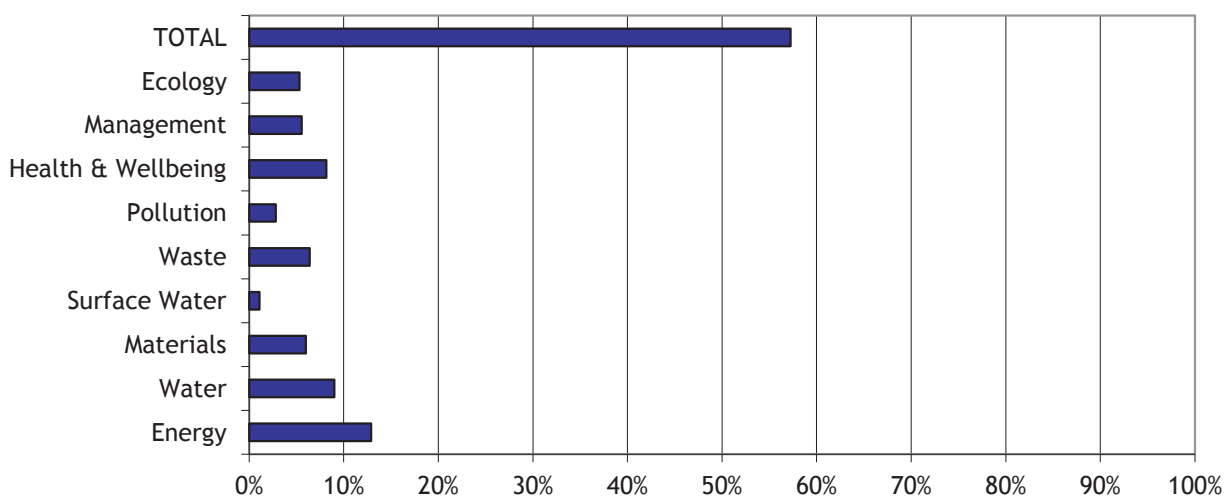
PREDICTED RATING - CODE LEVEL: 3

Mandatory Requirements: All Levels

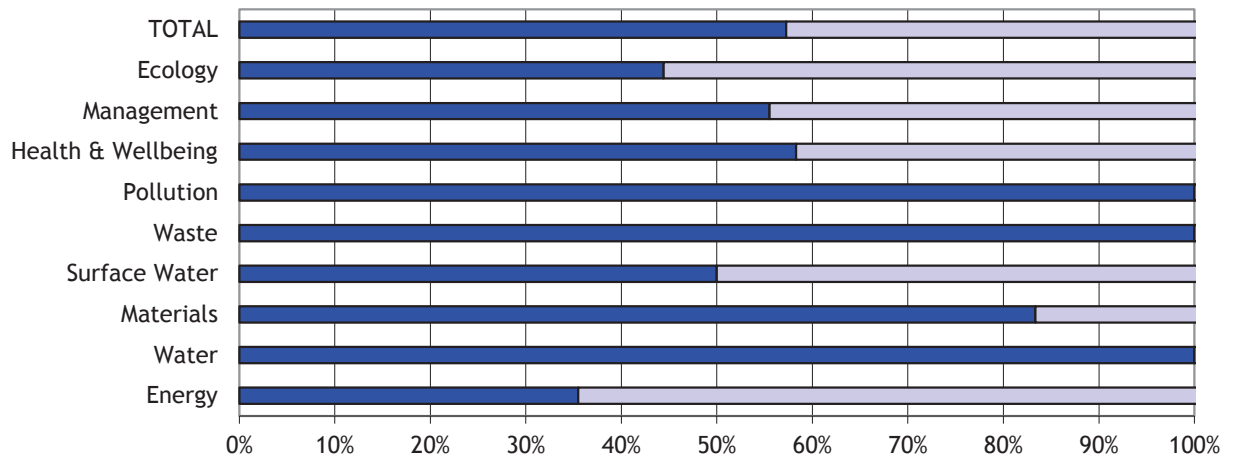
% Points: 57.25% - Code Level: 3

Breakdown: Energy - Code Level: 3
Water - Code Level: 6

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.

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Results

Development Name:	Burton Hall Road
Dwelling Description:	3, 4 & 5 Bed Detached
Name of Company:	Eco Evolution Ltd
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Company Address:	3 Andreas Drive Muxton Shropshire TF2 8SF
Notes/Comments:	To achieve Code Level 3 with 8% improvement over current regulations

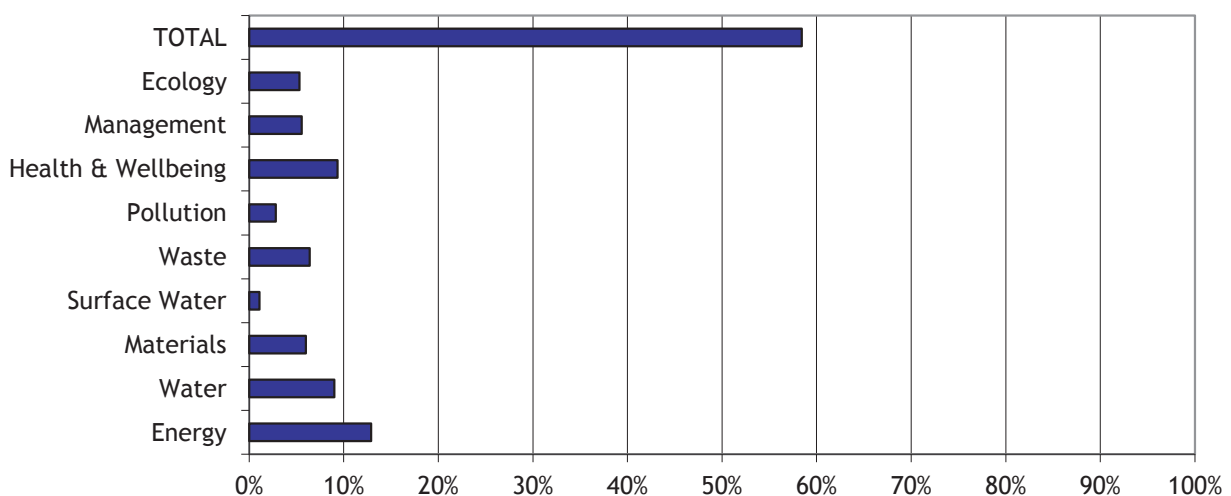
PREDICTED RATING - CODE LEVEL: 3

Mandatory Requirements: All Levels

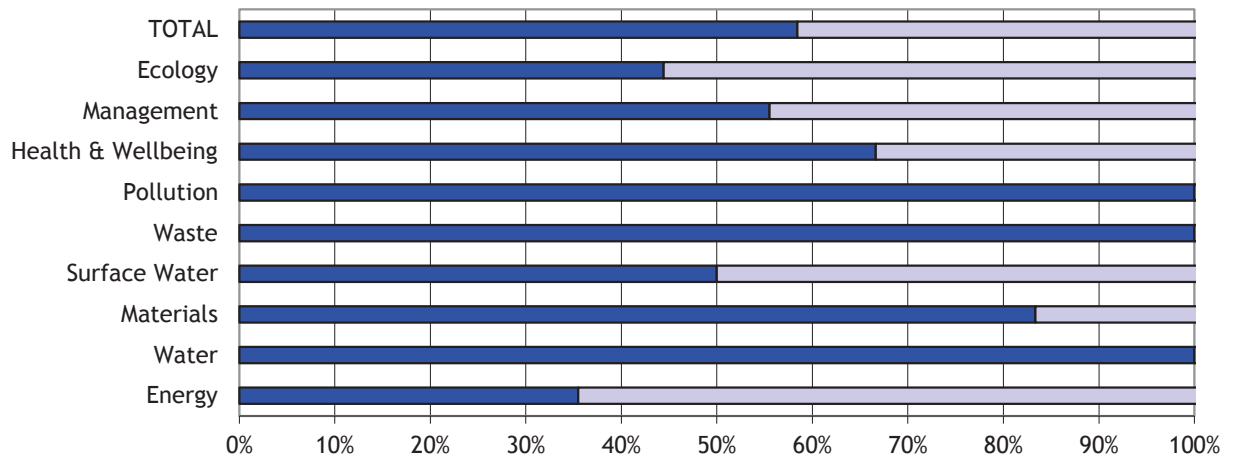
% Points: 58.42% - Code Level: 3

Breakdown: Energy - Code Level: 3
Water - Code Level: 6

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



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