LK ACCREDITATION LIMITED

PART OF THE LK GROUP

Development at

Former Foulstone School Site

Energy and Sustainability Statement



Prepared for:

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Date: October 2014
Job No. LKACC 14 1149

LK Accreditation Ltd

Document Verification

Energy & Sustainability Report in support of the Outline Planning Application for the Development at the former Foulestone School Site.

Site Address	Nanny Marr Road, Darfield, Barnsley		
Job Number	LKACC 14 1149		
Report Title	Energy & Sustainability Report and SAP Calculations		
Date Issued	23rd October 2014	Document Ref.	LKACC 14 1149ESR Rev 0
Prepared By	Peter Isherwood Energy & Sustainability Manager STRO010351	Signature	
Checked By	Conor Leyden Managing Director The LK Group	Signature	

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All information within this document has been assumed correct at the time of issue.

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Appendix 1 – Code for Sustainable Homes Pre Assessment

(i) Executive Summary

An Outline Planning Application has been submitted for the erection of a residential development and retail development with associated external works and access roads including landscaping.

Within Barnsley Council's Core Strategy Development Management Policy, reference is made to sustainable construction techniques and stipulates that applications should consider minimising energy and resource consumption compared to building regulations.

While it is not the intention of our client to include any micro generation the above policy means that the Former Foulestone School Development falls into the category of *10 or more residential units and non-residential schemes of 1,000m2 + floorspace',* therefore the purpose of this report is to highlight our clients method of achieving current Building Regulations Part L1A 2010 in relation to energy and sustainability and where possible exceeding it.

As a baseline the development will show in excess of a 25% improvement over and above Building Regulations Part L1A 2006 Target Emission Rates (TER), Furthermore the Residential Development will achieve Code for Sustainable Homes Level 4.

(ii) Introduction

This Energy and Sustainability Report has been prepared by LK Accreditation Ltd, appointed by Peveril Securities Limited to support the Outline Planning Application for the subject site. The report and its associated Appendices describe the sustainable design and construction measures included in the proposals for the development of the site.

The application site proposal is for a mixed use scheme including residential, foodstore and retail developments. The development meets the local need for housing which will fit into the local vernacular incorporating peripheral areas of public open space to provide ecological interest and diversity.

This introduction outlines the development proposals and our methodology for assessing and guiding sustainability issues within the scheme.

Outlined below are the key sustainability achievements of the residential development:

A residential development of up to 35 dwellings in total with an anticipated mixture of terraced houses, blocks of semi-detached houses and detached dwellings, that will meet a well-established and accepted need for housing in the area. The development will adopt and include;

- Using a 'fabric first' as being the most sustainable approach to energy saving, which will reduce overall energy demand and limit reliance on renewable technology.

- Improving energy demand and lower overall consumption through the use modern construction techniques to achieve industry excellent standards for fabric heat loss figures (U values) for all elements of the external construction, along with very air tight units which will gain 'lost' heat through the use of Mechanical Ventilation and Heat Recovery (MVHR); thus reducing the overall demand for fossil fuels and ensuring 'breathable buildings' and excellent air quality.

- Meeting and exceeding Approved Document part L1A (2010) of the Building Regulations to values in excess of 25% betterment (over Building Regulations 2006) which combined with Manchester's Core Strategy will give overall savings in regulated energy demand in excess of 40% for the residential content and 35% for the Commercial allocation from the 2006 requirements.

- Peripheral areas of highly landscaped buffers providing ecological interest as well as increase impermeable surfaces and will help to reduce the developments carbon footprint.

- 100% energy efficient lights throughout the development.

- Internal water use within all dwellings to be reduced to a projected 90 litres per person per day through the provision of water efficient fittings, thus preserving water supplies.

- The use of materials with low embodied energy which are locally sourced where available.

- Reducing the site impact using considerate construction techniques and utilising local labour where applicable.

- A suitably qualified hydrologist will be employed and the drainage system will be designed in accordance with the requirements of Code Level 4.

- A surface water design that avoids, reduces and delays the discharge of rainfall run-off to watercourses and public sewers using SuDs techniques via infiltration and attenuation, where applicable and viable.

- Cycle storage to be included in the development to encourage cycle commuting where possible which in turn will lessen the impact on the highway network.

- Ecology of the Application Site will be examined by a qualified Ecologist. All key ecological recommendations are expected to be adopted and key features protected during the development.

- Sustainable transport promoted with all dwellings within close proximity of a bus stop and providing all new residents with comprehensive information on the public transport provision.

- Waste minimisation principles adopted both during construction and in the lifespan of the development through promotion of recycling/composting measures.

- Initiatives developed to ensure a high quality place to live, including measures to minimise crime, improve security, provide outside spaces and achieve acceptable noise levels.

- Recycling provision within the units and site wide implementation of services via L.A. Collection Schemes.

The proposed development has been assessed using Stroma's Code for Sustainable Homes (CfSH) pre-assessment tool, to illustrate how a Level 4 rating could be obtained for the residential element. It is envisaged that thermal modelling will be carried out on the retail units when the design is further progressed.

Following these assessments and if the development follows these principals it is our view that a sustainable development will be created and delivered, with good sustainability standards being met.

(iii) Scheme Description – The Application Site

The proposed site is in a mature and established residential area, approximately 3 miles East of Barnsley town centre with good connections to to a vast range of amenities with excellent road and rail links into and around Barnsley, Sheffield, York, Leeds and the wider network of the country.

The planned development area is a residential development of up to 35 No. dwellings constructed to a very high standard which will meet a well-established and accepted need for housing space within the area and constructed on vacant building land currently not being used.

Furthermore the development provides 5 retail units and a foodstore, again the construction materials and design will be of a high quality and by in keeping with the surrounding area.

The following plan shows the footprint of the building on ground level.



(iv) Methodology and Structure

The policies analysed have been at local, regional and national levels, all of which are pertinent to this scheme.

The Local and National Policies relating to sustainability of this scheme are:

- Barnsley Council: Local Development Framework: Core Strategy Development Plan Document
- National Planning Policy Framework (NPPF) [*March 2010, HM Government*]
- The Code for Sustainable Homes Technical Guidance documents [*November 2010, HM Government*].
- Approved Document L1A: Conservation of fuel and power (New Dwellings), [*December 2010, HM Government*]
- Definition of Zero Carbon Homes [*December 2008, HM Government*]
- Water Efficiency Calculator for New Dwellings [*September 2009, HM Government*]

At this stage it is important to note the significant importance of the Barnsley Council Core Strategy document'. This document is a key document in the Local Development Framework as it sets out the overall vision and strategy for sustainable developments and will provide the context for all development proposals.

We have also carried out a sustainability assessment for the proposed development using a Code for Sustainable Homes pre assessment. These assessments illustrates how the proposals for this development, perform against a wide range of sustainability issues pertinent at local, regional and national levels, to assess the likely sustainability of individual dwellings and the development as a whole.

- The Code for Sustainable Homes pre assessment is attached in Appendix 1.

The pre-assessment illustrates a way in which Code Level 4 could be achieved by the developer. At this stage it is not possible to make firm commitments for each issue as the information available is not yet at detailed stage; however the pre-assessments identify how the achievement could be made and provides comments upon which issues may change and how improvements could be made in other areas. A number of credits within each assessment tool are tradable and interchangeable, however this report details the developers preferred way to reach the required levels and this will be further developed as more investigation is undertaken, these credits may then be swapped or substituted.

(v) Relevant Policy - National

The Government published the National Planning Policy Framework (NPPF) and related documents on the 27th March 2012. The NPPF states that “The purpose of the planning system is to contribute to the achievement of sustainable development”, and that “to achieve sustainable development, economic, social and environmental gains should be sought jointly and simultaneously”.

Ensuring the sustainable design and construction of buildings is an essential part of achieving sustainable development.

For residential developments the vehicle used to sustainability is ‘The Code for Sustainable Homes’, which is government owned national standard for the sustainable design and construction of new homes. It aims to reduce our carbon emissions and create homes that are more sustainable. The Code is not a set of regulations and again it goes further than Building Regulations; it measures the sustainability of a new home against nine categories of sustainable design, rating the 'whole home' as a complete package.

It covers;

- Energy and CO2 emissions
- Water Efficiency
- Environmental Impact of Materials
- Surface Water Runoff (flooding and flood prevention)
- Construction and Household Waste
- Pollution
- Health and Well-being
- Site and Development Management
- Ecology.

The assessment uses a one to six star rating system to communicate the overall sustainability performance of a new home against these nine categories. The Code sets minimum standards for energy and water use at each level.

Once the dwelling has been independently assessed and verified following an assessors site visit at practical build completion a Post Construction certificate similar to the one below can be issued.



THE CODE FOR SUSTAINABLE HOMES

FINAL CERTIFICATE
(Issued at the Post Construction Stage)

ISSUED TO:

Sutton
London, Greater London
SM2 6RH

The sustainability of this home has been independently assessed at the Post Construction Stage and has achieved a Code rating of 3 out of 6 stars under the November 2010 version.

Above Regulatory Standards | Current Best Practice | Highly Sustainable/ Zero Carbon

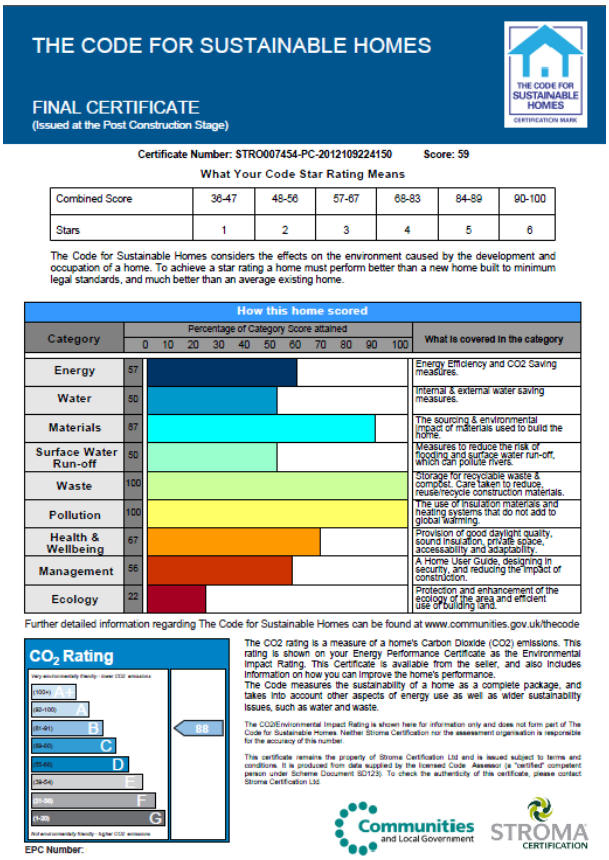
The next page sets out how this home achieved its rating in the nine categories.

Licensed Assessor **Gwyn Roberts**	Assessor Organisation **LK Accreditation**
Client **Sutton** **Greater London,**	Developer **Road, Sutton** **Greater London,**
Architect **Orange Key** **Unit 9, Lowesden Business Park** **Lambourn Woodlands, Hungerford, RG17 7RY**	Certificate Number **STRO007454-PC-2012109224150**
Date **09/10/2012**	Signed for & on behalf of Stroma Certification

Communities and Local Government

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STROMA CERTIFICATION



THE CODE FOR SUSTAINABLE HOMES

FINAL CERTIFICATE
(Issued at the Post Construction Stage)

Certificate Number: STRO007454-PC-2012109224150 **Score: 59**

What Your Code Star Rating Means

Combined Score	36-47	48-56	57-67	68-83	84-89	90-100
Stars	1	2	3	4	5	6

The Code for Sustainable Homes considers the effects on the environment caused by the development and occupation of a home. To achieve a star rating a home must perform better than a new home built to minimum legal standards, and much better than an average existing home.

How this home scored

Category	Percentage of Category Score attained (0 10 20 30 40 50 60 70 80 90 100)	What is covered in the category
Energy	57	Energy Efficiency and CO2 Saving measures.
Water	50	Internal & external water saving measures.
Materials	87	The sourcing & environmental impact of materials used to build the home.
Surface Water Run-off	50	Measures to reduce the risk of flooding and surface water run-off, which can pollute rivers.
Waste	100	Storage for recyclable waste & compost. Care taken to reduce, reuse/recycle construction materials.
Pollution	100	The use of insulation materials and heating systems that do not add to global warming.
Health & Wellbeing	67	Provision of good daylight quality, sound insulation, private space, accessability and adaptability.
Management	56	A Home User Guide, designing in security, and reducing the impact of construction.
Ecology	22	Protection and enhancement of the ecology of the area and efficient use of building land.

Further detailed information regarding The Code for Sustainable Homes can be found at www.communities.gov.uk/thecode

CO_2 Rating

The CO2 rating is a measure of a home's Carbon Dioxide (CO2) emissions. This rating is shown on your Energy Performance Certificate as the Environmental Impact Rating. This Certificate is available from the seller, and also includes information on how you can improve the home's performance.
The Code measures the sustainability of a home as a complete package, and takes into account other aspects of energy use as well as wider sustainability issues, such as water and waste.

The CO2/Environmental Impact Rating is shown here for information only and does not form part of The Code for Sustainable Homes. Neither Stroma Certification nor the assessment organisation is responsible for the accuracy of this number.

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EPC Number:

Communities and Local Government

STROMA CERTIFICATION

(vi) Relevant Policy - Local

At local level the most important document, as previously mentioned, is the Barnsley Council: Local Development Framework: Core Strategy Development Plan Document: Core Strategy 2010.

In the following sections the report will attempt to describe how the CfSH and improvement on Buildings Regulations for the non-residential part of the development will take place.

(**vii) <u>Reducing Energy Demand – Fabric First Approach.</u>**

Part L requires that all dwellings are calculated to produce less CO_2 than a theatrical target. This Target Emission Rate (TER) is often known as the *notional building*. The calculated Dwelling Emission Rate (DER or BER) must be a percentage improvement over the TER.

In order to calculate the TER the following elements are taken into consideration within the SAP calculation;

Long Term Elements;

- Floor space, Orientation, Exposure and Location in the UK, number and size of openings for doors and windows.
- U Values (heat loss) of Walls, Floors, Roofs, Windows and Doors.
- Details of junctions between elements and thermal breaks.
- Air Permeability of the building (a home can be well insulated, but if there are gaps in the construction; warmed air will escape)

Shorter Term Elements;

- Space Heating System
- Hot Water Heating System
- Control of Heating System
- Ventilation
- Lighting
- Renewable Energy Technologies.

All the elements play a role in the calculated DER/BER and the regulations allow the developer to choose which elements they wish to focus on in order to be the most cost effective way to achieve the required CO_2 target.

Part L1A does have limiting backstops for the Longer Term Elements (the Fabric of the building), but otherwise they are tradable. Specifying renewable energy technologies means that to achieve the DER/TER, the fabric can be worse than without and a Building Regulation pass still achieved with renewable technology offsetting fabric improvements. Equally because the regulations are based upon Carbon, not Energy demand this means the actual energy demand for the design dwellings with renewables is likely to be significantly higher.

As part of considering the applicability of enhanced insulation standards, the Developer will examine further measures within the detailed design of all dwellings to reduce the energy load and provide cost-saving benefits to the end user.

From model SAP calculations the following specifications highlighted below indicate the developers preferred way to achieve the requisite Building Regulations 2010 Part L1A pass and with the detailed design of the site this will be further enhanced to exceed Building Regulations;

- Cavity walls, built with Accredited Construction Details to U-Values better than 0.30 $W/m^3.K$
- A roof with a minimum U-Value better than 0.20 $W/m^3.K$.
- Floors with a minimum U-Value better than 0.25 $W/m^3.K$.
- Windows with a minimum U-Value better than 1.8 $W/m^3.K$.
- Air Permeability better than 8.00 $m^3/(h.m^2)$@ 50 Pa.
- The use of highly energy efficient gas condensing combi boilers
- Intelligent boiler controls

- The use of programmers, room stats and radiator TRVs to efficiently regulate energy usage
- 100% Low Energy Light fittings.

Additionally the developer will include the following features to improve energy efficiency;

- Using low energy external lighting with daylight cut-off devices
- Locating fridges and freezers away from cookers
- Efficient positioning of radiators
- Providing comprehensive advice to new occupants on energy efficiency via a Home User Guide.
- High quality build practices to limit heat loss from thermal bridging at key building junctions.

(vii) Code for Sustainable Homes credit allocation

As the over-riding energy usage within the development will be from the individual dwellings this will take the lead in this part of the assessment.

We have carried out a Pre-Assessment / Credit Allocation which shows what credits are likely to be achieved for the above development.

The Code for Sustainable Homes assesses each home individually, therefore there are likely to be variations between individual dwellings and also at Design and Post Construction.

Appendix 1 contains the Pre-Assessment / Credit Allocation however this development meets Code for Sustainable Level 4 in line with the Council's Core Strategy.

(viii) Conclusion

This Sustainability Report sets out the approach to the creation of a sustainable development at the Former Foulstone School Site by utilising the fabric first approach.

As a result we consider that the design is a sustainable development, which sensitively addresses the Application Site's constraints and optimise its opportunities at the same time as meeting a known development need.

This sustainable development has been created through the implementation of many measures, including the following key points:

- Using a 'fabric first' as being the most sustainable approach to energy saving, which will reduce overall energy demand and limit reliance on renewable technology.
- Improving energy demand and lower overall consumption through the use modern construction techniques to achieve industry excellent standards for fabric heat loss figures (U values) for all elements of the external construction, along with very air tight units.
- Meeting and exceeding Approved Document part L1A (2006) of the Building Regulations to values in excess of 27.37% betterment (over Building Regulations 2006).
- Peripheral areas of landscaped buffers providing ecological interest as well as increase impermeable surfaces and will help to reduce the developments carbon footprint.
- 100% energy efficient lights throughout the development.
- Internal water use within all dwellings to be reduced to a projected figure less than 120 l/p/d using water efficient fittings, thus preserving water supplies.
- The use of materials with low embodied energy which are locally sourced where available.
- A surface water design that avoids, reduces and delays the discharge of rainfall run-off to watercourses and public sewers using infiltration and attenuation where viable.
- Sustainable transport promoted with all dwellings within close proximity of a bus stop and providing all new residents with comprehensive information on the public transport provision.
- Initiatives developed to ensure a high quality place to live, including measures to minimise crime, improve security, provide outside spaces and achieve acceptable noise levels.
- Recycling provision within the units and site wide implementation of services via L.A. Collection Schemes.
- Providing a development that meets and in certain areas exceeds Code for Sustainable Homes Level 4.

Based on the above points and the contents of this report, the proposed development does meet Barnsley Council Core Strategy in relation to Sustainable Development. Furthermore the document also explains at this early stage how the development will exceed Building Regulations in terms of energy and sustainability.

Appendix 1 – Code for Sustainable Homes Pre Assessment

Code for Sustainable Homes

TG November 2010 Addendum 2014 EN - Full Technical Guide

Pre-Assessment Report

STROMA CERTIFIED CODE ASSESSOR

LK ACCREDITATION LIMITED

Report Reference:	**LKACC 14 1149**
Site Registration:	**Typical Pre assessment**
Site Name:	**Former Foulstone Shool Site**
Assessor Number:	**STRO010351**
Company:	**LK Accreditation**
Assessor:	**Peter Isherwood**

THE CODE FOR SUSTAINABLE HOMES

CERTIFICATION MARK

Site Details	
Site Name:	Former Foulstone Shool Site
Site Registration:	Typical Pre assessment
Site Address:	Nanny Marr Road
	Darfield
City/Town:	Barnsley
County:	South Yorkshire
Postcode:	S73 9AB
No. of Dwellings:	1
No. of Dwelling Types:	0
Planning Authority:	Barnsley Metropolitan Borough Council
Funding Body:	

Assessor Details	
Company:	LK Accreditation
Assessor Name:	Peter Isherwood
Cert Number:	STRO010351
Address:	Bury Business Centre
	Kay Street
City/Town:	Bury
County:	Lancashire
Postcode:	BL9 6BU
Tel:	01610 763 7200
Email:	p.isherwood@thelkgroup.com

Client Details	
Company:	DPP
Contact Name:	Emma Gomersal
Job Title:	Senior Planner
Email:	
Tel:	
Address:	2 Wellington Place
City/Town:	Leeds
County:	Yorkshire
Postcode:	LS1 4AP

Architect Details	
Company:	Smith Smalley Architect
Contact Name:	Smith Smalley Architects
Job Title:	Architect
Email:	
Tel:	
Address:	37 Victoria Avenue
City/Town:	Harrogate
County:	North Yorkshire
Postcode:	HG1 5PX

Developer Details	
Company:	
Contact Name:	TBC
Job Title:	
Email:	
Tel:	
Address:	
City/Town:	
County:	
Postcode:	

Dwelling ID	Plot No.	Address	Social Unit
1	All plots	Detached 4 bed Off Nanny Marr Road	No

Development Summary & Ratings

Dwelling ID	Dwelling Type	Description	Level	Score
		Detached 4 bedOff Nanny Marr Road	4	69.45

Deviations from Standard

No deviations from standard

Score Sheet for Former Foulstone Shool Site

	ENE									WAT		MAT			SUR		WAS			POL		HEA				MAN				ECO					Summary	
Dwelling ID	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1**	**2**	**1**	**2**	**3**	**1**	**2**	**1**	**2**	**3**	**1**	**2**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**5**	**Score**	**Level**
1	3	6.5	2	1	1	2	1	2	1	3	1	13	4	2	0	2	4	3	1	1	3	2	3	1	4	3	1	2	2	0	1	0	2	0	69.45	4

Summary Score Sheet

Dwelling Type: Detached 4 bed Off Nanny Marr Road

Dwelling ID: 1

	Credit Score	Credits Available	Score Assessment Sub Total	Credits Available	%	Weighting Factor	Points Score
Energy & CO2 Emissions							
ENE 1 Dwelling Emission Rate	3	10	19.5	31	62.9	36.4	22.9
ENE 2 Fabric Energy Efficiency	6.5	9					
ENE 3 Energy Display Device	2	2					
ENE 4 Drying Space	1	1					
ENE 5 Energy Labelled White Goods	1	2					
ENE 6 External Lighting	2	2					
ENE 7 Low or Zero Carbon Energy Technologies	1	2					
ENE 8 Cycle Storage	2	2					
ENE 9 Home Office	1	1					
Water							
WAT 1 Internal Water Use	3	5	4	6	66.67	9	6
WAT 2 External Water Use	1	1					
Materials							
MAT 1 Environmental Impact of Materials	13	15	19	24	79.17	7.2	5.7
MAT 2 Responsible Sourcing (Basic Building Elements)	4	6					
MAT 3 Responsible Sourcing (Finishing Elements)	2	3					
Surface Water Run-off							
SUR 1 Management of Surface Water Run-Off from Site	0	2	2	4	50	2.2	1.1
SUR 2 Flood Risk	2	2					
Waste							
WAS 1 Household Waste Storage and Recycling Facilities	4	4	8	8	100	6.4	6.4
WAS 2 Construction Site Waste Management	3	3					
WAS 3 Composting	1	1					
Pollution							
POL 1 Global Warming Potential of Insulants	1	1	4	4	100	2.8	2.8
POL 2 NOx Emissions	3	3					
Health & Wellbeing							
HEA 1 Daylighting	2	3	10	12	83.33	14	11.67
HEA 2 Sound Insulation	3	4					
HEA 3 Private Space	1	1					
HEA 4 Lifetime Homes	4	4					
Management							
MAN 1 Home User Guide	3	3	8	9	88.89	10	8.89
MAN 2 Considerate Constructors Scheme	1	2					
MAN 3 Construction Site Impacts	2	2					
MAN 4 Security	2	2					
Ecology							
ECO 1 Ecological Value of Site	0	1	3	9	33.33	12	4
ECO 2 Ecological Enhancement	1	1					
ECO 3 Protection of Ecological Features	0	1					
ECO 4 Change of Ecological Value of Site	2	4					
ECO 5 Building Footprint	0	2					
	Level Achieved: 4		Total Points Scored: 69.45				

Evidence for ENE 1 (Dwelling Emission Rate)
Improvement above Part L Building Regulations 2010. 3 credits allocated
Model SAPs completed
Assumptions for ENE 1

Evidence for ENE 2 (Fabric Energy Efficiency)
Detached 6.5 credits allocated
Model SAPs completed
Assumptions for ENE 2

Evidence for ENE 3 (Energy Display Device)
Correctly specified display device showing current primary heating fuel consumption data. Correctly specified display device showing current consumption data.
Assumptions for ENE 3

Evidence for ENE 4 (Drying Space)
Compliant internal drying space
Assumptions for ENE 4

Evidence for ENE 5 (Energy Labelled White Goods)
EU energy efficiency labelling scheme leaflet provision/provided
Assumptions for ENE 5

Evidence for ENE 6 (External Lighting)
Complaint space lighting, no security lighting installed
Assumptions for ENE 6

Evidence for ENE 7 (Low or Zero Carbon Energy Technologies)
Contribution of low or zero carbon technologies greater than or equal to 10%
Assumptions for ENE 7

Evidence for ENE 8 (Cycle Storage)
4 bedrooms or more - Storage for 4 cycles per dwelling
Assumptions for ENE 8

Evidence for ENE 9 (Home Office)
Compliant home office
Assumptions for ENE 9

Evidence for WAT 1 (Internal Water Use)
Internal water use less than or equal to 105 litres per person per day
Assumptions for WAT 1

Evidence for WAT 2 (External Water Use)
Compliant individual rainwater collection system
Assumptions for WAT 2

Evidence for MAT 1 (Environmental Impact of Materials)
Mandatory requirements met: At least 3 elements rated A+ to D, 13 credits scored
Assumptions for MAT 1

Evidence for MAT 2 (Responsible Sourcing (Basic Building Elements))
4 credits scored
Assumptions for MAT 2

Evidence for MAT 3 (Responsible Sourcing (Finishing Elements))
2 credits scored
Assumptions for MAT 3

Evidence for SUR 1 (Management of Surface Water Run-Off from Site)
Special Case: No change/decrease in impermeable area. Credits not available
Assumptions for SUR 1

Evidence for SUR 2 (Flood Risk)
Low flood risk - zone 1
Assumptions for SUR 2

Evidence for WAS 1 (Household Waste Storage and Recycling Facilities)
Mandatory requirements met: Adequate storage of household waste with accessibility in line with checklist WAS 1. Local authority collection: Before collection sorting with appropriate internal storage of recyclable materials
Assumptions for WAS 1

Evidence for WAS 2 (Construction Site Waste Management)
Compliant site waste management plan containing benchmarks, procedures and commitments for the minimizing and diverting 80% waste from landfill in line with the criteria and with Checklist WAS 2a, 2b & 2c
Assumptions for WAS 2

Evidence for WAS 3 (Composting)
Individual compositing facility/facilities Local authority kitchen waste collection scheme - Has Garden
Assumptions for WAS 3

Evidence for POL 1 (Global Warming Potential of Insulants)
All insulants have a GWP of less than 5

Assumptions for POL 1

Evidence for POL 2 (NOx Emissions)
NOx emissions less than or equal to 40mg/kWh
Assumptions for POL 2

Evidence for HEA 1 (Daylighting)
Living room: Average daylight factor of at least 1.5% Dining room: Average daylight factor of at least 1.5% Home office: Average daylight factor of at least 1.5% All rooms (kitchen, living, dining and where applicable the home office) have 80% of the working plane with direct light from the sky
Assumptions for HEA 1

Evidence for HEA 2 (Sound Insulation)
Robust details have been incorporated Airborne 5dB higher, impact 5dB lower
Assumptions for HEA 2

Evidence for HEA 3 (Private Space)
Individual private space provided.
Assumptions for HEA 3

Evidence for HEA 4 (Lifetime Homes)
All criteria of Lifetime Homes in line with all 16 principals of Lifetime Homes
Assumptions for HEA 4

Evidence for MAN 1 (Home User Guide)
All criteria inline with checklist MAN 1 Part 1 - Operational Issues will be met All criteria inline with checklist MAN 1 Part 2 - Site and Surroundings will be met
Assumptions for MAN 1

Evidence for MAN 2 (Considerate Constructors Scheme)
Considerate constructors scheme: Best practise only, a score of between 25 - 34, and at least a score of 5 in each section*
Assumptions for MAN 2

Evidence for MAN 3 (Construction Site Impacts)
Monitor, report and set targets for CO2 production or energy use from site activities Monitor, report and set targets for water consumption from site activities Adopt best practise policies in respects to air (dust) pollution from site activities Adopt best practise policies in respects to water (ground and surface) pollution 80% of timer reclaimed, re-used or responsibly sourced
Assumptions for MAN 3

Evidence for MAN 4 (Security)
Secured by design section 1 & 2 compliant
Assumptions for MAN 4

Evidence for ECO 1 (Ecological Value of Site)
Credit not sought
Assumptions for ECO 1

Evidence for ECO 2 (Ecological Enhancement)
Key recommendations and 30% additional recommendations by a suitably qualified ecologist
Assumptions for ECO 2

Evidence for ECO 3 (Protection of Ecological Features)
Credit not sought
Assumptions for ECO 3

Evidence for ECO 4 (Change of Ecological Value of Site)
Neutral: Greater than -3 and less than or equal to +3
Assumptions for ECO 4

Evidence for ECO 5 (Building Footprint)
Credit not sought
Assumptions for ECO 5

Assessor Declaration

I Peter Isherwood, can confirm that I have compiled this report to the best of my ability, I have based all findings on the information that is referenced within this report, and that this report is appropriate for the registered site.

To the best of my knowledge all the information contained within this report is correct and accurate. I have within my possession all the reference material that relates to this report, which is available for inspection by the client, the clients representative or Stroma Certification for Quality Assurance monitoring.

Signed:



Peter Isherwood
LK Accreditation
23 October 2014

Information about Code for Sustainable Homes

The Code for Sustainable Homes (the Code) is an environmental assessment method for rating and certifying the performance of new homes. It is a national standard for use in the design and construction of new homes with a view to encouraging continuous improvement in sustainable home building. The Code is based on EcoHomes©.

It was launched in December 2006 with the publication of 'Code for Sustainable Homes: A stepchange in sustainable home building practice' (Communities and Local Government, 2006), and became operational in England from April 2007.

The Code for Sustainable Homes covers nine categories of sustainable design. Each category includes a number of environmental issues. Each issue is a source of impact on the environment which can be assessed against a performance target and awarded one or more credits. Performance targets are more demanding than the minimum standards needed to satisfy Building Regulations or other legislation. They represent good or best practice, are technically feasible, and can be delivered by the building industry. The issues and categories are as follows:

- Energy & CO2 Emissions
  - Dwelling Emission Rate
  - Building Fabric
  - Internal Lighting
  - Drying Space
  - Energy Labelled White Goods
  - External Lighting
  - Low or Zero Carbon Technologies
  - Cycle Storage
  - Home Office
- Water
  - Internal Water Use
  - External Water Use
- Materials
  - Environmental Impact of Materials
  - Responsible Sourcing of Materials - Basic Building Elements
  - Responsible Sourcing of Materials - Finishing Elements
- Surface Water Run-off
  - Management of Surface Water Run-off from the Development
  - Flood Risk
- Waste
  - Storage of Non-Recyclable Waste and Recyclable Household Waste
  - Construction Site Waste Management
  - Composting
- Pollution
  - Global Warming Potential of Insulants
  - NOx Emissions

- Health & Wellbeing
  - Daylighting
  - Sound Insulation
  - Private Space
  - Lifetime Homes
- Management
  - Home User Guide
  - Considerate Constructors Scheme
  - Construction Site Impacts
  - Security
- Ecology
  - Ecological Value of Site
  - Ecological Enhancement
  - Protection of Ecological Features
  - Change in Ecological Value of Site
  - Building Footprint

The Code assigns one or more performance requirements (assessment criteria) to all of the above environmental issues. When each performance requirement is achieved a credit is awarded (with the exception of the four mandatory requirements which have no associated credits). The total number of credits available to a category is the sum of credits available for all the issues within it.

Mandatory minimum performance standards are set for some issues. For four of these, a single mandatory requirement is set which must be met, whatever Code level rating is sought. Credits are not awarded for these issues. Confirmation that the performance requirements are met for all four is a minimum entry requirement for achieving a level 1 rating. The four un-credited issues are:

- Environmental Impacts of Materials
- Management of Surface Water Run-off from Developments
- Storage of Non-Recyclable Waste and Recyclable Household Waste
- Construction Site Waste Management

If the mandatory minimum performance standard is met for the four un-credited issues, four further mandatory issues need to be considered. These are agreed to be such important issues that separate Government policies are being pursued to mitigate their effects. For two of these, credits are awarded for every level of achievement recognised within the Code, and minimum mandatory standards increase with increasing rating levels.

The two issues with increasing mandatory minimum standards are:

- Dwelling Emission Rate
- Indoor Water Use

For one issue a mandatory requirement at Level 5 or 6:

- Fabric Energy Efficiency

The final issue with a mandatory requirement for Level 6 of the Code is:

- Lifetime Homes

Further credits are available on a free-choice or tradable basis from other issues so that the developer may choose how to add performance credits (converted through weighting to percentage points) achieve the rating which they are aiming for.

The environmental impact categories within the Code are not of equal importance. Their relative value is conveyed by applying a consensus-based environmental weighting factor (see details below) to the sum of all the raw credit scores in a category, resulting in a score expressed as percentage points. The points for each category add up to 100.

The weighting factors used in the Code have been derived from extensive studies involving a wide range of stakeholders who were asked to rank (in order of importance) a range of environmental impacts. Stakeholders included international experts and industry representatives.

It is also important to note that achieving a high performance in one category of environmental impact can sometimes result in a lower level of performance for another. For instance, if biomass is used to meet heating demands, credits will be available for performance in respect of energy supplied from a renewable source, but credits cannot be awarded for low NOX emission. It is therefore impossible to achieve a total percentage points score of 100.

The Code uses a rating system of one to six stars. A star is awarded for each level achieved. Where an assessment has taken place by where no rating is achieved, the certificate states that zero stars have been awarded:

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**

Formal assessment of dwellings using the Code for Sustainable Homes may only be carried out using Certified assessors, who are qualified ‘competent persons’ for the purpose of carrying out Code assessments.

Energy & CO2 Emissions
ENE 1: Dwelling Emission Rate **Available Credits:**10 **Aim:**To limit CO2 emissions arising from the operation of a dwelling and its services in line with current policy on the future direction of regulations.
ENE 2: Fabric Energy Efficiency **Available Credits:**9 **Aim:**To improve fabric energy efficiency performance thus future-proofing reductions in CO2 for the life of the dwelling.
ENE 3: Energy Display Device **Available Credits:**2 **Aim:**To promote the specification of equipment to display energy consumption data, thus empowering dwelling occupants to reduce energy use.
ENE 4: Drying Space **Available Credits:**1 **Aim:**To promote a reduced energy means of drying clothes.
ENE 5: Energy Labelled White Goods **Available Credits:**2 **Aim:**To promote the provision or purchase of energy efficient white goods, thus reducing the CO2 emissions from appliance use in the dwelling.
ENE 6: External Lighting **Available Credits:**2 **Aim:**To promote the provision of energy efficient external lighting, thus reducing CO2 emissions associated with the dwelling.
ENE 7: Low or Zero Carbon Technologies **Available Credits:**2 **Aim:**To limit CO2 emissions and running costs arising from the operation of a dwelling and its services by encouraging the specification of low and zero carbon energy sources to supply a significant proportion of energy demand.
ENE 8: Cycle Storage **Available Credits:**2 **Aim:**To promote the wider use of bicycles as transport by providing adequate and secure cycle storage facilities, thus reducing the need for short car journeys and the associated CO2 emissions.
ENE 9: Home Office **Available Credits:**1 **Aim:**To promote working from home by providing occupants with the necessary space and services thus reducing the need to commute.

Water
WAT 1: Indoor Water Use **Available Credits:**5 **Aim:**To reduce the consumption of potable water in the home from all sources, including borehole well water, through the use of water efficient fittings, appliances and water recycling systems.
WAT 2: External Water Use **Available Credits:**1 **Aim:**To promote the recycling of rainwater and reduce the amount of mains potable water used for external water uses.

Materials
MAT 1: Environmental Impact of Materials **Available Credits:**15 **Aim:**To specify materials with lower environmental impacts over their life-cycle.
MAT 2: Responsible Sourcing of Materials - Basic Building Elements **Available Credits:**6 **Aim:**To promote the specification of responsibly sourced materials for the basic building elements.
MAT 3: Responsible Sourcing of Materials - Finishing Elements **Available Credits:**3 **Aim:**To promote the specification of responsibly sourced materials for the finishing elements.

Surface Water Run-off
SUR 1: Management of Surface Water Run-off from developments **Available Credits:**2 **Aim:**To design surface water drainage for housing developments which avoid, reduce and delay the discharge of rainfall run-off to watercourses and public sewers using SuDS techniques. This will protect receiving waters from pollution and minimise the risk of flooding and other environmental damage in watercourses.
SUR 2: Flood Risk **Available Credits:**2 **Aim:**To promote housing development in low flood risk areas, or to take measures to reduce the impact of flooding on houses built in areas with a medium or high risk of flooding.

Waste
WAS 1: Storage of non-recyclable waste and recyclable household waste **Available Credits:**4 **Aim:**To promote resource efficiency via the effective and appropriate management of construction site waste.
WAS 2: Construction Site Waste Management **Available Credits:**3 **Aim:**To promote resource efficiency via the effective and appropriate management of construction site waste.
WAS 3: Composting **Available Credits:**1 **Aim:**To promote the provision of compost facilities to reduce the amount of household waste send to landfill.

Pollution
POL 1: Global Warming Potential of Insulants **Available Credits:**1 **Aim:**To promote the reduction of emissions of gases with high GWP associated with the manufacture, installation, use and disposal of foamed thermal and acoustic insulating materials.
POL 2:NOx Emissions **Available Credits:**3 **Aim:**To promote the reduction of nitrogen oxide (NOX) emissions into the atmosphere.

Health & Wellbeing
HEA 1: Daylighting **Available Credits:**3 **Aim:**To promote good daylighting and thereby improve quality of life and reduce the need for energy to light the home.
HEA 2: Sound Insulation **Available Credits:**4 **Aim:**To promote the provision of improved sound insulation to reduce the likelihood of noise complaints from neighbours.
HEA 3: Private Space **Available Credits:**1 **Aim:**To improve quality of life by promoting the provision of an inclusive outdoor space which is at least partially private.
HEA 4: Lifetime Homes **Available Credits:**4 **Aim:**To encourage the construction of homes that are accessible and easily adaptable to meet the changing needs of current and future occupants.

Management
MAN 1: Home User Guide **Available Credits:**3 **Aim:**To promote the provision of guidance enabling occupants to understand and operate their home efficiently and make the best use of local facilities.
MAN 2: Considerate Constructors Scheme **Available Credits:**3 **Aim:**To promote the environmentally and socially considerate, and accountable management of construction sites.
MAN 3: Construction Site Impacts **Available Credits:**2 **Aim:**To promote construction sites managed in a manner that mitigates environmental impacts.
MAN 4: Security **Available Credits:**2 **Aim:**To promote 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.

Ecology
ECO 1: Ecological value of site **Available Credits:**1 **Aim:**To promote development on land that already has a limited value to wildlife, and discourage the development of ecologically valuable sites.
ECO 2: Ecological enhancement **Available Credits:**1 **Aim:**To enhance the ecological value of a site.
ECO 3: Protection of ecological features **Available Credits:**1 **Aim:**To promote the protection of existing ecological features from substantial damage during the clearing of the site and the completion of construction works.
ECO 4: Change in ecological value of site **Available Credits:**4 **Aim:**To minimise reductions and promote an improvement in ecological value.
ECO 5: Building footprint **Available Credits:**2 **Aim:**To promote the most efficient use of a building’s footprint by ensuring that land and material use is optimised across the development.

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