Code for Sustainable Homes

Technical Guide November 2010 - Full Technical Guide

Design Stage Report



Report Reference:	**008133-131010-05-1132**
Site Registration:	**008133-131010-05-1132**
Site Name:	**24 Middlefield Place**
Assessor Number:	**STRO008133**
Company:	**Ashby Energy Assessors**
Assessor:	**James Rivers**

Site Details	
Site Name:	24 Middlefield Place
Site Registration:	008133-131010-05-1132
Site Address:	24 Middlefield Place
City/Town:	Hinckley
County:	Leicestershire
Postcode:	LE10 0RL
No. of Dwellings:	1
No. of Dwelling Types:	0
Planning Authority:	Hinckley & Bosworth Borough Council
Funding Body:	

Assessor Details	
Company:	Ashby Energy Assessors
Assessor Name:	James Rivers
Cert Number:	STRO008133
Address:	The Stables
	Hill Top Farm
	Croxton Kerrial
City/Town:	Grantham
County:	Nottinghamshire
Postcode:	NG321QJ
Tel:	01476870504
Email:	james@ashbyenergy.co.uk

Client Details	
Company:	Mr Marcus Barney
Contact Name:	Mr Marcus Barney
Job Title:	Client
Email:	
Tel:	07583790494
Address:	24 Middlefield Place
City/Town:	Hinckley
County:	Warwickshire
Postcode:	LE10 0RL

Architect Details	
Company:	Hayward Architects
Contact Name:	Lee Ward
Job Title:	Architect
Email:	
Tel:	01455 635665
Address:	19 Station Road
	Barwell
City/Town:	Hinckley
County:	Leicestershire
Postcode:	LE10 1AW

Developer Details	
Company:	Mr Marcus Barney
Contact Name:	Mr Marcus Barney
Job Title:	Developer
Email:	
Tel:	07583790494
Address:	24 Middlefield Place
City/Town:	Hinckley
County:	Warwickshire
Postcode:	LE10 0RL

Dwelling ID	Plot No.	Address	Social Unit
1	1	24 Middlefield Place	No

Development Summary & Ratings

Dwelling ID	Dwelling Type	Description	Level	Score
		24Middlefield Place	3	57.54

Deviations from Standard

No deviations from standard

Score Sheet for 24 Middlefield Place

	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	1.9	4.3	2	1	2	2	0	2	1	3	1	12	0	0	0	2	4	1	1	1	3	3	4	1	0	3	0	2	0	1	1	1	1	0	57.54	3

Summary Score Sheet

Dwelling Type: 24 Middlefield Place

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	1.9	10	16.2	31	52.26	36.4	19.02
ENE 2 Fabric Energy Efficiency	4.3	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	12	15	12	24	50	7.2	3.6
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	6	8	75	6.4	4.8
WAS 2 Construction Site Waste Management	1	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	8	12	66.67	14	9.33
HEA 2 Sound Insulation	4	4					
HEA 3 Private Space	1	1					
HEA 4 Lifetime Homes	0	4					
Management							
MAN 1 Home User Guide	3	3	5	9	55.56	10	5.56
MAN 2 Considerate Constructors Scheme	0	2					
MAN 3 Construction Site Impacts	2	2					
MAN 4 Security	0	2					
Ecology							
ECO 1 Ecological Value of Site	1	1	4	9	44.44	12	5.33
ECO 2 Ecological Enhancement	1	1					
ECO 3 Protection of Ecological Features	1	1					
ECO 4 Change of Ecological Value of Site	1	4					
ECO 5 Building Footprint	0	2					
	Level Achieved: 3		Total Points Scored: 57.54				

Evidence for ENE 1 (Dwelling Emission Rate)
Improvement above Part L Building Regulations 2010. 1.9 credits allocated
SAP, DER, FEE and CSH worksheet used. In Folder ENE1&2 Calculator used.

Evidence for ENE 2 (Fabric Energy Efficiency)
Detached 4.3 credits allocated
SAP, DER, FEE and CSH worksheet used. In Folder ENE1&2 Calculator used.

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.
Client Confirmation Letter - Point Ene 3 Letter in folder 11 Specification

Evidence for ENE 4 (Drying Space)
Compliant external drying space
Client Confirmation Letter - Point Ene 4 Letter in folder 11 Specification

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.
Client Confirmation Letter - Point Ene 5 Letter in folder 11 Specification

Evidence for ENE 6 (External Lighting)
Complaint space lighting, no security lighting installed
Client Confirmation Letter - Point Ene 6 Letter in folder 11 Specification

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%
None

Evidence for ENE 8 (Cycle Storage)
2 or 3 bedroom dwelling - Storage for 2 cycles per dwelling
Client Confirmation Letter - Point Ene 8 Letter in folder 11 Specification

Evidence for ENE 9 (Home Office)
Compliant home office
Client Confirmation Letter - Point Ene 9 Letter in folder 11 Specification

Evidence for WAT 1 (Internal Water Use)
Internal water use less than or equal to 105 litres per person per day
Water Efficiency Calculation provided for each dwelling. Detailed evidence not available at this time. In folder Wat 1 Water efficiency confirmation letter showing specific undertaking In folder Wat 1

Evidence for WAT 2 (External Water Use)
Compliant individual rainwater collection system
Client Confirmation Letter - Point Wat 2 Letter in folder 11 Specification

Evidence for MAT 1 (Environmental Impact of Materials)
Mandatory requirements met: At least 3 elements rated A+ to D, 12 credits scored
Please see Green Guide Template in Mat 1 Folder with construction type / number and the confirmation from the architect that this was a fair reflections of the build. In addition, I have been provide confirmation from BRE Green Guide Team that i can use the external wall construction 806170028 for the build-up of “Brickwork outer leaf, insulation, thermal blockwork inner leaf, cement mortar, dabs, plasterboard, paint (Please see email in Mat 1 folder)

Evidence for MAT 2 (Responsible Sourcing (Basic Building Elements))
Zero credits or credits not sought

Evidence for MAT 3 (Responsible Sourcing (Finishing Elements))
Zero credits or credits 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. Credits not sought, water quality criteria not met/sought.
Please see hydrologist report in Sur 1 folder. See Section C for the awarding of the credits. All technical date is at the bottom of the report

Evidence for SUR 2 (Flood Risk)
Low flood risk - zone 1
Please see hydrologist report in Sur 1 folder. See Section C for the awarding of the credits.

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
Client Confirmation Letter - Point Was 1 Letter in folder 11 Specification Please See CAT 5.1 & IDP in Was 1 folder. In addition, please see attached email from Jessica Jone (Hinckley & Bosworth Council) She clearly states the type of recycling and refuse

Evidence for WAS 2 (Construction Site Waste Management)
Compliant site waste management plan containing appropriate benchmarks, commitments and procedures for waste minimisation in line with the criteria and with Checklist WAS 2a, 2b & 2c
Client Confirmation Letter - Point Was 2 Letter in folder 11 Specification

Evidence for WAS 3 (Composting)
Individual compositing facility/facilities
Client Confirmation Letter - Point Was 3 Letter in folder 11 Specification

Evidence for POL 1 (Global Warming Potential of Insulants)
All insulants have a GWP of less than 5
Please see CAT 6.1 Confirmed all GWP less than 5 Difficult to see so to conclude: Roof - Earthwool / Mineral wool Wall - Dritherm 32 Wall - Internal Rockwoll Lintel - IG Lintel L1/s <5 Ground Floor - Celotex <5 If you require any further info just contact me.

Evidence for POL 2 (NOx Emissions)
NOx emissions less than or equal to 40mg/kWh
Baxi Duo-tec 2 Combi boiler will be used in all properties. No secondary heating. Also see Nox booklet pg 21 for Nox level Found in Pol 1 folder Used Calulator see info in SAP, DER used. In Folder ENE1&2

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
Daylight calcs found in calculator and in Hea 1 folder Produced using Architects plans. Confirmation from the architect of the daylight calcs being correct / fair reflection please see client letter Hea1 Letter in folder 11 Specification

Evidence for HEA 2 (Sound Insulation)
Detached property
See site plan in drawings folder

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

Evidence for HEA 4 (Lifetime Homes)
Credits not sought
None

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
Client Confirmation Letter - Point Man 1 Letter in folder 11 Specification

Evidence for MAN 2 (Considerate Constructors Scheme)
Credits not sought
None

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
Man 3 Confirmation letter Found in folder Man 3 Developer has confirmed they has purchased KPI Zone licence

Evidence for MAN 4 (Security)
Credit not sought or no secure by design undertaken
None

Evidence for ECO 1 (Ecological Value of Site)
Land of low ecological value, achieved through checklist ECO 1. Development site has been identified as low ecological value by a suitably qualified ecologist

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

Evidence for ECO 3 (Protection of Ecological Features)
Land of low ecological value as identified under ECO 1

Evidence for ECO 4 (Change of Ecological Value of Site)
Minor negative change: Between -9 and less than or equal to -3

Evidence for ECO 5 (Building Footprint)
Credit not sought

Assessor Declaration

I James Rivers, 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:



James Rivers
Ashby Energy Assessors
16 October 2013

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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