Code for Sustainable Homes

Technical Guide November 2010 - Technical Guidance Note 2

Pre-Assessment Report

Report Reference:	**BEC/SAVILLS/PARKER**
Site Registration:	
Site Name:	**40-42 Parker Street**
Assessor Number:	**STRO003305**
Company:	**Briary Energy Consultants**
Assessor:	**Gary Nicholls**

Site Details	
Site Name:	40-42 Parker Street
Site Registration:	
Site Address:	40-42 Parker Street
City/Town:	London
County:	Greater London
Postcode:	
No. of Dwellings:	3
No. of Dwelling Types:	2
Planning Authority:	Camden Council
Funding Body:	

Assessor Details	
Company:	Briary Energy Consultants
Assessor Name:	Gary Nicholls
Cert Number:	STRO003305
Address:	5 Granville Road
City/Town:	Barnet
County:	Hertfordshire
Postcode:	EN5 4DU
Tel:	02030913391
Email:	gary@briaryenergy.co.uk

Client Details	
Company:	Savills
Contact Name:	Charlotte Handscomb
Job Title:	
Email:	
Tel:	
Address:	33 Margaret Street
City/Town:	London
County:	
Postcode:	W1G 0JD

Architect Details	
Company:	Peek Architecture & Design Ltd
Contact Name:	Peek Architecture & Design Ltd
Job Title:	
Email:	
Tel:	
Address:	12-13 Poland Street
City/Town:	London
County:	
Postcode:	W1F 8QB

Developer Details	
Company:	Savills
Contact Name:	Charlotte Handscomb
Job Title:	
Email:	
Tel:	
Address:	33 Margaret Street
City/Town:	London
County:	
Postcode:	W1G 0JD

Dwelling ID	Plot No.	Address	Social Unit
1	1	40-42 Parker Street	No
2	2	40-42 Parker Street	No
3	3	40-42 Parker Street	No

Development Summary & Ratings

Dwelling ID	Dwelling Type	Description	Level	Score
1	Flats 4-6 Parker Street	Flats 4-6	4	72.81
2	Flats 4-6 Parker Street	Flats 4-6	4	68.11
3	Flats 4-6 Parker Street	Flats 4-6	4	68.46

Deviations from Standard

No deviations from standard

Score Sheet for 40-42 Parker Street

	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	3.3	4.1	2	1	2	2	1	2	1	3	1	11	4	3	0	2	4	3	1	1	3	2	4	1	4	3	2	2	2	0	0	1	2	2	72.81	4
2	3.4	0	2	1	2	2	1	2	1	3	1	11	4	3	0	2	4	3	1	1	3	2	4	1	4	3	2	2	2	0	0	1	2	2	68.11	4
3	3.7	0	2	1	2	2	1	2	1	3	1	11	4	3	0	2	4	3	1	1	3	2	4	1	4	3	2	2	2	0	0	1	2	2	68.46	4

Summary Score Sheet

Dwelling Type: Flats 4-6 Parker Street

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	3.3	10	18.4	31	59.35	36.4	21.61
ENE 2 Fabric Energy Efficiency	4.1	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	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	11	15	18	24	75	7.2	5.4
MAT 2 Responsible Sourcing (Basic Building Elements)	4	6					
MAT 3 Responsible Sourcing (Finishing Elements)	3	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	11	12	91.67	14	12.83
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	9	9	100	10	10
MAN 2 Considerate Constructors Scheme	2	2					
MAN 3 Construction Site Impacts	2	2					
MAN 4 Security	2	2					
Ecology							
ECO 1 Ecological Value of Site	0	1	5	9	55.56	12	6.67
ECO 2 Ecological Enhancement	0	1					
ECO 3 Protection of Ecological Features	1	1					
ECO 4 Change of Ecological Value of Site	2	4					
ECO 5 Building Footprint	2	2					
	Level Achieved: 4		**Total Points Scored: 72.81**				

Summary Score Sheet

Dwelling Type: Flats 4-6 Parker Street

Dwelling ID: 2

	Credit Score	Credits Available	Score Assessment Sub Total	Credits Available	%	Weighting Factor	Points Score
Energy & CO2 Emissions							
ENE 1 Dwelling Emission Rate	3.4	10	14.4	31	46.45	36.4	16.91
ENE 2 Fabric Energy Efficiency	0	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	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	11	15	18	24	75	7.2	5.4
MAT 2 Responsible Sourcing (Basic Building Elements)	4	6					
MAT 3 Responsible Sourcing (Finishing Elements)	3	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	11	12	91.67	14	12.83
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	9	9	100	10	10
MAN 2 Considerate Constructors Scheme	2	2					
MAN 3 Construction Site Impacts	2	2					
MAN 4 Security	2	2					
Ecology							
ECO 1 Ecological Value of Site	0	1	5	9	55.56	12	6.67
ECO 2 Ecological Enhancement	0	1					
ECO 3 Protection of Ecological Features	1	1					
ECO 4 Change of Ecological Value of Site	2	4					
ECO 5 Building Footprint	2	2					
	Level Achieved: 4		**Total Points Scored: 68.11**				

Summary Score Sheet

Dwelling Type: Flats 4-6 Parker Street

Dwelling ID: 3

	Credit Score	Credits Available	Score Assessment Sub Total	Credits Available	%	Weighting Factor	Points Score
Energy & CO2 Emissions							
ENE 1 Dwelling Emission Rate	3.7	10	14.7	31	47.42	36.4	17.26
ENE 2 Fabric Energy Efficiency	0	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	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	11	15	18	24	75	7.2	5.4
MAT 2 Responsible Sourcing (Basic Building Elements)	4	6					
MAT 3 Responsible Sourcing (Finishing Elements)	3	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	11	12	91.67	14	12.83
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	9	9	100	10	10
MAN 2 Considerate Constructors Scheme	2	2					
MAN 3 Construction Site Impacts	2	2					
MAN 4 Security	2	2					
Ecology							
ECO 1 Ecological Value of Site	0	1	5	9	55.56	12	6.67
ECO 2 Ecological Enhancement	0	1					
ECO 3 Protection of Ecological Features	1	1					
ECO 4 Change of Ecological Value of Site	2	4					
ECO 5 Building Footprint	2	2					
	Level Achieved: 4		**Total Points Scored: 68.46**				

Evidence for ENE 1 (Dwelling Emission Rate) - Flats 4-6 Parker Street ID: 1
Improvement above Part L Building Regulations 2010. 3.3 credits allocated
SAP Report
Assumptions for ENE 1
minimum 25% improvement over building regulation PartL to meet Code level 4 Working Drawings SAPs Construction Specification Heating and Ventilation specification Enhanced accredited details used Highly efficient Fabric make up used

Evidence for ENE 1 (Dwelling Emission Rate) - Flats 4-6 Parker Street ID: 2
Improvement above Part L Building Regulations 2010. 3.3 credits allocated
SAP Report
Assumptions for ENE 1
minimum 25% improvement over building regulation PartL to meet Code level 4 Working Drawings SAPs Construction Specification Heating and Ventilation specification Enhanced accredited details used Highly efficient Fabric make up used

Evidence for ENE 1 (Dwelling Emission Rate) - Flats 4-6 Parker Street ID: 3
Improvement above Part L Building Regulations 2010. 3.3 credits allocated
SAP Report
Assumptions for ENE 1
minimum 25% improvement over building regulation PartL to meet Code level 4 Working Drawings SAPs Construction Specification Heating and Ventilation specification Enhanced accredited details used Highly efficient Fabric make up used

Evidence for ENE 2 (Fabric Energy Efficiency) - Flats 4-6 Parker Street ID: 1
Apartment 4.1 credits allocated
SAP Report
Assumptions for ENE 2
minimum 25% improvement over building regulation PartL to meet Code level 4 Working Drawings SAPs Construction Specification Heating and Ventilation specification Enhanced accredited details used Highly efficient Fabric make up used

Evidence for ENE 2 (Fabric Energy Efficiency) - Flats 4-6 Parker Street ID: 2
Apartment 4.1 credits allocated
SAP Report

Assumptions for ENE 2
minimum 25% improvement over building regulation PartL to meet Code level 4 Working Drawings SAPs Construction Specification Heating and Ventilation specification Enhanced accredited details used Highly efficient Fabric make up used

Evidence for ENE 2 (Fabric Energy Efficiency) - Flats 4-6 Parker Street ID: 3
Apartment 4.1 credits allocated
SAP Report
Assumptions for ENE 2
minimum 25% improvement over building regulation PartL to meet Code level 4 Working Drawings SAPs Construction Specification Heating and Ventilation specification Enhanced accredited details used Highly efficient Fabric make up used

Evidence for ENE 3 (Energy Display Device) - Flats 4-6 Parker Street
Correctly specified display device showing current primary heating fuel consumption data. Correctly specified display device showing current consumption data.
Correctly specified display device showing current primary heating fuel consumption data will be installed Correctly specified display device showing current consumption data will be installed
Assumptions for ENE 3
display devices for each apartment Working drawings showing loction and note Smart Meter Product Literature Cover letter ENE3

Evidence for ENE 4 (Drying Space) - Flats 4-6 Parker Street
Compliant internal drying space
Internal Drying space over bath of 4m+ in each apartment
Assumptions for ENE 4
Internal drying space to be provided to all apartments - over bath lines -

Evidence for ENE 5 (Energy Labelled White Goods) - Flats 4-6 Parker Street
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.
Efficiency Labelling Scheme to be provided (Supplied by DEFRA) White goods A+ rated
Assumptions for ENE 5
Copy of EU Energy Efficiency Labelling Scheme If any white goods are to be provided, detailed documentary evidence confirming: The appliances to be provided with their applicable ratings under the EU Energy Efficiency Labelling Scheme.

Evidence for ENE 6 (External Lighting) - Flats 4-6 Parker Street
Complaint space lighting, no security lighting installed
Compliant external lighting provided.
Assumptions for ENE 6
Compliant security lighting will be installed Working drawings & Spec showing the location of all external light fittings

Evidence for ENE 7 (Low or Zero Carbon Energy Technologies) - Flats 4-6 Parker Street
Contribution of low or zero carbon technologies greater than or equal to 10%
Air Source Heat Pump to each apartment
Assumptions for ENE 7

Evidence for ENE 8 (Cycle Storage) - Flats 4-6 Parker Street
Studio or 1 bedroom dwelling - Storage for 1 cycle per dwelling 2 or 3 bedroom dwelling - Storage for 2 cycles per dwelling
Cycle Storage in basement
Assumptions for ENE 8
Design access statement External Works Layout Working Drawings Cycle Fixings data sheet

Evidence for ENE 9 (Home Office) - Flats 4-6 Parker Street
Compliant home office
Compliant home offiec in each apartment
Assumptions for ENE 9
Study shown on the plans Broadband available daylight calculations will meet the requirement

Evidence for WAT 1 (Internal Water Use) - Flats 4-6 Parker Street
Internal water use less than or equal to 105 litres per person per day
Code 3 compliant water fittings provided. · Basins 4 x l/min flow restriction · Toilets 4/2 x litre part flush, x litre full flush · Kitchen taps 6 x litre flow restriction · Showers 8 x litre flow restriction · Baths 125 x litre capacity to overflow
Assumptions for WAT 1
Working Drawings & Spec - show water reducing equipement, flow rate, capacities & note 'designed to avoid risk of microbial contamination in line with best practice' Or Cover Letter Completed Water Calc Tool (Assossor to provide) Sanitaryware Specification Sanitaryware technical data sheets showing flow rates

Evidence for WAT 2 (External Water Use) - Flats 4-6 Parker Street
Compliant communal rainwater collection system
Compliant communal rainwater collection system
Assumptions for WAT 2
External Works Layout Garden Water Butts Product literature

Evidence for MAT 1 (Environmental Impact of Materials) - Flats 4-6 Parker Street
Mandatory requirements met: At least 3 elements rated A+ to D, 11 credits scored
Materials used will score 11 credits under the Green Guide
Assumptions for MAT 1
Working Drawings & Spec - Location & area of elements Mat 1 Calculator tool (Assessor to provide) Green Guide Reference no.s

Evidence for MAT 2 (Responsible Sourcing (Basic Building Elements)) - Flats 4-6 Parker Street
4 credits scored
The Code material calculator will generate 4 credits for Mat 2
Assumptions for MAT 2
Volume calculations for each material Chain of Custody Certificates Mat 2 Calculator Tool (Assessor to provide)

Evidence for MAT 3 (Responsible Sourcing (Finishing Elements)) - Flats 4-6 Parker Street
3 credits scored
The Code material calculator will generate 3 credits for Mat 3

Assumptions for MAT 3
Volumes calculations for each material Working Drawings & Spec - Location & area of elements Mat 3 Calculator Tool (Assessor to provide) Chain of Custody Certificates

Evidence for SUR 1 (Management of Surface Water Run-Off from Site) - Flats 4-6 Parker Street
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.
Flood risk assessmnet to be provided to show run off calculations as per the SUR 1 template
Assumptions for SUR 1
Cover letter SUR 1 Statement from appropriately qualified professional confirming that they are qualified in line with code definition Flood Risk Asessment Drainage report (addressing all issues listed in Code) Pre-development drawings Engineering layout SUR 1 Template

Evidence for SUR 2 (Flood Risk) - Flats 4-6 Parker Street
Low flood risk - zone 1
Evidence to support the Flood Zone 1 - FRA Sur01 - Flood Risk Assessment
Assumptions for SUR 2
Code complaint Flood Risk Assessment

Evidence for WAS 1 (Household Waste Storage and Recycling Facilities) - Flats 4-6 Parker Street
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
Details to be provided to show the local; authority collection scheme , along with recycle bins and non recylcle waste bins to kitchens
Assumptions for WAS 1
Local Authority Collection Scheme - details Internal recycle bins - data sheet & location External Bin Stores size & location External Works Layout Working Drawings Type, dimensions & volumes of refuse bins from LA Table Cat 5.1 - Supplementary Information sheet for Was 1 Checklist IDP

Evidence for WAS 2 (Construction Site Waste Management) - Flats 4-6 Parker Street
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
Site Waste Management Plan will be in place to comply Was02/Checklists 2a,2b,2c,2d (Undated) 02_Checklist_Was_2_(Rev00_2010)
Assumptions for WAS 2
SWMP / Specification of what SWMP will contain or, Cover Letter WAS 2- confirmation of SWMP and description Was 2a -Minimum Construction wastes Generated on Site Was 2b - Waste Groups Was 2c - Diversion for Landfill Construction Waste Generated on Site

Evidence for WAS 3 (Composting) - Flats 4-6 Parker Street
Communal/community composting service run by the local authority
Communal composting in place

Assumptions for WAS 3
Location & size of internal & external storage IDP Checklist External Works Layout Compost bins - data sheet Local authority kitchen/garden waste collection scheme

Evidence for POL 1 (Global Warming Potential of Insulants) - Flats 4-6 Parker Street
All insulants have a GWP of less than 5
All insulants have a GWP of less than 5 - checklist to be provided
Assumptions for POL 1
Checklist Pol 1 Insulation Data sheets for all insulants

Evidence for POL 2 (NOx Emissions) - Flats 4-6 Parker Street
NOx emissions less than or equal to 40mg/kWh
Low Nox boilers to be used Gas Community boiler in basement feeding all apartments
Assumptions for POL 2
Working drawings & specification - Dry Nox & Boiler Classs SAP report

Evidence for HEA 1 (Daylighting) - Flats 4-6 Parker Street
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%
Daylight calculations to prove the daylight factors have been met
Assumptions for HEA 1
Working drawings Window spec - Glass transmission factor Approved Calculations (assessor)

Evidence for HEA 2 (Sound Insulation) - Flats 4-6 Parker Street
Accredited Part E sound testing has been undertaken Airborne 8dB higher, impact 8dB lower
Assumptions for HEA 2
Part E sound testing to prove airborne 8db higher, and Impact 8db lower

Evidence for HEA 3 (Private Space) - Flats 4-6 Parker Street
Individual private space provided.
Private space to comply with Code requirements
Assumptions for HEA 3
Working drawings Checklist IDP Site Layout showing rear garden & balconies

Evidence for HEA 4 (Lifetime Homes) - Flats 4-6 Parker Street
All criteria of Lifetime Homes in line with all 16 principals of Lifetime Homes
Planning statement submiited and conditioned
Assumptions for HEA 4
Built to Lifetime Homes Standard

Evidence for MAN 1 (Home User Guide) - Flats 4-6 Parker Street
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
Home User guide - code complaint
Assumptions for MAN 1
Checklist Man 1 - Home User Guide Home User Guide

Evidence for MAN 2 (Considerate Constructors Scheme) - Flats 4-6 Parker Street
Considerate constructors scheme: Significantly beyond best practise, a score of between 35 - 50, and at least a score of 7 in each section*
Considerate Constructors Registration required
Assumptions for MAN 2
Considerate Constructors Scheme Pro forma To achieve Best Practise score

Evidence for MAN 3 (Construction Site Impacts) - Flats 4-6 Parker Street
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
Detailed monitoring of water consumption and adoption of best practice methods for air/water pollution and the responsible sourcing of timber
Assumptions for MAN 3
Checklist Man 3

Evidence for MAN 4 (Security) - Flats 4-6 Parker Street
Secured by design section 1 & 2 compliant
Secure by Design compliant
Assumptions for MAN 4

Evidence for ECO 1 (Ecological Value of Site) - Flats 4-6 Parker Street
Credit not sought
Credit not sought
Assumptions for ECO 1
Completed ECO checklist Cover letter ECO1 Ecology Report - see Technical Doc

Evidence for ECO 2 (Ecological Enhancement) - Flats 4-6 Parker Street
Credit not sought or no compliant enhancement
Assumptions for ECO 2

Evidence for ECO 3 (Protection of Ecological Features) - Flats 4-6 Parker Street
Ecological features will be adequately protected and maintained
Any features will be protected during the construction phase
Assumptions for ECO 3
Tree Protection Plan Survey Drawing Measurement of Proposed Vegetation Completed ECO checklist Ecology Report - see Technical Doc Any features will be protected during the construction phase

Evidence for ECO 4 (Change of Ecological Value of Site) - Flats 4-6 Parker Street
Neutral: Greater than -3 and less than or equal to +3
No real change in Ecology as existing site
Assumptions for ECO 4
ECO4 Calculation Form - 20.16.11 Completed ECO checklist Ecology Report - see Technical Doc Site Plan Measurement of Proposed Vegetation

Evidence for ECO 5 (Building Footprint) - Flats 4-6 Parker Street
Flats ratio of 4:1
Floor plans to all storeys

Assumptions for ECO 5
5 storey building

Assessor Declaration

I Gary Nicholls, 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:

Gary Nicholls
Briary Energy Consultants
24 March 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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