

# THE CODE FOR SUSTAINABLE HOMES

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## 1 INTRODUCTION

The recent Stern Review highlighted an overwhelming body of scientific evidence showing that climate change is a serious and urgent issue. In 2004, more than a quarter of the UK's carbon dioxide emissions – a major cause of climate change – came from the energy we use to heat, light and run our homes. It is therefore vital to ensure that homes are built in a way that minimises the use of energy and reduces CO<sub>2</sub> emissions.

Construction and use of our homes has a range of other environmental impacts, for example through water use, waste generation and use of polluting materials, which can be significantly reduced through the integration of higher sustainability performance standards within the design. More sustainable homes can also provide us with improved comfort.

The Code for Sustainable Homes<sup>1</sup> has been introduced to drive a step-change in sustainable building practice. It sets standards for key elements of design and construction which affect the sustainability of new homes. It will become the single national standard for sustainable homes, used by home designers and builders as a guide to development, and will allow them to differentiate their products to meet the needs of more demanding home-buyers. It will also form the basis for future developments of the Building Regulations in relation to carbon emissions from, and energy use in, new homes. In the short-term, Code compliance is voluntary - but home builders are encouraged to follow Code principles because the Government is considering making assessment under Code standards mandatory in the future.

This paper will outline the Code, with special attention to the section on *Sound Insulation*. The Code is a development of BRE EcoHomes.

## 2 HOW DOES THE CODE WORK?

### 2.1 The Sustainability Rating System

The Code uses a sustainability rating system – indicated by 'stars', to communicate the overall sustainability performance of a home. A home can achieve a sustainability rating from one to six stars (★★★★★★) depending on the extent to which it has achieved Code standards. One star is the entry level – above the level of the Building Regulations; and six stars is the highest level – reflecting exemplar development in sustainability terms. The sustainability rating which a home achieves represents its overall performance across the nine Code design categories shown in Table 1 below. Minimum standards exist for a number of categories – these must be achieved to gain a one star sustainability rating. Energy efficiency and water efficiency categories also have minimum standards that must be achieved at every level of the Code, recognising their importance to the sustainability of any home.

Table 1. Design categories and flexibility

Code Category	Flexibility
Energy/CO <sub>2</sub> Water	Minimum standards at each level of the Code
Materials Surface water run off Waste	Minimum standards at Code entry level
Pollution Health and well-being (includes sound insulation) Management Ecology	Optional categories

Apart from these minimum requirements the Code is completely flexible; developers can choose which, and how many standards they implement. In order to achieve a particular code level and the associated sustainability star rating, a home must integrate the minimum standards with additional points from the optional categories.

Table 2 below shows the minimum standards, and number of points (or credits) required in order to achieve each level of the Code.

Table 2. Achieving a sustainability rating

	Minimum Standards				
	Energy		Water usage		
Code Level (number of stars)	Standard (Percentage better than Part L <sup>1</sup> 2006)	Points Awarded	Standard (litres per person per day)	Points Awarded	Additional Points <sup>4</sup> Required
1	10	1.2	120	1.5	33.3
2	18	3.5	120	1.5	43.0
3	25	5.8	105	4.5	46.7
4	44	9.4	105	4.5	54.1
5	100 <sup>2</sup>	16.4	80	7.5	60.0
6	Zero carbon <sup>3</sup>	17.6	80	7.5	64.9

**Notes**

1. Building Regulations: Approved Document L1A (2006) – ‘Conservation of Fuel and Power.’
2. Zero emissions in relation to Building Regulations issues (i.e. zero emissions from heating, hot water, ventilation and lighting).
3. A completely zero carbon home (i.e. zero net emissions of CO<sub>2</sub> from **all** energy use in the home).
4. All points are rounded to one decimal place.

## 2.2 Assessing the rating

Assessment procedures will be transparent and technically rigorous, whilst at the same time being straightforward. The method will be similar to BRE’s EcoHomes System which depends on a network of specifically trained and accredited independent assessors. BRE will retrain and accredit assessors for the new Code. Code assessors will conduct initial design stage assessments, recommend a sustainability rating, and issue an interim Code certificate. They will perform a pre-completion check to verify the rating before a final Code certificate of compliance is issued. A design stage assessment will only be carried out on each home type within any development – not every single home. Pre-completion checks will be carried out on a sample basis.

Builders whose home designs and completed work are assessed under the Code will receive a certificate showing the overall sustainability star rating for the home, and a breakdown of how that rating has been achieved.

### 3 SOUND INSULATION

One, three or four credits can be achieved using this option by providing levels of sound insulation between dwellings that exceed the minimum standards given in Approved Document E (2003 edition incorporating 2004 amendments)<sup>2</sup>. The performance standards are set out in Table 3.

Table 3. Performance standards		
Credits	Improvement on Approved Document E (dB)	
	Airborne sound $D_{nT,w} + C_{tr}$	Impact sound $L'_{nT,w}$
1	+3	-3
3	+5	-5
4	+8	-8

To gain the credits the builder must make a commitment to carry out a programme of pre-completion testing based on the *Normal programme of testing* described in Approved Document E for every group or sub-group of houses or flats, and to achieve the appropriate performance standards.

**OR**

A commitment to use constructions for all relevant building elements that have been assessed and approved by Robust Details Limited, and found to achieve the above performance standards. Not all Robust Details are suitable, and if there is any doubt specific designs should be checked with Robust Details Ltd ([www.robustdetails.com](http://www.robustdetails.com)).

## 4. BENEFITS OF FOLLOWING THE CODE

### 4.1 Benefits for the environment

- **Reduced greenhouse gas emissions:** With minimum standards for energy efficiency at each level of the Code, there will be a reduction in greenhouse gas emissions to the environment. This will reduce the threat from climate change.
- **Better adaptation to climate change:** The Building Regulations (Approved Document L1A, 2006) already limits the effects of solar gain in Summer. With minimum standards for water efficiency at each level of the Code, and other measures including better management of surface water run-off, our future housing stock will be better adapted to cope with the impacts of climate change which are already inevitable.
- **Reduced impact on the environment overall:** Inclusion of measures which, for example, promote the use of less polluting materials, and encourage household recycling, will ensure that our future housing stock has fewer negative impacts overall on the environment.

### 4.2. Benefits for home builders

- **A mark of quality:** Increasing media attention and public concern over environmental issues, notably climate change, has given rise to a growing appetite among consumers for more sustainable products and services. The Code for Sustainable Homes can be

used by home builders to demonstrate the sustainability performance of their homes, and to differentiate themselves from their competitors.

- **Regulatory certainty:** The levels of performance for energy efficiency indicate the future direction of building regulations, bringing greater regulatory certainty for home builders, and acting as a guide to support effective business and investment planning.
- **Flexibility:** The Code is based on performance which means it sets levels for sustainability performance against each element but does not prescribe how to achieve each level. Home builders can innovate to find cost-effective solutions to meet and exceed minimum requirements.

#### 4.3. Benefits for social housing providers

- **Lower running costs:** Homes built to Code standards will have lower running costs through greater energy and water efficiency than homes not built to the Code standard, so helping to reduce fuel poverty.
- **Improved comfort and satisfaction:** Homes built to the Code will enhance the comfort and satisfaction of tenants. Costs may be saved in dealing with complaints.
- **Raised sustainability credentials:** The Code will enable social housing providers to demonstrate their sustainability credentials to the public, tenants and funding bodies.

#### 4.4. Benefits for consumers

- **Assisting choice:** The Code will provide valuable information to homebuyers on the sustainability performance of different homes, assisting them in their choice of a new home.
- **Reducing environmental 'footprint':** By asking for a new home which meets the Code standard, consumers will be able to encourage industry to build more sustainable homes, and reduce their own 'footprint' on the environment.
- **Lower running costs:** Homes built to Code standard will have lower running costs through greater energy and water efficiency than homes not built to the Code standard, so helping to reduce fuel poverty.
- **Improved well being:** Homes built to Code standard will provide a more pleasant and healthy place to live, for example with more natural light, and adaptability for future needs.

## 5. REFERENCES

- 1 Code for Sustainable Homes. Communities and Local Government Publications, PO Box 236, Wetherby, West Yorkshire, LS23 7NB. On line at: [www.communities.gov.uk](http://www.communities.gov.uk)
- 2 Approved Document E (2003 edition incorporating 2004 amendments). RIBA Bookshops Mail Order, 15 Bonhill Street, London, EC2P 2EA. On line at [www.planningportal.gov.uk](http://www.planningportal.gov.uk)