

# **CONSULTATION ON THE CODE FOR SUSTAINABLE BUILDINGS**

## **SUMMARY REPORT ON WORKSHOPS (PHASE 1)**

**REPORT 2486/1**

**Ref: *CI 71/8/9 (bd 2486)***

***April 2005***

# **CONSULTATION ON THE CODE FOR SUSTAINABLE BUILDINGS**

Authors: R Brown, I R Walker, J D Bootland, W O Jenkins

Contract Manager: W O Jenkins

ODPM Contract Ref.: CI 71/8/3 (bd 2446)

RESTRICTION: Openly available

The contents of this document are subject to copyright and all rights are reserved. No part of this document may be reproduced, stored in a retrieval system or transmitted, in any form or by any means electronic, mechanical, photocopying, recording or otherwise, without the prior written consent of the copyright owner.

The authors of this report are employed as part of a consortium led by CIRIA. The work reported herein was carried out under a Contract placed on the 17<sup>th</sup> March 2005 by the First Secretary of State. Any views expressed are not necessarily those of the First Secretary of State.

# CONTENTS

1.	GENERAL DISCUSSION	5
1.1	Operation of the Code	5
1.2	Uptake/ Implementation	5
1.3	Costs/ business case	5
1.4	Marketing/communication	6
1.5	Links to existing schemes	6
1.6	Assessment and Verification	6
1.7	Performance levels	6
2.	ENERGY	7
2.1	Code requirements	7
2.2	Outline draft statement	7
2.3	Statement	7
2.4	Target	7
2.5	Measurement	7
2.6	Financial implications	7
2.7	Technology implications	8
3.	WATER CONSUMPTION	9
3.1	Code requirements	9
3.2	Outline draft statement	9
3.3	Statement	9
3.4	Target	9
3.5	Measurement	9
3.6	Financial implications	10
3.7	Technology implications	10
3.8	Other comments	10
4.	WASTE MANAGEMENT DURING CONSTRUCTION	11
4.1	Code requirements	11
4.2	Outline draft statement	11
4.3	Statement	11
4.4	Target	11
4.5	Measurement	11
4.6	Financial implications	11
4.7	Technological implications	12
4.8	Other comments	12
5.	HOUSEHOLD WASTE MANAGEMENT DURING OCCUPATION	13
5.1	Code requirements	13
5.2	Outline draft statement	13
5.3	Statement	13
5.4	Target	13
5.5	Measurement/verification	13
5.6	Financial implications	13
5.7	Technological implications	13
5.8	Other comments	14

## **INTRODUCTION**

Three consultation workshops were organised on behalf of ODPM in March 2005 to discuss an initial outline of the proposed Code for Sustainable Buildings. Delegates included representatives from a variety of industry, environmental and government bodies with an interest in housebuilding and sustainability. The workshops included a presentation from ODPM, a general session on the aims of the Code and separate sessions on energy, water, waste during construction and household waste. These are summarised below. A transcript of the flipcharts produced at each of the three workshops has been produced as a separate report.

## ***CSB Workshop summary***

## **1. GENERAL DISCUSSION**

### **1.1 Operation of the Code**

There were numerous comments that the Code for Sustainable Buildings (CSB) should draw on expertise within the Building Research Establishment (BRE). It was noted that there were some limitations with the BRE's Environmental Assessment Method (BREEAM) and its housing variant, EcoHomes. The CSB should be wider than just the environmental issues covered by Eco-homes, and that the CSB should draw on other schemes (such as Housing Quality Indicators). In addition, the CSB and its development must be transparent, bring together existing schemes & standards, and focus on targets/outcomes, with BREEAM and other schemes possibly offering tools/methods of how to achieve these.

### **1.2 Uptake/ Implementation**

#### **1.2.1 Market demand**

It was uncertain whether house purchasers/consumers would be interested in the CSB. Running cost savings created by the CSB may not be significant enough for house owners to take note; location is probably the over-riding consideration for this group. It was felt that there may be interest if the Code becomes a substitute for "quality" (in the same way as for energy labelling of white goods). However, consumer choice is often going the other way and user variability is a real issue.

The demand for the CSB from housebuilders/developers was seen to be greater, housebuilders could use it to get a competitive edge, Compulsion was seen as key – this was relatively simple for the public sector (eg Housing Corporation/English Partnerships etc requirements) but more complex for the private sector (possibly the Code could be linked to planning requirements).

### **1.3 Costs/ business case**

The private sector is unlikely to voluntarily adopt anything that is not either cost-saving or cost-neutral unless it can be proved to add value (eg to sales/margins). Some commented that the proposed changes to Part L of the Building Regulations are about the limit of cost-neutral measures. Links to value were seen to be particularly important – paybacks need to be available for making greater investment and the Code will need to use other drivers such as insurance, mortgage approval and valuations to increase/improve the business case. Other incentives might be applied eg stamp duty exemption or rateable value reductions. Similarly, Code-marked buildings might get speedier planning approval.

## **CSB Workshop summary**

### **1.4 Marketing/communication**

The CSB should offer clear standards to consumers (house buyers) – perhaps a star rating system. This rating system should be linked to lifestyle choice and give house buyers a better understanding of energy demand and environmental issues.

### **1.5 Links to existing schemes**

The CSB should try to reduce confusion either by replacing the plethora of existing schemes or providing a framework for them. The CSB should explicitly link to Building Regulations and forewarn of forthcoming increases in Building Regulation requirements, and tie into the NHBC Quality Mark.

### **1.6 Assessment and Verification**

The CSB should assess both design and as-built performance, with post-occupancy evaluation critical. Verification was considered a critical issue; concern was expressed about the levels of current compliance with the Building Regulations, particularly Part L. There would probably need to be penalties associated with non-compliance, as well as education and awareness about the benefits of CSB homes.

### **1.7 Performance levels**

#### **1.7.1 Target level**

There should be a series of levels with a minimum threshold. All levels should be practically achievable, in terms of skills, materials and technology. The minimum could be above the current Building Regulations level or the Code could start with something simple – eg current reasonably good practice – and flag up likely increases. The targets could be set at what would be cost-neutral or could be linked to high-level Government policy targets eg 60% reduction in CO<sub>2</sub> emissions, 25% reduction in waste to landfill etc. It was suggested that it would be good to have at least one development in each area that achieved the maximum so that people would be able to see it themselves.

#### **1.7.2 Application**

There needs to be a minimum standard for each issue (eg energy/water), which should not be tradable. Flexibility/tradability of performance allows developers to choose the most cost-effective balance but also causes some confusion with clients/consumers. Tradable performance should only be possible at higher levels of the Code.

#### **1.7.3 Links to legislative requirements.**

The approach/methodology and form of measurement should be compatible with Building Regulations otherwise it will cause confusion (eg different methods for assessing energy performance – U value/ carbon index etc) and the link should be explicit eg Code low-level target will become Building Regs requirement in 3 years etc.

## **2. ENERGY**

### **2.1 Code requirements**

### **2.2 Outline draft statement**

*“Buildings built to the Building Regulations 2006 will have an energy cost factor of “x”, / a SAP 2005 rating of “y” and target carbon dioxide emission rating of “z”. Indicative CSB requirements – expressed as an energy cost factor”*

### **2.3 Statement**

Both the Standard Assessment Procedure and CO<sub>2</sub>/m<sup>2</sup>/a were proposed as target indicators though the majority of participants preferred CO<sub>2</sub> for a variety of reasons. A minority considered that cost indices might be more meaningful to consumers but it was pointed out that the operating cost benefits between basic Building Regulations Part L 2006 compliance and lower carbon buildings might seem small. All agreed that calculation methods should be consistent with Part L.

### **2.4 Target**

There could be several target levels for the purpose of labelling (bronze, silver, gold, platinum?) but underlying performance measurements also need to be accessible to consumers. Also need to differentiate CSB from Energy Performance of Buildings Directive (EPBD).

No specific numerical targets were suggested but the qualitative implication of the levels could be similar to Energy Saving Trust (EST) (starting at a level equivalent to EST “Best Practice”).

### **2.5 Measurement**

Target levels for CO<sub>2</sub> can be set relative to Part L but there is a need for more data on Part L compliance and the relationship between design energy consumption and as-built energy consumption.

Participants agreed that compliance with the Code should be based on an initial design assessment plus post-construction verification.

### **2.6 Financial implications**

Achievement of the highest levels of carbon performance should not be expected to be cost effective solely on the basis of reduced energy costs for the consumer.

## ***CSB Workshop summary***

Developers are prepared to spend more on energy efficiency measures in housing provided there is a level playing field (minimum standards driven by regulation). Some carbon reduction measures are more cost effective when looked at across the whole development rather than individual houses eg community heating and renewable energy schemes.

### **2.7 Technology implications**

It is important to incentivise the reduction of summer over-heating and future proofing buildings against climate change.

### **3. WATER CONSUMPTION**

#### **3.1 Code requirements**

The objectives are to reduce consumption of metered water by the occupants of the building. CSB requirements expressed as a % reduction against a baseline.

#### **3.2 Outline draft statement**

*“Average daily water consumption is approximately 150 litres per person. One option is to establish a SAP equivalent for water and express in similar terms to energy performance. Indicative CSB requirement - express as a percentage saving in terms of net metered supplied.”*

#### **3.3 Statement**

The performance measure should reflect the designed-in potential to reduce consumption and not be a measure of the actual consumption; that is it should be an “asset rating” rather than an “operational rating” The target should reflect Regional variations in availability of water.

#### **3.4 Target**

A percentage reduction in the potential consumption of metered water as determined by an assessment of the specification (water use) of the water consuming fixtures and fittings and the potential to use alternative sources or to recycle used water.

Reduction is measured water use against a baseline that can be expressed as water consumed per person/person space.

A variable percentage reduction allows regional differences in water availability to be built into the assessment. The variation could be determined with the agreement of the local water supplier and the Environment Agency.

#### **3.5 Measurement**

The base line and percentage reduction should be:

- Set at a level that reflects what can be achieved now in a New Build using standard fittings that comply with Water Supply (Water Fittings) Regulations and related Guidance;
- Calculated using ‘moderately efficient’ installation items (eg 6/l flush toilet, standard bath etc).
- Checked against actual per capita consumption figures and actual consumption for New Build to ensure that it has validity.

## **CSB Workshop summary**

- Compliance with the Code should be validated by a post-build inspection. The impact of the Code should be assessed through long-term consumption (meter readings).

### **3.6 Financial implications**

Cost of water is not a driver with the end-user and therefore implementation of the Code should be seen as adding long-term value to the building and marketed to the purchaser as added value and quality.

Water efficient fittings are marginally more expensive but the differential is not large; payback periods can be relatively short. The total added cost should not be a significant barrier.

Rainwater harvesting using underground storage is a significant cost and may be a barrier. The cost of grey-water recycling is a barrier.

### **3.7 Technology implications**

Water efficient fixtures and fittings and appliances exist and are being developed. Significant potential savings are possible now.

The technology for rainwater harvesting exists at a range of scales from water butts to underground storage. There are issues relating to end-user acceptance of the larger scale systems.

Greywater use and water recycling technologies exist but have a limited track record and are best applied at Development level.

### **3.8 Other comments**

- There should be a simple measure that provides a value or index that takes into account the water consuming and water saving features of the building, both in terms of internal use and external use
- The only metrics used should relate to volume of water, cost should not be included.
- The Code needs to address the issue of run-off in the context of sustainable drainage. It may be appropriate to deal with this under flooding but where rainwater harvesting is installed it needs to be cross-referenced, either to avoid double counting or to provide double credits.

## 4. WASTE MANAGEMENT DURING CONSTRUCTION

### 4.1 Code requirements

### 4.2 Outline draft statement

*The objective is to reduce to zero the amount of construction waste sent to landfill - CSB requirements expressed as minimising amount of construction waste to landfill.*

### 4.3 Statement

**Base level** - The approach of measuring waste sent to landfill is a good base level.

**Higher levels** - The Code should promote good practice, probably through the implementation of Site Waste Management Plans), to address waste in other parts of the process (eg design waste, use of recycled materials).

### 4.4 Target

**Base level – Waste to landfill** - Either top quartile performance based on current M4I data – m<sup>3</sup> [of waste] per £100k turnover or link to high-level Government policy (such as the Egan waste reduction target - 20% reduction year on year - or EU target of 25% reduction in waste to landfill).

**Higher levels** - Waste at all stages of the process - The simplest target seemed to be that all sites adopt approved Site Waste Management Plans.

### 4.5 Measurement

**Base level - Waste to landfill** – m<sup>3</sup> waste per £100k project cost.

**Higher levels - Waste at all stages of the process** – The %age of sites using an approved Site Waste Management Plan.

### 4.6 Financial implications

**Base level - Waste to landfill** - Most waste minimization actions will lead to an improvement in bottom line profitability.

**Higher levels – Waste at all stages of the process** - The aspirational requirements might not be appropriate (or may be too onerous) for smaller sites – the Code may need to apply to sites above a certain size/value?

## ***CSB Workshop summary***

### **4.7 Technological implications**

**Base level - Waste to landfill** - The technologies are available; culture change is probably more of a problem. Awareness raising and incentives will be important eg Site Manager bonuses!

**Higher levels - Waste at all stages of the process** - Greater technological implications eg specifications for recycled materials, use of off-site manufacturing and standard components/sizes.

### **4.8 Other comments**

This element should cover demolition of existing facilities on the site and should also include contaminated land and waste. In addition current complications (eg definition of waste) need to be resolved.

## **5. HOUSEHOLD WASTE MANAGEMENT DURING OCCUPATION**

### **5.1 Code requirements**

### **5.2 Outline draft statement**

*Provide adequate collection facilities in each unit for recyclable materials collected by the statutory body.*

### **5.3 Statement**

**Base levels** – Current proposed statement accepted as a base/minimum level.

**Higher aspirational levels** - The Code should also require some form of space allowances for recycling facilities (to allow for changing local authority demands in line with EU requirements).

### **5.4 Target**

**Base levels** - all buildings should provide facilities requested by the local authority, there should be a formal statement/agreement (signed off by the local authority?), and information about the recycling collection scheme should be provided as part of the homebuyers' information pack.

**Higher/ aspirational levels** - further data/research needed before space standards/requirements can be set.

### **5.5 Measurement/verification**

**Base levels** – Proof of an agreement with the local authority for all properties.

**Higher/ aspirational levels** – Space provision assessed at the time of Building Control checks.

### **5.6 Financial implications**

There are financial implications of both levels/ approaches – the provision of extra space will have an additional cost (typically about £1000 for 1m<sup>3</sup>?).

### **5.7 Technological implications**

**Base levels** – No technological difficulties with this approach.

## ***CSB Workshop summary***

**Higher/ aspirational levels** – Need to identify good practice in collection methods, user behaviour and convenience of different space provision in order to set the space standard requirements.

### **5.8 Other comments**

User variability is a key factor in the uptake of these schemes.