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Code for Sustainable Homes – Initial Assessment for 1 No New Dwelling

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1.0 Code for Sustainable Homes - Mission Statement

The code for sustainable homes is the national standard for the sustainable design and construction of new homes. It aims to reduce carbon emissions and promote higher standards of sustainable design above the current minimum standards set out by the building regulations.

The code provides 9 measures of sustainable design:

Energy/CO2

Dwelling emission rate (M)
Fabric energy efficiency (M)
Energy display devices
Drying space
Energy labelled white goods
External lighting
Low and zero carbon technologies
Cycle storage

Home office

Water

Indoor water use (M)
External water use

Materials

Environmental impact of materials (M)
Responsible sourcing of materials – basic building elements
Responsible sourcing of materials – finishing elements

Surface water runoff (flooding and flood prevention)

Management of surface water run-off from developments (M)
Flood risk

Waste

Storage of non-recyclable waste and recyclable household waste (M)
Construction site waste management
Composting

Pollution

Global warming potential (GWP) of insulants
NOX emissions

Health and well-being

Daylighting
Sound insulation
Private space
Lifetime Homes (M)

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

It uses a 1 to 6 star system to rate the overall sustainability performance of a new home against these 9 categories.

The code is voluntary, and is not mandatory. It is not a set of regulations and should not be confused with zero carbon policy or the 2016 zero carbon target.

The only circumstances where the code can be enforced are where:

- local councils require developers to comply with the code by including a requirement in their planning policy
- affordable housing is funded by the Homes and Community Agency that requires homes to be built to code level 3
- the level 3 energy standard is now incorporated in the building regulations

The code applies in England, Wales and Northern Ireland. Within England it replaces the Eco Homes scheme, developed by the Building Research Establishment.

The code for sustainable homes: technical guide sets out the requirements of the latest version of the code, and how a code assessment is reached.

The Code assigns one or more performance requirements (assessment criteria) to all of the environmental issues. When each performance requirement is achieved, a credit is awarded (except the three mandatory requirements with 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 three 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 three is a minimum entry requirement for achieving a Level 1 rating. The three un-credited issues are:

• Environmental impact of materials
• Management of surface water run-off from developments
• Storage of non-recyclable waste and recyclable household waste

If the mandatory minimum performance standard is met for the three 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 increasing levels of achievement recognised within the Code.

The two issues with increasing mandatory minimum standards are:

• Dwelling emission rate
• Indoor water use.

The final two issues with mandatory requirements are Fabric Energy Efficiency and Lifetime Homes. To achieve an overall Code rating of level 5 it is necessary to achieve at lease 7 credits in Ene 2. To achieve an overall Code rating of level 6 it is necessary to achieve at least 7 credits in Ene 2 and 3 credits in Hea 4 – Lifetime Homes.

Tables 1.1 and 1.2 below illustrate how, for the creditable mandatory issues, the minimum mandatory standards increase with increasing rating levels. For CO2 emissions there are increased mandatory minimum standards for each increase in Code level.

Table 1.1: Code Levels for Mandatory Minimum Standards in CO_2 Emissions (Ene 1)	
Code Level	Minimum Percentage Improvement in Dwelling Emission Rate over Target Emission Rate
Level 1 (*)	0% (Compliance with Part L 2010 only is required)
Level 2 (**)	0% (Compliance with Part L 2010 only is required)
Level 3 (***)	0% (Compliance with Part L 2010 only is required)
Level 4 (****)	25%
Level 5 (*****)	100%
Level 6 (******)	Net Zero $C0_2$ Emissions

Table 1.2: Code Levels for Mandatory Maximum Standards in Indoor Water Consumption	
Code Level	Maximum Indoor Water Consumption in Litres per Person per Day
Level 1 (*)	120
Level 2 (**)	120
Level 3 (***)	105
Level 4 (****)	105
Level 5 (*****)	80
Level 6 (******)	80

Table 1.3: Summary of Environmental Impact Categories, Issues, Credits and Weighting

Code Categories	Available Credits	Category Weighting Factor
Energy and CO2 Emissions		
Dwelling emission rate	10	
Fabric energy efficiency	9	
Energy display devices	2	
Drying space	1	
Energy labelled white goods	2	
External lighting	2	
Low and zero carbon technologies	2	
Cycle storage	2	
Home office	1	
Category Total	**31**	**36.40**
Water		
Indoor water use	5	
External water use	1	
Category Total	**6**	**9.00**
Materials		
Environmental impact of materials	15	
Responsible sourcing of materials – basic building elements	6	
Responsible sourcing of materials – finishing elements	3	
Category Total	**24**	**7.20**
Surface Water Run-off		
Management of surface water run-off from developments	2	
Flood risk	2	
Category Total	**4**	**2.20**
Waste		
Storage of non-recyclable waste and recyclable household waste	4	
Construction site waste management	3	
Composting	1	
Category Total	**8**	**6.40**
Pollution		
Global warming potential (GWP) of insulants	1	
NOx emissions	3	
Category Total	**4**	**2.80**

Health & Well-being		
Daylighting	3	
Sound insulation	4	
Private space	1	
Lifetime Homes	4	
Category Total	**12**	**14.00**
Management		
Home user guide	3	
Considerate Constructors Scheme	2	
Construction site impacts	2	
Security	2	
Category Total	**9**	**10.00**
Ecology		
Ecological value of site	1	
Ecological enhancement	1	
Protection of ecological features	1	
Change in ecological value of site	4	
Building footprint	2	
Category Total	**9**	**12.00**
Total	**107**	**100.00**

Table 1.4: Relationship Between Total Percentage Points Score and Code Level

Total Percentage Points Score (equal to or greater than)	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 (******)

2.0 2 Bed Dwelling Pre-Assessment Assumptions

Stage	Pre-Assessment		Average Weighted Score %
Category 1	Energy		24.4 of 36.4%
Category 2	Internal Water		6.0 of 9.0 %
Category 3	Materials		5.4 of 7.2%
Category 4	Surface Water Run Off		1.1 of 2.2%
Category 5	Waste		5.6 of 6.4%
Category 6	Pollution		2.1 of 2.8%
Category 7	Health and Well Being		14 of 14%
Category 8	Management		5.6 of 10.0%
Category 9	Ecology		6 of 12.0%
	Total Code Level 4 (68 Points required.		70.2 of 100%
Energy	**Assumptions**	**Design Stage Evidence**	**Score**
ENE 1 Dwelling Emission Rate	Minimum 30% improvement targeted	SAP Calculations by Approved Assessor	4.8 of 10
ENE 2 fabric Energy Efficiency	FEE score ≤55 targeted	SAP Calculations by Approved Assessor	4 of 9
ENE 3 Energy Display Device	Both types of energy to be monitored	Detailed documentary evidence/specific undertaking	2 of 2
ENE 4 Drying Space	Drying line per dwelling	Detailed documentary evidence/specific undertaking	1 of 1
ENE 5 Energy Labelled Goods	A ÷ Fr/Ff and A rated appliances provided	Detailed documentary evidence/specific undertaking	2 of 2
ENE 6 External Lighting	External lighting to be compliant	Detailed documentary evidence/specific undertaking	2 of 2
			20.8 of 31
ENE 7 Low/Zero Carbon Tech	15% required by council	Detailed documentary evidence/specific undertaking	2 of 2
ENE 8 Cycle Storage	3 No cycle spaces to be provided	Detailed documentary evidence/specific undertaking	2 of 2
ENE 9 Home Office	Fully compliant space and switches and sockets	Detailed documentary evidence/specific undertaking	1 of 1
			20.8 of 31
Water	**Assumptions**	**Design Stage Evidence**	**Score**
WAT 1 Internal Water Use	Dwellings to be limited to 105lts per person per day	Internal Water calculator and specific undertaking	3 of 5
WAT 2 External Water Use	Rain water butts to be provided	Detailed documentary evidence/specific undertaking	1 of 1
			4 of 6
Materials	**Assumptions**	**Design Stage Evidence**	**Score**
MAT 1	Majority of A and A ÷	Material Calculator and detailed	12 of 15

Environmental Impact	rated materials	documentary evidence	
MAT 2 Basic Building Elements	High % of responsibly sourced materials	Material Calculator and detailed documentary evidence	4 of 6
MAT 3 Finishing elements	High % of responsibly sourced materials	Material Calculator and detailed documentary evidence	2 of 3
			18 of 24
Surface Water Run Off	**Assumptions**	**Design Stage Evidence**	**Score**
SUR 1 Surface Water run off	Mandatory level only	Hydrologist report and detailed documentary evidence	0 of 2
SUR 2 Flood risk	E.A. Website indicates low risk	Hydrologist report and detailed documentary evidence	2 of 2
			2 of 4
Waste	**Assumptions**	**Design Stage Evidence**	**Score**
WAS 1 Household waste	Full provision of bins and collection required	WAS 1 calculator and detailed documentary evidence	4 of 4
WAS 2 Construction Site Waste	Minimum 50% waste diverted/recycled	A copy of SWMP/specific undertaking	2 of 3
WAS 3 Composting	Kitchen waste collection/composting required	Detailed documentary evidence/specific undertaking	2 of 3
			7 of 8
Pollution	**Assumptions**	**Design Stage Evidence**	**Score**
POL 1 GWP of insulants	All insulants to have GWP below 5	POL 1 Calculator and detailed documentary evidence	1 of 1
POL 2 Dry NOx emissions	Class 5 boiler	Detailed documentary evidence/specific undertaking	2 of 3
			3 of 4
Health and Well Being	**Assumptions**	**Design Stage Evidence**	**Score**
HEA 1 Day lighting	High level targeted	Day light calculations and detailed documentary evidence	3 of 3
HEA 2 Sound Insulation	Detached Dwelling	Detailed documentary evidence/specific undertaking	4 of 4
HEA 3 Private Space	Private space on site	Checklist IDP and detailed documentary evidence	1 of 1
HEA 4 Lifetime Homes	All points to be achieved	Completed lifetime homes checklist	4 of 4
			12 of 12
Management	**Assumptions**	**Design Stage Evidence**	**Score**
MAN 1 Home User Guide	Sections 1 and 2 required	Compliant HUG/specific undertaking and checklist MAN 1	3 of 3
MAN 2 Considerate Contractors	Section not targeted	Specific undertaking and confirmation of registration date	0 of 2

MAN 3 Construction Impacts	Monitor 4 out of 6 targets	Completed checklist MAN 3 and specific undertaking	2 of 2
MAN 4 Security	Section not targeted	Detailed documentary evidence/specific undertaking	0 of 2
			5 of 9
Ecology	**Assumptions**	**Design Stage Evidence**	**Score**
ECO 1 Ecological value	Assumed that credits are unavailable	Ecologist report and detailed documentary evidence	0 of 1
ECO 2 Eco Enhancement	Improvement of site	Cleaning up of site/improved status	1 of 1
ECO 3 Eco Protection	Improvement of site	Cleaning up of site/improved status	1 of 1
ECO 4 Change in Eco value	Improvement of site	Cleaning up of site/improved status	4 of 4
ECO 5 Building Footprint	Credits not available	Footprint calculations and detailed documentary evidence.	0 of 2
			6 of 9

3.0 Calculating and Assessment Score

The assessment process should proceed in a logical order through the environmental impact categories and issues, summarised in above

- It should begin with a check that the three mandatory issues for which no credits are awarded have been achieved.
- The mandatory requirements for CO2 emissions, fabric energy efficiency, internal water use and Lifetime homes should be checked and confirmed at the minimum values required to meet the Code level sought.
- The remaining tradable credits should be checked and confirmed so that they also, contribute to the required Code level.

If any of the standards for the three non-creditable issues are not met, then a zero rating will result, regardless of the other credits achieved, including the creditable mandatory issues.

If all the non-creditable mandatory standards are met, but one or other of the creditable mandatory issues fails to reach the minimum required to achieve a higher level, the rating will be determined by the lowest mandatory level met.

4.0 Registering a Site (Before Detailed Design Is Commenced)

1. The client for the assessment chooses a service provider for the Code from the register at www.communities.gov.uk/thecode. The service provider will offer a register of licensed and trained Code assessors from which the client can choose and appoint an assessor.
2. The appointed Code assessor registers the development formally with the service provider as early as possible. This registration is valid for a maximum of five years

between expiry of the Technical Guide version at registration and submission of the design stage report. So far, there is no time limit on the delivery of the associated post construction stage or final certificates for the development. This enables the version of the Code to be set such that even if the Code is updated the version used can remain the same across the site.

3. It is only possible to register developments/dwellings against the current version of the Code for Sustainable Homes. The only exception is where there is a documented contractual or legal requirement to meet a specific level of the Code against a previous version. Documentary evidence would need to be provided to the Code service provider in order to have this exception approved prior to assessment taking place. Sites already registered under a previous version can be re-registered under the current version of the Code.
4. Once a site is registered by the assessor on the service provider database, it is given a unique registration number.

5.0 Performing Code Assessments

Code assessments are normally carried out in two stages:

- Design stage (DS), leading to an interim certificate
- Post construction stage (PCS), leading to a final certificate.

The assessment process for these two stages is very similar. Evidence is collated and used as the basis for determine how many credits are to be awarded for each issue. A summary report is submitted to the Code service provider for quality assurance and certification.

6.0 Design Stage Assessment

The aim of the design stage assessment is:

- To assess the design specifications (i.e. before construction begins) for each individual dwelling to determine the design stage or interim rating
- To award (subject to quality assurance) a design stage or interim certificate.

The DS assessment is carried out on the detailed design of each dwelling in the period up to the issue of tender documents, sometimes referred to as RIBA Stages A–G. A Code assessment requires a more detailed specification than Building Regulations compliance because the Code covers many more aspects of the performance of the dwelling. For instance, specification details of all the sanitary fittings are required to calculate the score for the Code indoor water issue.

The assessor will also be able to calculate, at this initial design stage assessment, any site-related credits. Therefore, details of final landscaping and ecological enhancement measures will also need to be known.

The assessor should work closely with the design team to:

- Demonstrate that the performance requirements set for each of the three non-creditable mandatory issues of environmental impact are met for each dwelling.
- Demonstrate that the performance requirements set for each of the credited mandatory issues of environmental impact (dwelling emission rate, fabric energy

efficiency, indoor water use and Lifetime Homes) are met for the desired rating for each dwelling.

- Choose the remaining tradable issues which are required to achieve the desired overall rating.
- Evaluate the performance of each dwelling against the requirements set for each of the chosen issues to confirm that the required standards are met for the desired overall rating.
- Assemble and check the evidence required for the developer, design team and other consultants to show the intended performance will be met.

When the assessor is satisfied with the performance under the Code, they shall submit the assessment report to the service provider for quality assurance and to receive design stage or interim Code certification. The report must contain references to documentary evidence describing how performance requirements are met, creating a clear audit trail linking the rating awarded to the evidence used to justify it. The service provider may issue a standard report format for the assessor to complete.

7.0 Post Construction Stage Assessment

The aim of the PCS assessment is to assess each individual dwelling as built to determine the final score and Code level for the dwelling.

If a DS assessment has been undertaken, this can be used as the starting point for the PCS assessment. The PCS assessment is carried out to confirm that dwellings are either built to the DS specifications or, if there are variations from the DS, that they are documented, reassessed, and a new score and Code level calculated for each dwelling that is affected. The assessor organisation should carry out an appropriate level of checking to be satisfied that commitments made have been achieved.

If there has been no prior DS assessment, then the full assessment shall be completed against the as-built dwelling(s).

Licensed organisations are required to set up robust and auditable post construction stage assessment procedures. These are to include:

- An appropriate number of site visits for each development site (at least once per site). The appropriate number of site visits is dependent on the particular situation. It is the assessor's responsibility to determine the necessary number of site visits required to satisfy themselves that the assessment properly reflects the dwelling
- Every different specification for each issue shall be reviewed and evidence recorded to confirm that it complies with the requirements for PCS assessment
- Where dwellings of identical construction type are planned to be released in phases, the assessment evidence must show that the same specifications have been incorporated into dwellings completed following the initial release. If there are variances to the specification in subsequent releases, the assessor shall reassess the dwellings based on the new specifications.

The number of PCS assessment reports is likely to be based on the phased completion of dwellings within a development. The number of PCS assessment reports submitted to cover a particular development is entirely at the discretion of the assessor (and developer).

For a large or phased development, there are some issues that will not be complete when a post construction stage assessment for the first dwelling(s) is submitted to the service provider. For example, these could include some ecology credits or community-based facilities. It is possible to certify the first dwellings without certain issues being complete.