

**THE VALE OF
GLAMORGAN COUNCIL**

TOWN AND COUNTRY PLANNING ACT 1990

APPROVED

SUBJECT TO COMPLIANCE WITH CONDITIONS (IF ANY)

**Building Plot at Lakin Drive
Barry
CF62 8AH**

**Code for Sustainable Homes
Pre-assessment**

For

Mr Phil Whitehouse

20th of June 2014

RECEIVED

20 AUG 2014

ENVIRONMENTAL
AND ECONOMIC
REGENERATION

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Melin Consultants are accredited to provide a range of calculation and testing services. They are members of CIBSE Low Carbon Consultants.

Summary

1. Melin Consultants fully audit all work prior to completion and a robust audit trail exists to demonstrate accountability.
2. All information within this document is based on evidence provided in the form of drawings and specifications.
3. CPD (Continual Professional Development) records are kept and technicians are required to complete a minimum 20 hours per year in training activities.
4. Low Carbon Consultants have the expertise and necessary qualifications to offer advice in a professional capacity on matters relating to Part L of the Building Regulations and sustainability within the construction sector.

This document contains the following information:

- Code for Sustainable Homes Pre-assessment

Project Ref: 1641

Report Date: 20th June 2014

Report Author: Matthew Fryer

Author Function: Junior Sustainability Consultant

Authorised by: Ashley Bosomworth

Function: Code for Sustainable Homes Assessor

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Benefits of a Pre-assessment

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This Code for Sustainable Homes *pre-assessment* report has created an initial evaluation of the sustainability of the proposed development and aims to provide advice on the elements that need to be incorporated into the detailed design and cost plan. Having the design team and Code for Sustainable Homes Assessor introduced at an early stage of the project will help to identify any constraints of the project. A pre-assessment will also help to highlight which credits are potentially straightforward to achieve, which in turn will help maximise the credits that will be available and make it easier to achieve the desired rating.

Summary of the Pre-assessment

This Code for Sustainable Homes *pre-assessment* report has been prepared by a licensed assessor and establishes potential credits based on the outline design of the proposed development. The proposed development has provisionally achieved CSH Level 3 with a rating of 58.99% based on the information provided.

Table 1: Code Rating

Total Percentage Points Score	Code Levels
36 Points	Level 1 (*)
48 Points	Level 2 (**)
57 Points	Level 3 (***)
68 Points	Level 4 (****)
84 Points	Level 5 (*****)
90 Points	Level 6 (*****)

The assessment has been based upon the nine categories illustrated in Table 2 and are weighted in value according to their environmental credentials. It also shows the credits that have been provisionally agreed upon for the development at Building Plot at Lakin Drive, Barry, CF72 8AH

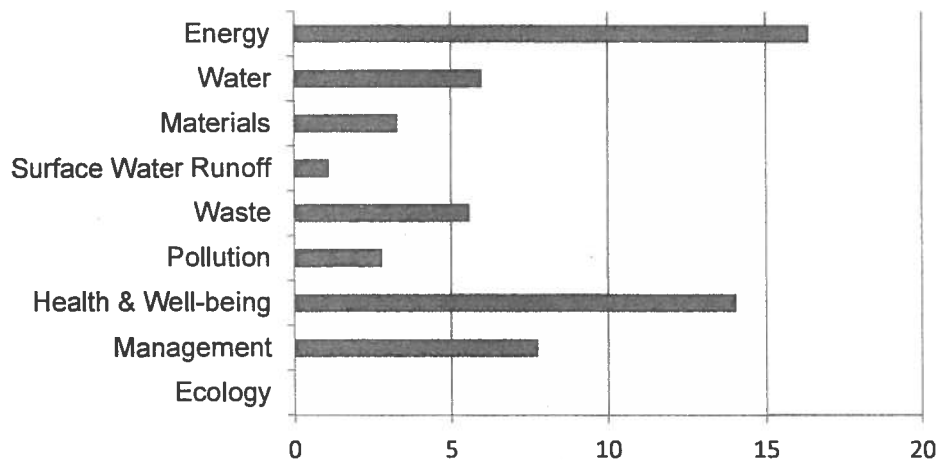
Table 2: The Categories and Provisional Credits

Categories of Environmental Impact	Total Points available	Weighting Factor (% points contribution)	Approximate Weighted Value of each Credit	Provisional Credits agreed upon	Provisional Credits after Weighting Factor
Category 1 Energy and CO2 Emissions	31	36.4%	1.17	15	17.55
Category 2 Water	6	9.0%	1.50	4	6.00
Category 3 Materials	24	7.2%	0.30	11	3.30
Category 4 Surface Water Run-off	4	2.2%	0.55	2	1.10
Category 5 Waste	8	6.4%	0.80	8	6.40
Category 6 Pollution	4	2.8%	0.70	4	2.80
Category 7 Health and Well-being	12	14.0%	1.17	12	14.04

Categories of Environmental Impact	Total Points available	Weighting Factor (% points contribution)	Approximate Weighted Value of each Credit	Provisional Credits agreed upon	Provisional Credits after Weighting Factor
Category 8 Management	9	10.0%	1.11	7	7.77
Category 9 Ecology	9	12.0%	1.33	0	0
Total	107	100%		63	58.99%

Provisional Credits after Weighting

Credits as a Percentage



Important Note: This Pre Assessment document does not constitute a formal Code for Sustainable Homes assessment and is only intended for initial guidance to which Code for Sustainable Homes credits could be targeted and which credits are likely to be ascertained, based on the comments of the Design Team during the initial pre assessment stage meeting.

A complete Code for Sustainable Homes Certificate will only be issued if the project is taken on to the Final Assessment stage known as the Post Construction stage, and the assessors report has been submitted and approved by Stroma Certification Ltd.

A majority of credits targeted within this pre-assessment are chosen as being the most suitable for the proposed development. The design team has based these decisions on discussions with the licensed assessor. There are however, several mandatory credits which have minimum standards and must be met. The mandatory credits and their minimum standards are illustrated in the table below.

14 00992 FUL

Table 3: Mandatory Credits and their Minimum Standards

Mandatory Credit		Minimum Standards			
		Level 3	Level 4	Level 5	Level 6
Ene 1	Dwelling Emission Rate	*Not required	3 Credits (Equal to or greater than 25% improvement from 2010 DER/TER)	9 Credits (Equal to or greater than 100% improvement from 2010 DER/TER)	10 Credits (Zero net CO2 emissions)
Ene 2	Fabric Energy Efficiency	Not required		7 Credits (If Apartment Blocks/Mid Terrace: Equal to or less than 39kWh/m2/year. If End Terrace/Semi-Detached/Detached: Equal to or less than 46kWh/m2/year)	
Wat 1	Internal Water Use	3 Credits (Equal to or less than 105 litres/person/day)		5 Credits (Equal to or less than 80 litres/person/day)	
Mat 1	Environmental Impacts of Materials	Where at least three of the following five key elements of the building envelope achieve a rating of A+ to D in the 2008 version of The Green Guide: <ul style="list-style-type: none"> • Roof • External Walls • Internal Walls (including separating walls) • Upper and ground floors (including separating floors) • Windows 			
Sur 1	Management of Surface Water Run-off from Developments	Ensure that the peak rate of run-off into watercourses is no greater for the developed site than it was for the pre-development site. If there is no increase in the man-made impermeable area as a result of the new development, then the peak rate of run-off criterion does not apply. Where there is an increase in impermeable area, ensure that the peak rate of run-off over the development lifetime, allowing for climate change, will be no greater for the developed site than it was for the pre-development site. This should comply at the 1 year 1 and 100 year 2 return period events.			
Was 1	Storage of Non-recyclable Waste and Recyclable Household Waste	An adequate external space should be allocated for waste storage and sized to accommodate containers according to the largest of the following two volumes: <ul style="list-style-type: none"> • The minimum volume recommended by British Standard 5906 (British Standards Institution, 2005) based on a maximum collection frequency of once per week. The volume is 100 litres for a single bedroom dwelling, with a further 70 litres for each additional bedroom. • The total volume of the external waste containers provided by the Local Authority. Storage space must provide inclusive access and usability.			
Hea 4	Lifetime Homes	Level 6 only			
		3 Credits Where an exemption from Lifetime Homes criteria 2 and/or 3 is applied to select pathways subject to a steeply sloping plot gradient, but all other principles of Lifetime Homes, applicable to the dwelling being assessed, have been complied with.	4 Credits Where all principles of Lifetime Homes, applicable to the dwelling being assessed, have been complied with.		

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BREEAM
Code for Sustainable Homes
SBEM
SAP
Air Tightness Testing

Report Reference: 1641
Site Registration: 015809-140620-99-1255
Site Name: Building Plot at Lakin Drive
Assessor Number: STRO015809
Company: Melin Consultants
Assessor: Ashley Rosomworth



Site Details

Site Name: Building Plot at Lakin Drive
 Site Registration: 015809-140620-99-1255
 Site Address: Lakin Drive

City/Town: Barry
 County: Vale of Glamorgan
 Postcode: CF62 8AH
 No. of Dwellings: 1
 No. of Dwelling Types: 0
 Planning Authority: Vale of Glamorgan Council
 Funding Body:

14 00992FUL

Assessor Details

Company: Melin Consultants
 Assessor Name: Ashley Bosomworth
 Cert Number: STRO015809
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 County: Vale of Glamorgan
 Postcode: CF71 7BP



Dwelling ID	Plot No.	Address	Social Unit
1	1	Building Plot at Lakin Drive Lakin Drive	No

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Development Summary & Ratings

Dwelling ID	Dwelling Type	Description	Level	Score
		Building Plot at Lakin DriveLakin Drive	3	58.99

Deviations from Standard

No deviations from standard

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Score Sheet for Building Plot at Lakin Drive

Dwelling ID	ENE									WAT			MAT			SUR			WAS			POL		HEA				MAN				ECO					Summary	
	1	2	3	4	5	6	7	8	9	1	2	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4	1	2	3	4	1	2	3	4	5	Score	Level	
1	1	4	2	1	2	2	0	2	1	3	1	11	0	0	0	2	4	3	1	1	3	3	4	1	4	3	0	2	2	0	0	0	0	0	58.99	3		

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Summary Score Sheet

Dwelling Type: Building Plot at Lakin Drive Lakin Drive

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Dwelling ID: 1

		Score Assessment						
		Credit Score	Credits Available	Sub Total	Credits Available	%	Weighting Factor	Points Score
Energy & CO2 Emissions								
ENE 1	Dwelling Emission Rate	1	10	15	31	48.39	36.4	17.61
ENE 2	Fabric Energy Efficiency	4	9					
ENE 3	Energy Display Device	2	2					
ENE 4	Drying Space	1	1					
ENE 5	Energy Labelled White Goods	2	2					
ENE 6	External Lighting	2	2					
ENE 7	Low or Zero Carbon Energy Technologies	0	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	11	15	11	24	45.83	7.2	3.3
MAT 2	Responsible Sourcing (Basic Building Elements)	0	6					
MAT 3	Responsible Sourcing (Finishing Elements)	0	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	3	3	12	12	100	14	14
HEA 2	Sound Insulation	4	4					
HEA 3	Private Space	1	1					
HEA 4	Lifetime Homes	4	4					
Management								
MAN 1	Home User Guide	3	3	7	9	77.78	10	7.78
MAN 2	Considerate Constructors Scheme	0	2					
MAN 3	Construction Site Impacts	2	2					
MAN 4	Security	2	2					
Ecology								
ECO 1	Ecological Value of Site	0	1	0	9	0	12	0
ECO 2	Ecological Enhancement	0	1					
ECO 3	Protection of Ecological Features	0	1					
ECO 4	Change of Ecological Value of Site	0	4					
ECO 5	Building Footprint	0	2					
				Level Achieved: 3		Total Points Scored: 58.99		

Evidence for ENE 1 (Dwelling Emission Rate)

Improvement above Part L Building Regulations 2010. 1 credits allocated

Design Stage - SAP 2009 worksheet needs to be completed by a suitably qualified SAP assessor with the assessors name, registration number and address of development to be provided.

Copy of plans, elevations, sections and construction details as designed to accompany the assessment and any specification changes detailed by the assessor.

Assumptions for ENE 1

As this is a mandatory requirement it is imperative that the 8% improvement factor for the CO2 emissions is met.

Evidence for ENE 2 (Fabric Energy Efficiency)

Detached
4 credits allocated

Design Stage - SAP 2009 worksheet needs to be completed by a suitably qualified SAP assessor with the assessor name, registration number and address of the development to be provided.

Copy of construction details as designed to accompany the assessment.

Assumptions for ENE 2

Based on previous calculations the client is confident of achieving 4 credits.

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.

Documentary evidence confirming that the correctly specified energy display device is dedicated to the dwelling and the consumption data displayed by the correctly specified energy display device.

Design Stage - Letter of intent from the client.

Assumptions for ENE 3

Client to confirm that a Energy Display Device will be installed at the dwelling.

Evidence for ENE 4 (Drying Space)

Compliant external drying space

At Design Stage, drawings showing location of external fixings/footings or posts. Specification needs to accompany the drawings.

If no drawings can be provided, a formal letter of compliance will be provided to confirm that external drying space will be provided.

Assumptions for ENE 4

Client to confirm that external drying space will be available for the development.

Evidence for ENE 5 (Energy Labelled White Goods)

A+ rated fridge & freezers or fridge/freezer

A rated washing machine and dishwasher, AND EITHER a tumble dryer (a washer-dryer would be an acceptable alternative to a standalone tumble dryer) with a B rating or where a tumble dryer is not provided, the EU Energy Efficiency Labelling Scheme Information will be provided.

At Design Stage the following evidence is to be provided:

- Copy of EU Energy Efficiency Labelling Scheme.
- Location on drawings and specification accompanying.
- Make and Model of all white goods to be provided.
- A letter of intent.

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At Design Stage the following evidence is to be provided:

- Copy of the information that will be provided on the EU Energy Efficiency Labelling Scheme.
- Confirmation that the information will be provided to the dwelling(s).

Assumptions for ENE 5

Client to confirm that white goods will be provided and will meet the minimum requirements.

Evidence for ENE 6 (External Lighting)

Compliant space lighting, no security lighting installed

At Design Stage the following evidence is to be provided:

- Relevant drawings showing location of all external light fittings and specification.
- Confirmation of the types of light fitting and efficacy, in lumens per watt for all lamps.
- A letter of intent from the client.

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Assumptions for ENE 6

Space lighting will be provided as per the client.

Evidence for ENE 7 (Low or Zero Carbon Energy Technologies)

Credit(s) not sought or contribution of low or zero carbon technologies less than 10%

Credits not sought.

Assumptions for ENE 7

Credit Not Sought.

Evidence for ENE 8 (Cycle Storage)

4 bedrooms or more - Storage for 4 cycles per dwelling

Cycle storage facilities will be provided in accordance with the following dimensions;

Detailed documentary evidence will need to be provided showing;

- The number of bedrooms and the corresponding number of cycle storage spaces per dwelling.
- Location, type and size of storage.
- Convenient access to cycle storage.
- Any security measures.

Or a letter of intent from the client.

Assumptions for ENE 8

Client to confirm that storage will be available for 4 cycles in the garage.

Evidence for ENE 9 (Home Office)

Compliant home office

Drawings and specification showing sufficient space, two double power sockets, two telephone points / one cable point and an openable window.

Assumptions for ENE 9

Client to confirm that a space will be provided for a home office.

Evidence for WAT 1 (Internal Water Use)

Internal water use less than or equal to 105 litres per person per day

At Design Stage the following evidence is to be provided:

- Drawings and specification detailing location.
- Details and type of appliance.
- If to be installed, Location, size and details of any rainwater and greywater collection systems in the dwelling.
- Letter from the client to show intent of specific undertaking.

Assumptions for WAT 1

A water consumption figure of 105 litres/person/day, will be achieved in line with the mandatory requirements.
This value can typically be achieved in the following method;

- Utility/kitchen/wash hand basin taps with a flow rate of 4 litres per minute.
- Shower to have a flow rate of 7 litres per minute
- Bath capacity of 200 litres
- 2.6/4 litre dual flush toilets
- Washing machine to use 8.17 litres per kg of dry load
- Dishwasher to use 1.25 litres per place setting

Evidence for WAT 2 (External Water Use)

Compliant individual rainwater collection system

At Design Stage the following evidence is to be provided:

- Drawings and specification detailing location, size and type of collection system.
- Letter from the client to show intent of specific undertaking.

14 00992FUL

Assumptions for WAT 2

Client to confirm a rainwater collection system will be installed at the dwelling.

Evidence for MAT 1 (Environmental Impact of Materials)

Mandatory requirements met: At least 3 elements rated A+ to D, 11 credits scored

At Design Stage the following evidence is to be provided:

- Drawings and specification detailing location and area of element, details of materials used within the element.
- Letter from the client to show intent of specific undertaking.

MAT 1 Calculator to be completed by Melin Consultants, showing building elements at the design stage with the relevant Green Guide element numbers.

Assumptions for MAT 1

Client to confirm that the mandatory requirements will be met and approximately 11 credits will be achieved.

Evidence for MAT 2 (Responsible Sourcing (Basic Building Elements))

Zero credits or credits not sought

Credit not sought.

Assumptions for MAT 2

Credit not sought.

Evidence for MAT 3 (Responsible Sourcing (Finishing Elements))

Zero credits or credits not sought

Credit not sought.

Assumptions for MAT 3

Credit not sought.

Evidence for SUR 1 (Management of Surface Water Run-Off from Site)

Mandatory Met: Peak rate of run-off and annual volume of run-off is no greater for the developed than for the pre-development. The system has also been designed for local drainage system failure.

At Design Stage the following evidence is to be provided:

- Confirmation of the appointment of a suitably qualified engineer/consultant (qualified in line with the Code definition) to carry out the necessary calculations and provide design criteria for the relevant elements.
- Copy of the engineers/consultants report and Flood Risk Assessment showing mandatory requirements have been met.
- Copies of drawings and specification supporting report.

Assumptions for SUR 1

Client to confirm that mandatory requirements will be met.

Evidence for SUR 2 (Flood Risk)

Low flood risk - zone 1

At Design Stage the following evidence is to be provided:

- If Zone 1 - Copy of the Flood Risk Assessment confirming that there is a low risk of flooding from all sources.

Assumptions for SUR 2

The flood risk is currently unknown. 2 credits have been awarded at this current stage based on the Environment Agency Flood Map.

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: After collection sorting with appropriate internal storage of recyclable materials

14 00992 FUL

Mandatory Requirements - Checklist WAS1 to be completed.

At Design Stage the following evidence is to be provided:

- Drawings and specification showing the number of bedrooms, location of internal and external storage, types and sizes of internal and external storage and access to storage.
- Justification in writing if the bins cannot be located within 30 metres of an external door.
- A letter of confirmation from the local authority confirming the details of the collection system in place.

Assumptions for WAS 1

Client to confirm that the mandatory criteria will be met and that there is a local authority collection scheme.

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

At Design Stage the following evidence is to be provided:

- A copy of the Site Waste Management Plan in line with Checklist Was2a, 2b and 2c.
- 2 credits, a copy of the compliant Site Waste Management Plan in line with Checklist Was2a, 2b and 2c confirming 50% of waste has been diverted away from landfill.
- 3 credits, a copy of the compliant Site Waste Management Plan in line with Checklist Was2a, 2b and 2c confirming 85% of waste has been diverted away from landfill.

OR

- A letter confirming intent from the client.

Assumptions for WAS 2

Client to indicate that 3 credits will be achieved in this category.

Evidence for WAS 3 (Composting)

Individual composting facility/facilities

At Design Stage the following evidence is to be provided:

- A copy of the completed Checklist Was1.
- Drawings and specification showing the location and size of storage, the access to the storage and an information leaflet or a letter of intent from the client.
- For communal / community composting schemes, detailed documentary evidence stating the distance of storage from the dwelling, management arrangements, location and size of the storage, details of the scheme and confirmation that an information leaflet will be supplied.

Assumptions for WAS 3

The client to confirm that individual composting facilities will be available.

Evidence for POL 1 (Global Warming Potential of Insulants)

All insulants have a GWP of less than 5

At Design Stage the following evidence is to be provided:

- Completed Checklist Pol1 and section drawings and specification for each element showing the type and location of all insulant materials accompanied by the manufacturers literature clearly stating the GWP value or a letter of intent from the client.

Assumptions for POL 1

The client to confirm that insulants will have a GWP of less than 5.

Credit not sought.

Evidence for POL 2 (NOx Emissions)

NOx emissions less than or equal to 40mg/kWh

At Design Stage the following evidence is to be provided:

- Drawings & specification confirming details of the primary and secondary heating system and flue type.
- Manufacturers literature detailing NOx emissions if applicable
- Where NOx averaging is required due to multiple heating systems within the dwelling a copy of the calculations as detailed in the methodology based on design stage SAP outputs.
- OR a letter of intent from the client.

Assumptions for POL 2

The client to confirm that the boiler will have a NOx level of less than 40Mg/kWh.

Evidence for HEA 1 (Daylighting)

Kitchen: Average daylight factor of at least 2%

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

At Design Stage the following evidence is to be provided:

- Daylighting calculations supported by plans and specification showing angle of the visible sky, the window glazing, the room surface areas, room dimensions, position of any external obstructions.
- Daylighting calculations to be completed.
- A letter of intent from the client.

Assumptions for HEA 1

Client to confirm that daylighting calculations will be undertaken.

Credits not sought.

14 00992 FUL

Evidence for HEA 2 (Sound Insulation)

Detached property

At Design Stage the following evidence is to be provided:

- Drawings showing the property as detached.

Assumptions for HEA 2

Credits awarded by default as the property is detached.

Evidence for HEA 3 (Private Space)

Individual private space provided.

At Design Stage the following evidence is to be provided:

- Drawings and specification confirming number of bedrooms served by outdoor space, minimum size requirements and area accessible to wheelchair users.
- OR a letter of intent from the client.

Assumptions for HEA 3

Client to confirm that a private space is available.

Evidence for HEA 4 (Lifetime Homes)

All criteria of Lifetime Homes in line with all 16 principals of Lifetime Homes

At Design Stage the following evidence is to be provided:

- A completed Lifetime Homes Checklist Hea1 signed by the client.
- Where exemption from lifetime homes criteria 2 and 3 is sought, confirmation from the developer that all other design criteria will be met.
- Detailed documentary evidence demonstrating access routes subject to steeply sloping gradients at pre-development and completion.

Assumptions for HEA 4

Client to confirm that the criteria for Lifetime Homes will be met.



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

At Design Stage the following evidence is to be provided:

- Checklist Man1 completed
- OR a letter of intent from the client.

Assumptions for MAN 1

Client to indicate that Home User Guide will be provided.

Evidence for MAN 2 (Considerate Constructors Scheme)

Credits not sought.

Assumptions for MAN 2

Credits not sought.

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

At Design Stage the following evidence is to be provided:

- Completed copy of the MAN 3 Checklist
- Letter of intent from the client.

14 00992FUL

Assumptions for MAN 3

Client to confirm that the construction site impacts will be targeted and monitored.

Evidence for MAN 4 (Security)

Secured by design section 1 & 2 compliant

At Design Stage the following evidence is to be provided:

- Confirmation in writing that an Architectural Liason Officer has been appointed
- Commitment to follow the advice provided by the ALO / CPDA
- OR a letter of intent from the client confirming the above.

Assumptions for MAN 4

The client to confirm that the project will be Secured by Design.

Evidence for ECO 1 (Ecological Value of Site)

Credit not sought.

Assumptions for ECO 1

Credit not sought.

Evidence for ECO 2 (Ecological Enhancement)

Credit not sought.

Assumptions for ECO 2

Credit not sought.

Evidence for ECO 3 (Protection of Ecological Features)

Credit not sought.

Assumptions for ECO 3

Credit not sought.

Evidence for ECO 4 (Change of Ecological Value of Site)

Credit not sought.

Assumptions for ECO 4

Credit not sought.



Evidence for ECO 5 (Building Footprint)
Credits not sought.
Assumptions for ECO 5
Credits not sought.

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Assessor Declaration

I Ashley Bosomworth, 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:

ASB

Ashley Bosomworth
Melin Consultants
20 June 2014

14 00992FUL

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

14 00992FUL

- 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

14 00992FUL

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

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.

14 00992FUL

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.

14 00992 FUL

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 sent 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.

14 00992 FUL

Management
<p>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.</p>
<p>MAN 2:Considerate Constructors Scheme Available Credits:3 Aim:To promote the environmentally and socially considerate, and accountable management of construction sites.</p>
<p>MAN 3:Construction Site Impacts Available Credits:2 Aim:To promote construction sites managed in a manner that mitigates environmental impacts.</p>
<p>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.</p>

Ecology
<p>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.</p>
<p>ECO 2:Ecological enhancement Available Credits:1 Aim:To enhance the ecological value of a site.</p>
<p>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.</p>
<p>ECO 4:Change in ecological value of site Available Credits:4 Aim:To minimise reductions and promote an improvement in ecological value.</p>
<p>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.</p>

14 00992 FUL

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14 00992FUL