A Customer's Guide to The Code for Sustainable Homes

Are you ready?

A step-change in sustainable home building practice

HOWARTH TIMBER ENGINEERED SOLUTIONS

TIMBER ENGINEERING EXCELLENCE

Contents

What is the Code for Sustainable Homes?

The Code for Sustainable Homes sets a single national standard within which the home-building industry can design and construct homes to higher environmental standards. The Code replaces the EcoHomes schedule and is being managed by BRE Global (Building Research Establishment).

The code is an environmental assessment rating method for new homes.
It assesses environmental performance in a two stage process (design stage and post-construction stage) using objective criteria across sustainable design categories.

The design categories included within the Code are:

- Energy and CO_2 Emissions
- Water
- Materials
- Surface Water Run Off
- Waste
- Pollution
- Health and Well-being
- Management
- Ecology

The latest version of the Code – November 2010 - includes new sections for building fabric efficiency, energy display devices and surface water run-off requirements.

All new developments required to meet a code assessment rating will now be assessed under this Code version

Each category is assessed against a set of performance criteria (see Table 1.1), for which credits are awarded and an overall sustainability score calculated. The results of the Code assessment are recorded and a certificate assigned to each dwelling.

Table 1.1: Summary of Environmental Categories and Issues

Categories	Issue
Energy and CO_2 emissions	Dwelling emission rate (M) Fabric energy efficiency (M) Energy display devices Drying space Energy labelled white goods External lighting Low or zero carbon (LZC) 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 Run-off	Management of Surface Water Runoff 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 NO_x 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

(M) denotes issues with mandatory elements.

Code Level Scoring

Each environmental category i.e. Energy and CO_2 Emissions has a series of environmental issues, (see pages 10 & 11). The code assigns performance requirements to each of these. When each performance requirement is achieved, credits are awarded.

Some of the issues have mandatory minimum performance standards.
Summary of Environmental Categories and Issues (Table 1.2)

Table 1.2 : Code Levels for Mandatory Minimum Standards in CO_2 Emissions

Code Level	Minimum percentage reduction 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 CO_2 Emissions'

Code in Context

From October 2010, the private sector has been required under the new 2010 Building Regulations Part L to achieve a 25% improvement over the old 2006 Building regulations - equivalent to the old Code 3 level. Codes 1- 3 now only requires Part L 2010 compliance.

Table 1.2 highlights that before achieving any other credits, the building would need to achieve a 25% reduction in emission rates over 2010 Part L target emission rate to qualify for Code 4 status.

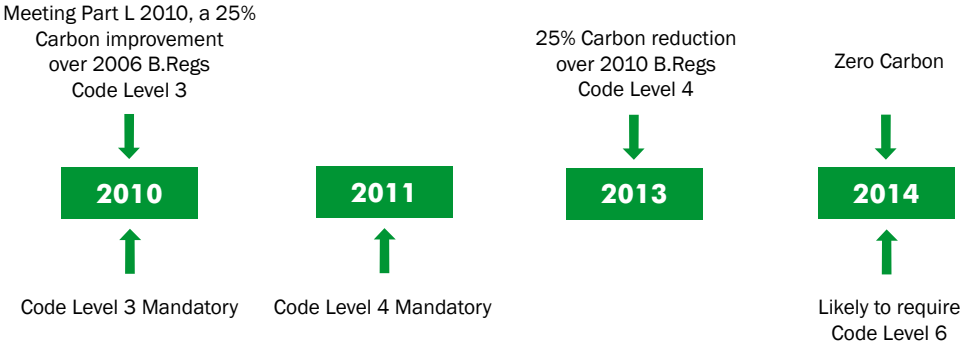
Public sector construction will continue to meet Code 3 & 4

It will increasingly become a condition of planning consent for new developments to meet a specific code.

The Code indicates the direction for future amendments to Building Regulations Part L, with step changes in maximum perishable CO_2 emissions being closely tied to various code levels with the forthcoming changes: 2013 changes to the Code Level 4 and Level 6 to be achieved by 2016 in the private sector.

Route Map

Public/Private Sector



Process

Registering a site

At an early design stage, the developer/architect will need to appoint a licensed Code Assessor. A list of Code Assessors is available from either of the service providers: BRE Global or Stroma Ltd (register at www.communities.gov.uk/thecode)

Howarth Timber & Building Supplies work in partnership with Energy Review to bring you **Compliance**, a hassle free, fixed cost solution that will help you fully meet the new Building Regulations and Code:

Energy Review Ltd
Mooredge Farm
Darley
Harrogate
HG3 2PP

Attention of: Tom Garnet
T: 0845 680 9881/info@energyreview.org.uk
Please quote reference: HT3

Code Assessments

Code assessments are carried out in two stages, and the development site must be registered.

- Design stage (DS) leading to an Interim certificate
- Post-construction stage (PCS) leading to the final certificate

Design Assessment (DS)

The DS assessment is carried out on a detailed design of each dwelling in the period up to issue of tender documents, sometimes refereed to as RIBA stage A-G stages. SAP DER work sheets for each energy type with specifications will be submitted by the assessor, who will assess credits under each category.

The assessor will:

- Work with the design team to demonstrate the requirements of the mandatory environmental issues are met
- Assemble the credited issues
- Check evidence required for the developer to show how the intended performance will be met.

Post Construction Stage Assessment (PCS)

The PCS assessment is carried out to confirm that the dwellings are built to the DS assessment, or if there are variances that they are documented.

The Assessor will:

- Make site visits during construction
- Provide evidence that each environmental issue has been addressed.
- Highlight that the specifications of the DS are achieved
- Submit SAP as built 2009 worksheet

Assessment Criteria

The environmental impacts within the Code are not of equal importance. Their relative value is conveyed by applying an environmental weighting factor (see table 1.4)

Table 1.4

Table 1.4: Total Credits available, Weighting Factors and Points

Categories of Environmental Impact	Total credits in each category	Weighting factor (% points contribution)	Approximate weighted value of each credit
Category 1 Energy and CO_2 Emissions	31	36.4%	1.17
Category 2 Water	6	9.0%	1.50
Category 3 Materials	24	7.2%	0.30
Category 4 Surface Water Run-off	4	2.2%	0.55
Category 5 Waste	8	6.4%	0.80
Category 6 Pollution	4	2.8%	0.70
Category 7 Health and Wellbeing	12	14.0%	1.17
Category 8 Management	9	10.0%	1.11
Category 9 Ecology	9	12.0%	1.33
Total	-	**100.0%**	-

For example the 31 credits available for Energy and CO_2 Emissions contribute to 36.4% of the total performance available. Therefore each credit in this category is in fact worth 1.17, similarly a credit for pollution is worth only 0.70.

For example if a heat pump is used to meet heating demands, credits will be available in respect of energy supplied from a renewable source, but credits cannot be awarded for NO emission (nitrogen oxides). It is therefore impossible to achieve 100%.

Code Level 3 - Illustrated Example

A home meeting any level of the Code will have to meet minimum standards for certain items depending on what level is desired. For Level 3 this means:

The home will have to reduce carbon emissions by 25% compared to 2006 Building Regulations. This will meet the new Part L 2010 and the mandatory Code Level 3 requirements. This could be achieved by:

- Improving the thermal efficiency of the walls, windows, and roof as far as is practically possible (by using more insulation or better glass for example);
- Reducing air permeability to the minimum consistent with health requirements (a certain amount of air ventilation is needed in a home for health reasons);
- Carefully designing the fabric of the home to reduce thermal bridging (thermal bridging allows heat to easily escape between the inner walls and the outer walls of a home);
- Possibly providing the main heating via heat pumps, biomass or district heating, or the use of other low or zero carbon technologies such as solar photovoltaics

The home will have to be designed to use no more than 105 litres of water per person per day. This could be achieved by fitting a number of items such as:

- 6/4 Dual Flush WC;
- Flow Reducing/Aerating taps throughout;
- 6-9 litres per minute shower
- a smaller, shaped bath – still long enough to lie down in, but less water required to fill it to a level consistent with personal comfort;
- 18ltr maximum volume dishwasher;
- 60ltr maximum volume washing machine.

Or simply incorporate a rainwater harvesting system

AND

Other minimum requirements are required for:

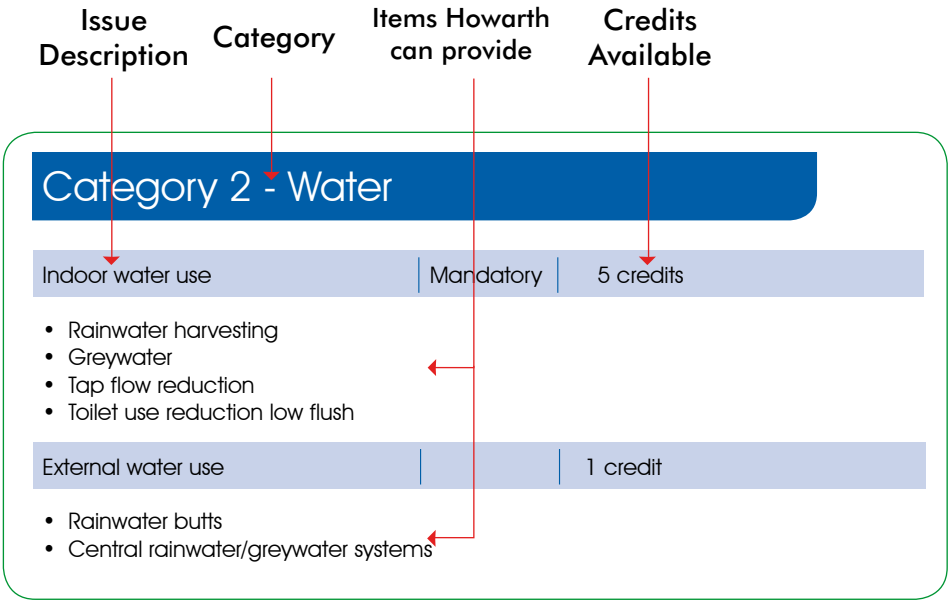
- Surface water management – this may mean the provision of soak aways and areas of porous paving;
- Materials – this means a minimum number of materials meeting at least an 'A+' to 'D' grade in the Building Research Establishment's Green Guide (the scale goes from A+ to E);
- Storage of non-recyclable waste and recyclable household waste – having adequate space external storage space for domestic waste

Code Level 3 - Illustrated Example (cont'd)

But to get to Level 3 you need to achieve 57 points. So the builder/developer must do other things to obtain the other points such as:

- Providing drying space (so that tumble dryers need not be used);
- Providing an Energy Display Device (that monitors the primary fuel usage);
- Providing cycle storage;
- Providing a room that can be easily set up as a home office;
- Reducing the amount of water than runs off the site into the storm drains;
- Using much more environmentally friendly materials;
- Providing recycling capacity either inside or outside the home;
- Enhancing the security of the home;
- Enhancing the sound insulation used in the home
- Building to 'Lifetime Homes' standards.

Example of how the category assessment charts works



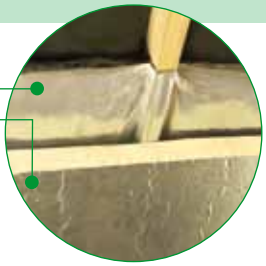
Category 1 - Energy and CO_2 Emissions

Howarth Timber & Building Supplies offer a broad range of building materials, insulation and specialist Eco products that will contribute to the reduction of the Dwelling Emission Rate (DER)

Dwelling emissions rate (DER)	Mandatory	10 credits
Fabric Energy Efficiency		9 credits

Insulation

- Multi-foil
- Polyurethane rigid foam board



Eco Centre

- Biomass
- Photovoltaic
- Heat exchange
- Geothermal
- Solar Thermal

Blocks

- Thermal insulation/Air tightness test
- Aggregate and lightweight blocks

Plasterboard

- Wall board

Energy display devices		2 credits

- Display device

Drying space		1 credit

- Drying line

Energy labelled white goods		2 credits

- Washing machines/dishwashers/tumble dryers compliant with CO_2 Energy labelling scheme

Category 1 - Energy and CO_2 Emissions

External lighting		2 credits

- Energy efficient fittings
- Security lighting - movement PIR's, day light sensor

Low or Zero carbon (LZC) technologies		2 credits

- Biomass, solar, hydro, CHP's (Combined Heat and Power)
- Reduce by 10% - 1 credit
  Reduce by 15% - 2 credits

Cycle storage		2 credits

- Cycle sheds

Home office		1 credit

- Where sufficient space and services have been provided which allow the occupants to set up a home office in a suitable quiet room.

Category 2 - Water

Indoor water use	Mandatory	5 credits

- Rainwater harvesting
- Greywater
- Tap flow reduction
- Toilet use reduction low flush

External water use		1 credit

- Rainwater butts
- Central rainwater/greywater systems

Home Rainwater Harvesting Pack

Category 3 - Materials

Environmental Impact of Materials	Mandatory	15 credits

- To encourage the use of materials with lower environmental impact over their life cycle e.g. Timber frame

Responsible Sourcing of Materials - Basic Building Elements		6 credits

Howarth Timber & Building Supplies can provide:

- FSC/PEFC - Chain of Custody timber products
- All timber
- Doors
- Windows
- Staircases
- Timber frame buildings
- Timber trusses
- Engineered joists

Visit www.howarth-timber.co.uk for more information on our extensive range of products and services

Responsible Sourcing of Materials - Finishing Elements		3 credits

- To recognise and encourage the specification of responsibly sourced materials for the basic building elements.

Howarth Timber & Building Supplies

FSC www.fsc.org FSC® C019813 The mark of responsible forest management

PEFC PEFC/16-37-361

Howarth Windows & Doors

FSC FSC SUPPLIER TT-COC-2019

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PEFC PEFC/16-37-362

Howarth Timber Engineering

FSC www.fsc.org FSC® C004479 The mark of responsible forest management

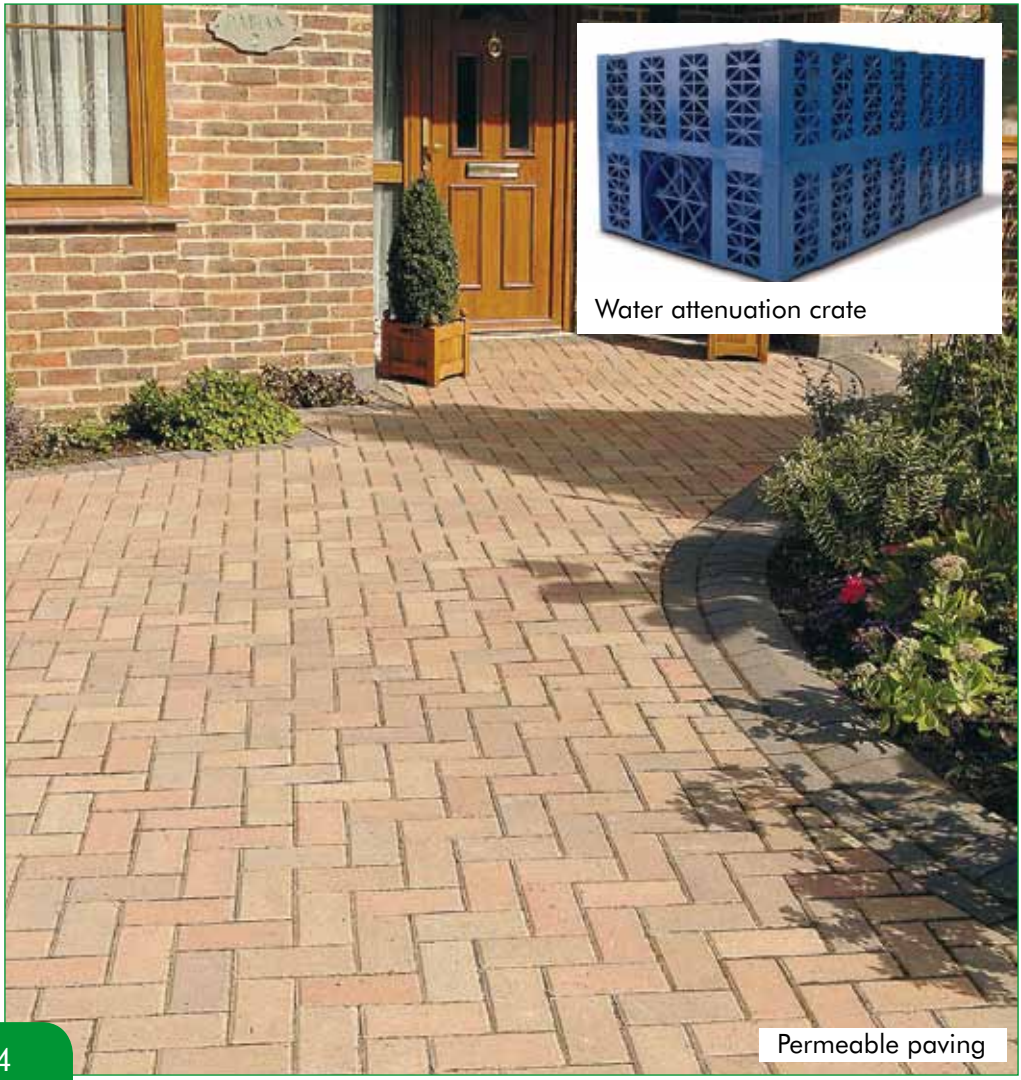
PEFC PEFC/16-37-145

Category 4 - Surface Water Run Off

Management of Surface Water Run off from developments	Mandatory	2 credits

- Water attenuation crates
- SUDS - permeable paving
- Rainwater harvesting

Flood risk		2 credits



Water attenuation crate

Permeable paving

Category 5 - Waste

Storage of non-recyclable waste and recyclable household waste	Mandatory	4 credits

- Bins
- Bin stores

Construction Site Waste Management		3 credits

- To promote reduction and effective management of construction related waste through the use of a Site Waste Management Plan (SWMP).

Composting		1 credit

- Composters

Compost Bin

Category 6 - Pollution

Global Warming Potential (GWP) of Insulants		1 credit

- Credits are awarded where insulation materials only use substances that have a GWP <5
- Insulation - Polyurethane rigid foam board/Glass wool loft roll
- Hot water cylinders

NO_x Emissions (Nitrogen oxide)		3 credits

- High efficiency gas boilers, gas saver units

Heat Recovery unit

Category 7 - Health and Well Being

Day lighting		3 credits

- Roof lights from Velux and Keylite
- Light tubes

Sound Insulation		4 credits

- Sound bloc wall board
- Acoustic insulation materials

Private Space		1 credit

- Patio and fencing/decking

Lifetime Homes	Mandatory (Level 6)	4 credits

Accessible and easily adaptable to meet the needs of current and future occupants. There are 16 distinguishing features of lifetime home standards that the Code Assesor will advise on.
An example: Switches, sockets, ventilations and service controls should be at a height usable by all (ie between 450 and 120mm from the floor).

Category 8 - Management

Home User Guide		3 credits

- Developers should provide a guide enabling occupants to understand and operate their homes efficiently.

Considerate Constructors Scheme		2 credits

- To encourage and recognise construction sites managed in an environmentally and socially considerate and accountable manner.

Construction Site Impacts		2 credits

- Encouraging sites to be managed in a manner that mitigates environmental impacts

Security		2 credits

- To create developments where people feel safe and secure.
- Secured by design doors from:

PREMDOR

HOWARTH WINDOWS & DOORS
INNOVATIVE PRODUCTS. SUSTAINABLE SOLUTIONS

Birtley

JELD-WEN WINDOWS & DOORS

Secured by design door

Category 9 - Ecology

Ecological value of site		1 credit

- Encourage development on land that already has limited value to wildlife

Ecological enhancement		1 credit

- Enhance the ecological value of a site

Protection of ecological features		1 credit

- Protect existing features from damage during clearance of site

Change in ecological Value of site		4 credit

- Rewards steps taken to minimise reductions and to encourage an improvement in ecological value.

Building footprint		2 credits

- Promote most efficient use of a building footprint

Conclusion/Comment

Sustainability has been riding high on the agenda for some time and now with new legislation, the industry will have to build differently and use new products.

Working alongside some of the world's foremost manufacturers of sustainable solutions Howarth Timber & Building Supplies environmental range includes the latest energy saving innovations, including solar hot water systems, sun tunnels, solar electric systems and heat recovery pumps and ethically sourced garden and landscaping products.

For more information please visit:
www.howarth-timber.co.uk

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